

# Innovation & Technology

## Overview

With opportunities brought by the National 14th Five-Year Plan and the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), Hong Kong can capitalise on its advantages in R&D capabilities, technology infrastructure, legal system and intellectual property to act as a strategic bridge for innovative companies looking to access the Mainland market, thereby developing into an international innovation and technology hub.

The current-term Government is promoting innovation and technology (I&T) development along eight major areas: increasing resources for R&D, pooling technology talent, providing investment funding, providing I&T infrastructure, reviewing existing legislation and regulations, opening up government data, leading changes to procurement arrangements, and popularising science education. So far, the current-term Government has committed over \$150 billion (US\$19.2 billion) to various initiatives in these eight areas.

## Innovation and technology stakeholders

- **Hong Kong Science Park** is home to about 1,000 technology companies, providing them with infrastructural and one-stop support.
- **Cyberport** is a creative digital community with over 700 companies.
- **Hong Kong Science and Technology Parks Corporation** (HKSTPC) has set up a subsidiary company – Hong Kong-Shenzhen Innovation and Technology Park Limited – to build, operate, maintain and manage the Hong Kong-Shenzhen Innovation and Technology Park (HSITP) in Lok Ma Chau Loop (Loop).
- Five research centres established by the Government, namely the **Automotive Platforms and Application Systems R&D Centre**, the **Hong Kong Applied Science and Technology Research Institute**, the **Hong Kong Research Institute of Textiles and Apparel**, the **Logistics and Supply Chain MultiTech R&D Centre**, and the **Nano and Advanced Materials Institute**, drive applied R&D in selected focus areas and foster commercialisation of R&D outcomes and technology transfer.
- The **Hong Kong Academy of Sciences** and the **Hong Kong Young Academy of Sciences** advise the Government on research and technology-related policies.
- The **Massachusetts Institute of Technology** set up its first overseas Innovation Node in Hong Kong in 2016.
- **Karolinska Institutet** (Sweden) opened a research facility at the Hong Kong Science Park in 2016 to strengthen research in regenerative medicine.
- **Hong Kong-Mainland collaboration**: There are currently 16 State Key Laboratories in Hong Kong and 6 Hong Kong Branches of Chinese National Engineering Research Centres. The Innovation and Technology Commission will double the annual funding for these institutions to \$440 million starting from 2022-23 financial year to strengthen support for R&D activities and promote further co-operation and exchanges with institutions in the Mainland.

- The **Ministry of Science and Technology (MOST)** and the Hong Kong Special Administrative Region Government (HKSAR Government) signed the “Arrangement on Enhancing Innovation and Technology Cooperation between the Mainland and Hong Kong” and the “Agreement on Commencing Jointly Funded Projects between the MOST and the Innovation and Technology Bureau of the HKSAR Government” in September 2018.
- The Chinese Academy of Sciences (CAS) and the HKSAR Government signed the “Memorandum of Understanding on Establishing Affiliated Institution by the CAS in Hong Kong” in November 2018.

### **I&T infrastructure**

- Provide new land mainly for I&T development from the Ma Liu Shui reclamation project and the relocation of the Sha Tin Sewage Treatment Works to caverns. Develop the Loop in to the HSITP. First batch of eight buildings is expected to be completed in phases starting from end-2024.
- The HSITP and areas around Lok Ma Chau/San Tin to consolidate to form the **San Tin Technopole**. The San Tin Technopole, together with the Shenzhen Innovation & Technology Zone (SZ I&T Zone), will form the **Shenzhen-Hong Kong Innovation & Technology Co-operation Zone of approximately 540 hectares**.
- Hong Kong and Shenzhen are taking forward the joint development of the Shenzhen-Hong Kong Innovation & Technology Co-operation Zone, comprising of the HSITP and the SZ I&T Zone, to establish the “one zone, two parks” initiative under the auspices of “one country, two systems”.
- Hong Kong and Shenzhen governments signed the **“Co-operation Arrangement on the Establishment of 'One Zone, Two Parks' in the Shenzhen-Hong Kong Innovation and Technology Co-operation Zone at the Loop”** (Co-operation Arrangement) in September 2021. Under the Co-operation Arrangement, the HKSTPC will kick start the establishment of the Shenzhen branch of Hong Kong Science Park (HKSP) in the SZ I&T Zone, allowing institutes and enterprises that are interested in starting business in the GBA to first establish presence in the Co-operation Zone. At the same time, in order to attract talent and enterprises to develop in the Co-operation Zone, the governments of both sides have launched the Joint Policy Package for the Shenzhen-Hong Kong Innovation and Technology Co-operation Zone to provide measures conducive to the flow of talent, scientific research resources and business development etc.
- The HKSTPC will set up **InnoAcademy of the GBA** in the Shenzhen Branch of the HKSP to serve as a resource centre, training hub, and exchange platform for talent.
- The HKSTPC will also set up **InnoExpress of the GBA** to nurture start-up and provide business development support for Hong Kong and Mainland I&T enterprises.
- Hong Kong is a leading digital economy, consistently achieving top rankings in digital readiness and Internet access capabilities. Hong Kong has 12 **submarine cable systems** and operates 9 **satellites** for external communications. Several submarine cable systems will be ready in the coming years, enhancing the city’s connectivity with other parts of the world.
- The **Re-industrialisation Funding Scheme** was launched in 2020 to subsidise manufacturers, on a matching basis, to set up smart production lines in Hong Kong.
- The **Advanced Manufacturing Centre (AMC)** in the Tseung Kwan O InnoPark is ready for tenants’ move-in from the second quarter of 2022, providing a gross floor area of about 108,600 square metres for accommodating high value-added manufacturing. The HKSTPC has also started planning for the construction of the second AMC.
- The HKSTPC is developing the **Microelectronics Centre** in the Yuen Long InnoPark, which is expected to be completed in 2023.

- The **Data Technology Hub** in Tseung Kwan O commenced operation, providing a purpose-designed infrastructure for the data technology and telecommunications services industry.
- **Expand Cyberport** to provide additional space for technology companies and start-ups. Construction is expected to complete in 2025 at the earliest.
- Earmark \$3 billion for Stage 2 of the **Hong Kong Science Park Expansion Programme**. The occupancy rate of the two buildings under the Stage 1 expansion is close to 98%.

### **Promoting R&D**

- Universities and research institutions in Hong Kong can apply for **Mainland science and technology funding** for use in Hong Kong. This policy allowing cross-boundary remittance of research funding injects further impetus into Hong Kong's research sector. Up to end 2021, the MOST, the National Natural Science Foundation of China, the Department of Science and Technology of Guangdong Province, the Science and Technology Bureau of Guangzhou Municipality, the Science, Technology and Innovation Commission of Shenzhen Municipality and other Mainland provinces and cities have approved about RMB 620 million (about \$760 million) for universities and research institutes in Hong Kong to conduct R&D or set up laboratories.
- In September 2021, the MOST announced **a series of new measures benefitting Hong Kong** which include opening up more national-level science and technology programmes to Hong Kong, allowing young academics in Hong Kong to apply for the "Young Scientists Fund" under the National Natural Science Foundation of China, welcoming personnel and experts in Hong Kong's science and technology sector to participate in nationwide academic associations of the China Association for Science and Technology as well as be admitted to the National Science and Technology Expert Database and the Award Assessment Expert Database, enhancing the mechanism on shared use of large-scale instruments and equipment for R&D with Hong Kong, deepening science and technology exchanges between people in the Mainland and Hong Kong, and supporting Hong Kong to participate in the setting up of a National Center of Technology Innovation.
- Establish **InnoHK research clusters** at the Hong Kong Science Park. The first two clusters are Health@InnoHK focusing on healthcare technologies, and AIR@InnoHK on artificial intelligence (AI) and robotics technologies. 28 research laboratories under InnoHK have commenced operation, involving 7 local universities and research institutions as well as over 30 institutions from 11 economies.
- Set aside \$10 billion to further promote development of life and health technology and set up an **InnoLife Healthtech Hub** in the HSITP.
- Set up a dedicated fund to finance local universities or research institutes to participate in national R&D projects.
- The inaugural **City I&T Grand Challenge** was launched 2020, inviting I&T solutions to tackle problems facing the city and people in their daily lives and promote the adoption of I&T.
- Local R&D innovations have made a substantial contribution to the battle against COVID-19, address livelihood needs and commercialise efforts.

### **Nurturing and pooling talents**

- The **Global STEM Professorship Scheme** attracts more world renowned scholars to engage in I&T-related teaching and research activities in Hong Kong.

- The **Research Talent Hub** provides funding support to each eligible company or organisation to engage up to four research talents to conduct R&D work.
- The **Technology Talent Admission Scheme** provides a fast-track arrangement for admitting technology talent from the Mainland and overseas to work on R&D in Hong Kong..
- The **STEM Internship Scheme** provides allowance to STEM undergraduates and postgraduates of local universities to enroll in short-term I&T-related internships.
- The **Innovation and Technology Scholarship** subsidises university students to take part in overseas/Mainland attachment programmes, local internships, mentorship programmes, etc.
- The \$500 million **IT Innovation Lab in Secondary Schools Programme** and \$200 million **"Knowing More About IT" Programme** provide funding support to all publicly funded secondary and primary schools respectively to nurture an IT learning atmosphere among students and cultivate their interest in IT through organising IT-related extra-curricular activities.
- The **GBA Youth Employment Scheme** assists Hong Kong youth who aspire to the I&T sector in developing their career in GBA.
- The **Re-industrialisation and Technology Training Programme** provides funding support to local enterprises on a matching basis to train their staff in advanced technologies, especially those related to "Industry 4.0".

### **Supporting start-ups**

- **3,755 start-ups** in Hong Kong in 2021 (up 68% over 2017), and **13,804 start-up jobs** (up 118% over 2017) according to the 2021 start-up survey by InvestHK.
- \$2 billion **Innovation and Technology Venture Fund** (ITVF) set up by the Government to co-invest on a matching basis with selected private venture capital funds in Hong Kong. In the past three years, the ITVF has invested about \$200 million in 26 local start-ups and attracted about \$1.67 billion in private investment.
- Set up a \$5 billion **Strategic Tech Fund** to invest in enterprises with good development potential to enrich the I&T ecosystem in Hong Kong.
- **Private sector:** Alibaba Group launched a \$1 billion Hong Kong Entrepreneurs Fund; Sequoia Capital initiated the Hong Kong X-Tech Startup Platform.
- **Cyberport: Cyberport Incubation Programme** and \$200 million **Cyberport Macro Fund** (CMF) to provide initial venture capital funding support for start-ups to scale up and accelerate their progress. Cyberport has injected an additional \$200 million into the CMF in April 2021 and extended its scope to cover Series B and later stage investments. As at end February 2022, CMF has invested more than \$168 million in 21 companies, attracting over \$1.466 billion private investment.
- The **HKSTPC** has invested over \$277.2 million in 22 technology start-ups through its **Corporate Venture Fund**, attracting over \$4.3 billion private investment. \$350 million has been injected into the fund to extend its scope to cover Series B and later stage investments.
- The HKSTPC implemented "**HKSTP Incubation**", "**Incu-Bio**" and a pre-incubation programme "**IDEATION**" to support I&T companies at different stages of development.
- The **InnoCell**, adjacent to Hong Kong Science Park, has been completed. It provides about 500 residential units with ancillary facilities to foster the development of the I&T ecosystem in Hong Kong. Successful applicants have been moving in from July 2021.
- The **Technology Start-up Support Scheme for Universities** doubles the annual subsidy amount to \$16 million to each participating university to support their teams in starting technology

businesses and commercialising their research and development results. The increased subsidy will be provided to start-ups of universities with private investments on a matching basis of one to one.

- The **Technology Voucher Programme** provides funding support to assist local enterprises and organisations in using technological services and solutions to improve productivity, or upgrade or transform their business processes.
- The **Public Sector Trial Scheme** provides funding support to assist eligible local technology companies and organisations in realising and commercialising their R&D outcomes and encourages public sector organisations to utilise more local R&D outcomes.
- The **E&M InnoPortal** lists the service wishes of various government departments, public organisations and the E&M trades, and invites the I&T sector, including start-ups and universities to propose relevant I&T solutions for matching.

### **Smart city**

- **Hong Kong Smart City Blueprint 2.0:** more than 130 initiatives categorised under major areas, namely "Smart Mobility", "Smart Living", "Smart Environment", "Smart People", "Smart Government", "Smart Economy", "Use of I&T in Combating COVID-19" and "Smart Village Pilots", to bring benefits and convenience to members of the public in their daily lives.
- **Smart City key infrastructure projects:** "iAM Smart" platform (offering around 200 commonly used public and commercial online services as at mid-April 2022); smart lampposts; Next Generation GovCloud; and Big Data Analytics Platform.
- **5G network** now covers over 90% of Hong Kong.
- The 2022-23 Budget earmarked \$600 million to conduct a comprehensive **e-government audit** for the information systems and services of bureaux and departments with a view to accelerating digital government development.
- The 2020-21 Budget earmarked around \$1 billion for the **Smart Traffic Fund** to provide funding support for research and application on vehicle-related I&T.
- \$100 million has been allocated to develop an **integrated digital platform** for data integration and information exchange of all public works projects.
- **The Geospatial Lab**, established in May 2021, helps raise public interest in spatial data, and explores together with the community value and application of spatial data in support of smart city development.
- **Wi-Fi Connected City** programme: to further expand common brand Wi-Fi.HK coverage in Hong Kong, with over 44,500 "Wi-Fi.HK" hotspots at present.
- **Asia-Pacific No.1 and World No.2 in IMD World Digital Competitiveness Ranking 2021**, which rates the ability of an economy to adopt new digital technology.
- **World No.6 and Asia-Pacific No.2** data centre market (Cushman & Wakefield: 2022 Global Data Center Market Comparison)
- **World No.1** lowest taxed data centre market (Cushman & Wakefield: 2022 Global Data Center Market Comparison)
- **Asia-Pacific No.2 and World No.3 for digital intelligence** (Digital Intelligence Index 2020 compiled by US-based The Fletcher School at Tufts University and Mastercard)
- **South East Asia & Oceania No.5 and World No.14 in World Intellectual Property Organization's Global Innovation Index 2021**, which rates the innovation performance of 131 economies worldwide.

- **World No.3 and Asia-Pacific No.1** hub for development of new technology (Smart Centres Index by UK-based Z/Yen published in May 2022)
- Hong Kong is currently **Asia's largest and the world's second largest fundraising hub for biotechnology**.

## **Fintech**

- Over **600 fintech companies** operating in Hong Kong, and 5 of them are unicorns; around **\$14 billion (US\$1.8 billion)** raised between **2019 and 2021**.
- Major fintech infrastructure includes the **Faster Payment System** [with over 10 million registrations as at the end of March 2022; the average daily turnover reached 831,000 real-time transactions (worth \$6.3 billion and RMB200 million) in March 2022] and a **blockchain-based "eTradeConnect" trade finance platform** (As of November 2021, cross-border trade finance transactions of trade value amounted to about \$87 million were conducted through the pilot run for banks in Hong Kong and the Mainland using the connected trade platforms).
- **8 virtual banks, 4 virtual insurers, 1 virtual asset trading platform and 15 stored value facilities/e-wallets** granted licences. An **Open Application Programming Interface (Open API) Framework** for the banking sector being implemented in phases.
- **Fintech Proof-of-Concept Subsidy Scheme** provides financial incentives for financial institutions to partner up with fintech companies to conduct Proof-of-Concept projects. A new round of the Scheme will be launched with \$10 million funding earmarked in the 2022-23 Budget.
- **Regulatory sandboxes** available in the Hong Kong Monetary Authority, the Securities and Futures Commission and the Insurance Authority.
- **InvestHK's dedicated fintech team** provides one-stop service for overseas and Mainland fintech companies to set up in Hong Kong; and organises a series of Fintech events over the year, including the annual flagship **Hong Kong Fintech Week**.

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