

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 (I&T) centre.

The HKSAR Government promulgated the Hong Kong Innovation and Technology Development Blueprint in December 2022 to establish a clear development path and formulate systematic strategic planning for Hong Kong's I&T development over the next five to 10 years, charting Hong Kong in moving full steam towards the vision of an international I&T centre. The Government has formulated the Blueprint from the perspective of top-level planning and design, and will take forward the Blueprint under four broad development directions, namely "to enhance the I&T ecosystem and promote 'new industrialisation' in Hong Kong"; "to enlarge the I&T talent pool to create strong impetus for growth"; "to promote digital economy development and develop Hong Kong into a smart city"; and "to proactively integrate into the overall development of the country and consolidate our role as a bridge connecting the Mainland and the world".

I&T 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**, **Hong Kong Applied Science and Technology Research Institute**, **Hong Kong Research Institute of Textiles and Apparel**, **Logistics and Supply Chain MultiTech R&D Centre**, and **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 into 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 has doubled the maximum 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 overseas and Mainland institutions.

- 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. Move full steam ahead with the construction of the HSITP in the Lok Ma Chau Loop. First batch of eight buildings are expected to be completed in phases starting from end-2024.
- Moving ahead with the construction the HSITP and areas around Lok Ma Chau/San Tin to form the **San Tin Technopole** in the Northern Metropolis which, together with the Shenzhen Innovation & Technology Zone (SZ I&T Zone), will form the **Shenzhen-Hong Kong Innovation & Technology Co-operation Zone**.
- 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, HKSTPC will establish the Shenzhen branch of Hong Kong Science Park (HKSP) in the SZ I&T Zone, allowing institutes and enterprises interested in starting business in the GBA to first establish a presence in the Co-operation Zone. At the same time, 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 set up **InnoAcademy of the GBA** in July 2022 to serve as a resource centre, training hub, and exchange platform for talent.
- The HKSTPC also set up **InnoExpress of the GBA** in July 2022 to nurture start-up and provide business development support for Hong Kong and Mainland I&T enterprises. The Shenzhen branch of HKSP is expected to open in the first half of 2023.
- 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 Government aims to

increase the cumulative number of funded smart production lines to over 130 in five years.

- The **Commissioner for Industry, a new post**, will be created to co-ordinate and steer re-industrialisation and help the manufacturing sector upgrade and transform with I&T. 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. Construction of the second AMC at the Tai Po InnoPark will also be explored. 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.
- The **expansion works of the Science Park and Cyberport** will be completed in phases from 2025 onwards, providing 100,000 square metres of additional floor area. To incentivise collaboration among industry, academic and research sectors to further promote the "from 1 to N" transformation of R&D outcomes and the industry development, \$10 billion has been earmarked for launching the "**Research, Academic and Industry Sectors One-plus Scheme (RAISe+ Scheme)**" in 2023 to fund, on a matching basis, at least 100 university research teams with potential to become I&T start-ups.
- **Promote the development of technology industry by collaborating with the Office for Attracting Strategic Enterprises (OASES)** and making use of the \$5 billion **Strategic Tech Fund** as well as the land and space provided for I&T use starting from 2024 in the HSITP, to attract high-quality enterprises and talents to Hong Kong, primarily focusing on life and health technology, artificial intelligence and data science, advanced manufacturing and new energy technology. We aim to **attract not less than 100 high-potential or representative I&T enterprises** to set up or expand their businesses in Hong Kong in the coming five years, including at least 20 top-notch I&T enterprises, bringing more than \$10 billion of investment to Hong Kong and creating thousands of local job opportunities.
- Explore the development of cavern data centres for effective use of land resources and utilisation of the edge of cavern space to support I&T development.

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 June 2022, 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 670 million (about \$790 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.
- Launched in 2020, the inaugural City I&T Grand Challenge received more than 740 submissions to tackle problems facing the city and people in their daily lives. The Grand Pitch cum award presentation ceremony was successfully held in October 2021. Winning solutions of University/Tertiary Institutes and Open Groups are given financial support and training for refining their I&T solutions and developing prototypes for trials at over 50 organisations and community groups. The first City I&T Grand Challenge: The Showcase was held in October 2022 where prototypes developed by the winning teams were revealed to the public for trial through real-life scenarios for the first time.
- 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. Subsidies will be increased by about 10%, and research talents with a doctoral degree will also be provided with a living allowance.
- The **Technology Talent Admission Scheme (TECHTAS)**, which provides a fast-track arrangement for admitting technology talent from the Mainland and overseas to work on R&D in Hong Kong, will be enhanced by lifting the local employment requirement, extending the quota validity period to two years and expanding the coverage to more emerging technology areas.
- The **STEM Internship Scheme** provides allowance to STEM (science, technology, engineering and mathematics) undergraduates and postgraduates of local universities to enroll in short-term I&T-related internships. The scheme will be expanded to cover university students studying STEM programmes at GBA campuses established by designated local universities. Besides, the five government-funded R&D centres and the Hong Kong Productivity Council will offer internship opportunities to STEM students of local and non-local universities.
- 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 by organising IT-related extra-curricular activities.
- The **GBA Youth Employment Scheme** assists Hong Kong youth who aspire to the I&T sector develop their careers in the GBA.
- The **Re-industrialisation and Technology Training Programme** provides funding support to local enterprises on a 2(Government):1(enterprise) matching basis to train their staff in advanced technologies, especially those related to "Industry 4.0".
- Collaborating with the OASES to **attract leading I&T talents around the world**, and providing special facilitation measures to bring their business or R&D outcomes to Hong Kong.
- **More accommodation facilities will be built for I&T talents**, including a potential new InnoCell near Science Park and accommodation facilities at the HSITP.
- Permit flexible planning to provide **additional accommodation for I&T talents at San Tin Technopole**.

Supporting start-ups

- **3,985 start-ups** in Hong Kong in 2022 (up 52% over 2018), and **14,932 start-up jobs** (up 56% over 2018) according to the 2022 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. As at end October 2022, the ITVF has invested about \$200 million in 27 local start-ups and attracted about \$1.7 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 October 2022, CMF has invested more than \$175 million in 23 companies, attracting over \$1.55 billion private investment.
- The **HKSTPC** has invested over \$316 million in 27 technology start-ups through its **Corporate Venture Fund**, attracting over \$5.8 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 gradually moving in from mid-June 2021.
- The **Technology Start-up Support Scheme for Universities** provides an annual subsidy amount of \$16 million to each participating university to support their teams in starting technology businesses and commercialising their research and development results. Half of the subsidy is 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.
- The **Smart Government Innovation Lab** promotes pro-innovation government procurement policy and expedite government bureaux and departments' adoption of innovative IT products and solutions, thereby improving public services and creating more business opportunities for local start-ups and SMEs.

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 over 200 commonly used public and commercial online services as at mid-November 2022); smart lampposts; Next Generation GovCloud; Big Data Analytics Platform and Shared Blockchain Platform.
- **5G network**, which now covers over 90% of Hong Kong, will be expanded by amending legislation to ensure that appropriate space is made available in new buildings for mobile communication facilities.
- Complete **e-government audit** for all government departments and use advanced information technology to **implement 100 new digital government initiatives by 2025** with a view to accelerating digital government development and providing more convenient public services.
- Aim to turn all government services online by 2024 and provide one-stop digital services by fully adopting "iAM Smart" by 2025 to realise **a single portal for online government services**.
- Providing funding support, through the \$1 billion Smart Traffic Fund, to local institutions and enterprises for conducting research and application of technology to enhance commuting convenience and efficiency of road network or space, and improve driving safety. \$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.
- The Government will continue to **open up data** and encourage public and private organisations to follow suit for innovative industry applications. Explore arrangements for the flow of data from the Mainland to Hong Kong to **jointly promote co-ordinated development of smart cities in the GBA**. **Wi-Fi Connected City** programme: to continue promoting the common brand "Wi-Fi.HK" and encourage more public and private organisations to participate in the programme. There are currently more than 46,400 "Wi-Fi.HK" hotspots in Hong Kong.

- **Asia-Pacific No.3 and World No.9 in IMD World Digital Competitiveness Ranking 2022**, 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 2022**, 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 trials.
- **Regulatory sandboxes** available in the Hong Kong Monetary Authority (HKMA), 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**.
- **Commercial Data Interchange** provides a one-stop platform for enterprises to share operational data, enabling banks to make accurate assessments on the operating condition of enterprises and provide SMEs with a better chance of securing loans.
- The HKMA is **preparing to issue "e-HKD"** and collaborating with Mainland institutions to **expand the testing of "e-CNY"** as a cross-boundary payment facility in Hong Kong, taking forward more cross-boundary Fintech projects.

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