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Promoting Hong Kong as a Global Innovation Center Through Government-Industry-Academia-Research-Investment Collaboration

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Building an international innovation and technology center is an important strategic development direction for Hong Kong and a key driving force for Hong Kong's economy to achieve high-quality development. In recent years, the measures taken by the SAR Government to promote the development of innovation and technology have gradually achieved results. Hong Kong ranks among the top in the fields of innovation and science. According to the World Digital Competitiveness Ranking 2024 by the International Institute for Management Development in Lausanne, Switzerland, Hong Kong ranks 3rd in the Asia-Pacific region and 7th globally. The Smart Center Index published by the British financial think tank Z/Yen in 2024 places Hong Kong second in the Asia-Pacific region and 12th in the world for research and development of new technology centers. Additionally, according to the World Intellectual Property Organization's Global Innovation Index 2024, Hong Kong ranks 5th in Southeast Asia and Oceania and 18th in the world. In 2024, the Chief Executive's Policy Address once again focused on the construction of an international innovation and technology center, and introduced a series of measures aimed at promoting close cooperation among " Government-Industry-Academia-Research-Investment". The author believes that this concept is crucial for the government to promote the establishment of an international innovation and technology center. Various support policies to promote the development of science and technological innovation will be designed around enhancing the close cooperation between "Government-Industry-Academia-Research-Investment".

The collaborative innovation of "Government-Industry-Academia-Research-Investment" requires the efficient integration of innovation elements such as government, enterprises, universities, scientific research institutions and investors to form an innovation system. Within this system, innovation power is constantly stimulated, achieving positive feedback and enabling high-quality and efficient innovation goals. The government plays an important role as a promoter of the development of science and technology industries, and mainly undertakes the function of guiding and supporting science and technology policies. Looking at the successful development of science and technology industries in various countries (regions), it is basically inseparable from the active planning and promotion of the government. "Industry- Academia -Research" generally refers to innovative enterprises, academic circles and research institutions, which are the most important direct contributors to innovation output, representing the complete industrial chain across the upstream, midstream and downstream segments of technological innovation. The synergy among "Industry-Academia-Research" can form a powerful comprehensive advantage by integrating research, development and production. As the economic structure of Hong Kong is relatively simple, the

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synergy effect of “Industry-Academia-Research” has not yet reached its full potential. The transformation of some good R&D achievements in Hong Kong also faces constraints related to market size. Investment is an indispensable condition for innovation activities, closely related to the long cycles and high risks associated with such endeavors. Significant funding is required for R&D, trial production and mass production. Only by meeting the demand for funds at different stages of the whole life cycle of innovation activities can we fully stimulate and transform innovation activities.

I. Politics: the Designer of the Blueprint for the Development of Creative Industries

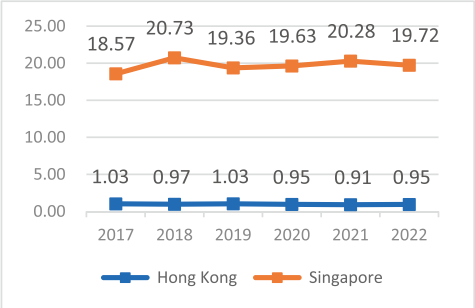
The SAR Government actively plans and takes the initiative, fully cooperates with national strategies such as the 14th Five-Year Plan and the Greater Bay Area Plan, actively implements the spiritual requirements of the Third Plenary Session of the 20th Central Committee, and vigorously promotes the construction of Hong Kong into an international science and technology innovation center. At the end of 2021, the government promulgated the Development Strategy of the Northern Metropolis, which clearly established the industrial layout of “finance in the south and science and technology in the north”, positioning the development of science and technology industries as a key direction for driving economic transformation. At the end of 2022, the Blueprint for Hong Kong’s Innovation and Technology Development was published, which formulated a clear development path and systematic strategic plan for Hong Kong’s innovation and technology development over the next five to ten years. It proposed four development directions and eight strategies, aimed at accelerating the formation and development of “new quality productivity” with Hong Kong’s advantages, and led Hong Kong to realize its vision of becoming an international innovation and technology center.

In this year’s policy address, the construction of an international innovation and technology center remains an important planning element. The government outlined specific strategies across eight areas, such as improving the new industrial development strategy and system construction, promoting the third InnoHK research cluster, expanding research funding, increasing investment in innovation and technology industries, attracting international start-up accelerators to settle in Hong Kong, developing the low-altitude economy, promoting the development of communication technology, and promoting aerospace technology R&D. These initiatives further highlight the role of a “promising government”. From the perspective of all elements of the creative industry, the report proposes building a regional intellectual property trade center, building an international medical innovation hub, promoting the integration and development of the digital economy and real economy, creating a highland for international high-end talents gathering, promoting diversified economy, promoting the development engine of the Northern Metropolis and deepening Greater Bay Area cooperation. Many of these policies are characteristic elements of the international innovation center. In this policy address, it proposes to set up the Hong Kong New Industry Development Alliance to promote close cooperation among Government-Industry-Academia-Research-Investment, to provide more financing opportunities for new industrial cooperation, and to promote the cooperation between newly listed enterprises in Hong Kong and local universities in science and technology creation, so as to further strengthen the important role of “new industrialization” in promoting the development of science and technology creation.

II. Production: Cultivating and Introducing Leading Enterprises Based on the Principle of Industrial Orientation

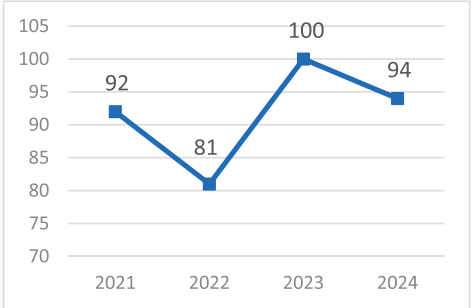
Leading enterprises in the upstream and downstream of the industrial chain are the core subjects for addressing key technical challenges and transforming major scientific and technological achievements. Promoting the formation of innovative clusters by leveraging leading enterprises to connect upstream and downstream companies is one of the successful strategies in building innovative industrial parks worldwide, aimed at improving innovation efficiency. However, Hong Kong’s manufacturing industry accounts for less than 1% of GDP, far lower than Singapore’s nearly 20% (Figure 1). According to the Report on Global Innovation Index in 2024 published by the World Intellectual Property Organization, Hong Kong ranks 94th among 133 economies in terms of its domestic industrial diversification index of (Figure 2), highlighting a disadvantage in innovation and technology of Hong Kong. In view of the lack of industrial development in Hong Kong, the Hong Kong government has made various measures to set up the “New Industrial Development Office” this year, focusing on the development of life and health technology, artificial intelligence and data science, advanced manufacturing and new energy technology – areas where Hong Kong has international advantages. The government will launch a HK$10 billion “New Industry Acceleration Plan” to support strategic industries in setting up new smart production facilities in Hong Kong to achieve mass production. Additionally, it will publish “Hong Kong Hydrogen Energy Development Strategy”, committing to developing new energy industries and creating an environment conducive to the development of local hydrogen energy. As of August this year, the Innovation, Technology and Industry Bureau and the Office for Introducing Key Enterprises have engaged with more than 100 key science and technology enterprises to establish or expand their operations in Hong Kong.

Figure 1: Manufacturing as a percentage of GDP in Hong Kong and Singapore



Source: Wind, Hong Kong Financial Research Institute of Bank of China

Figure 2: Global Innovation Index Ranking of Hong Kong's Industrial Diversification



Source: WIPO, Hong Kong Financial Research Institute of Bank of China

This year's policy address emphasizes the development of four major industries: low-altitude economy, communication technology, aerospace technology and new energy. For the low-altitude economy, a "Working Group on Developing Low-altitude Economy" will be set up, headed by the Deputy Financial Secretary, to formulate development strategies and inter-departmental action plans, formulate laws and regulations and build systems, and study and deploy infrastructure and networks. In terms of the development of communication technology, the government will simplify the examination and approval process for applying for operating a low-orbit satellite license, and provide more suitable radio spectrum to the market in a timely manner to reduce communication costs. For space science and technology research and development, a research center will be set up under the InnoHK research and development platform to participate in the Chang 'e-8 mission and contribute to the country's space development. Regarding new energy development, about HK$750 million has been reserved in the New Energy Transportation Fund to subsidize the taxi industry and franchised bus companies to purchase electric vehicles, and a pilot scheme for subsidizing heavy vehicles with hydrogen fuel cells has been launched. The government will set consumption targets for sustainable aviation fuel (SAF), develop sustainable aviation and green marine fuel supply chain, promote green hydrogen and low-carbon hydrogen energy, and prepare a certification model for Hong Kong's hydrogen energy standard. These measures show the government's approach of planning based on the principle of industry orientation, which is expected to provide more favorable conditions for Hong Kong's economic transformation.

III. Learning: Leveraging Hong Kong's Unique Advantages in Science and Technology

Colleges and universities are important players in basic research and the research of key frontier technologies within the upstream and downstream of the industrial chain. They play an important role in cultivating, transporting and gathering talents, serving as important institutions for fostering a robust innovation ecology and culture across society. Hong Kong's higher education enjoys a high reputation in the world. In the latest Times Higher Education World University Rankings and QS World University Rankings, five local universities are among the top 100 universities in the world with good results. It is the only city in Asia with five top 100 universities in the world. In this year's Stanford University's list of "Top 2% Scientists in the World", 1,534 scholars in Hong Kong were selected for the annual influence list. These advantages are valuable resources for Hong Kong to build an international science and technology center, which should be actively used to further promote the gathering of all forces in the science and technology industry.

This year's policy address focuses on various aspects after last year's goal of building Hong Kong into an international tertiary education hub. If the brand of "Studying in Hong Kong" is put forward, it is a concrete measure to further promote this goal. This initiative not only aligns with Hong Kong's existing advantages, but also complements the transformation of Hong Kong's economic structure and the construction of an international science and technology center. It embodies Chief Executive John Lee Ka-chiu's policy philosophy of "strengthening and perfecting what is needed" and "consolidating the foundation", aimed at enhancing Hong Kong's advantages while actively exploring new areas of development. To promote the development of applied science universities, the Metropolitan University of Hong Kong has been accepted as the first applied science university, and the alliance of applied science universities will be established this year to strengthen exchanges and cooperation among applied science universities around the world. The government has allocated HK$100 million as the start-up capital of the alliance. Additionally, the construction of Beidu University Education City is underway, with at least 80 hectares of land reserved in the Northern Metropolis. A "Concept Development Outline of Beidu University Education City" is planned for publication in the first half of 2026. This measure can enhance the synergy effect through sharing resources and industrial linkages in the region, attract more

overseas academic and research talents to Hong Kong, and provide basic research support for building Hong Kong into an international innovation center, thereby boosting the development of Hong Kong's innovation industry.

IV. Research: Consolidating the Solid Foundation of Scientific and Technological Research and Development

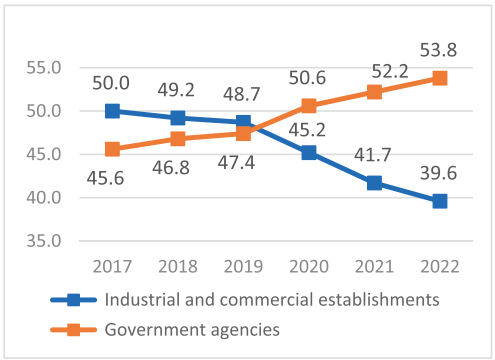
Research institutions and R&D platforms can gather a large number of high-end talents and provide them with strong institutional support, technical support and comprehensive service support for innovation and cooperation. At present, Hong Kong has 16 State Key Laboratories and six Hong Kong Branches of the Chinese National Engineering Research Centers, covering fields such as medicine, agricultural biotechnology, environmental protection and chemistry. These institutions have high-level scientific research teams and advanced scientific research equipment, with related technical fields occupying a leading position in the world. They provide high-level engineering technology research and consulting services for the industry. In addition, Hong Kong Science Park has built two InnoHK Innovation R&D Platforms, including Health@InnoHK, which focuses on medical technology, and AIR@InnoHK, which focuses on artificial intelligence and robotics. It has gathered about 2,500 local and global researchers and is an important infrastructure for scientific research and development in Hong Kong.

This year's policy address continues to strengthen the research infrastructure, proposing to carry out preparations for the construction of the third InnoHK R&D platform, focusing on advanced manufacturing, materials, energy and sustainable development, and attracting world-class scientific research teams to cooperate with local universities. It also proposes to improve the legal framework of intellectual property rights and strengthen the protection of R&D innovation and creative achievements. This includes next year's proposal to strengthen the Copyright Ordinance to protect the development of artificial intelligence technology, as well as plans to consult on the current system of registered designs next year. It will also promote the optimization of intellectual property litigation procedures, participate in the database of legal judgments of the World Intellectual Property Organization, and share important intellectual property cases of Hong Kong courts, so as to provide robust legal protection for scientific and technological research in Hong Kong.

V. Investment: Urgently Stimulating the Enthusiasm of Private Capital

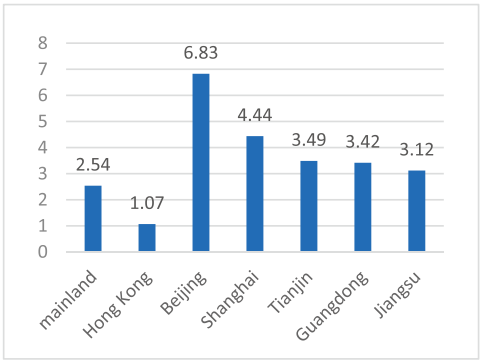
Banks, venture capitalists, funds and other financial institutions are crucial for providing financial support and financial services for scientific and technological innovation. A multi-level, multi-channel and diversified innovation investment mechanism is key to the successful development of the creative industry. The government has consistently prioritized attracting private capital. In 2017, it established the "Chuangke Venture Capital Fund", aiming at encouraging more venture capital funds to jointly invest in local start-ups. 28 local start-ups have been invested, with a total government investment of about HK$210 million, attracting more than HK$2.1 billion in private investment. Despite these achievements, there are notable shortcomings. In the past, Hong Kong's R&D investment was dominated by the government. From 2019 to 2022, the proportion of R&D investment from the government increased from 47.4% to 53.8% annually, while the share from the industrial and commercial sector decreased from 48.7% to 39.6% during the same period (Figure 3). The proportion of R&D investment relative to GDP is also significantly lower than that of similar economies. Taking the data of 2022 as an example, Hong Kong's R&D investment only accounts for 1.07% of GDP, which is lower than that of Beijing (6.83%), Shanghai (4.44%) and Guangdong (3.42%). According to the Global Innovation Index Report 2024, the number of venture capital transactions in Hong Kong decreased by 16.7% in 2023 compared with

Figure 3: Percentage of different funding sources in local R&D expenditure



Source: Hong Kong Census and Statistics Department, Hong Kong Financial Research Institute of Bank of China

Figure 4: R&D as a share of GDP in 2022 (%)



Source: National Bureau of Statistics, Hong Kong Financial Research Institute of Bank of China

2022, with the venture capital investment decreasing by 62.9%. Both declines were higher than the global averages of 9.5% and 39%, respectively, indicating that the progress of venture capital in Hong Kong was relatively lagging.

This year's policy address strongly emphasizes attracting foreign capital and introduces several notable measures. In particular, in view of weak investment links, there is a need to innovate the approach to government investment in science and technology industries. The government plans to increase market capital via government investment, such as launching a new round of HK$1.5 billion "Research Matching Grant Scheme" to encourage more institutions to subsidize research. Additionally, a HK$10 billion "Innovation Industry Guidance Fund" will be established to guide more market funds to invest in designated strategic emerging and future industries such as life and health technology and artificial intelligence. The government will also optimize the "Chuangke Venture Capital Fund", allocating HK$1.5 billion to set up a joint fund with the industry to invest in start-ups in strategic industries. It aims to leverage the "patient capital" capabilities of Hong Kong Investment Management Co., Ltd. (HKIC) to attract creative enterprises to establish operations in Hong Kong. Furthermore, the "Pilot Program of Innovation Accelerator" has been launched, with an allocation of HK$180 million and a matching ratio of 1 (government) to 2 (institution), up to a funding ceiling of HK$30 million. This program aims to attract professional start-up service organizations with rich experience at home and abroad to establish accelerator bases in Hong Kong and help start-ups develop and grow.

VI. Summary and Suggestions

The Decision of the Third Plenary Session of the 20th Central Committee proposed to "improve the system and mechanism for developing new quality productive forces according to local conditions", and Hong Kong is accelerating its progress in this regard. In promoting the construction of an international innovation center, the government has demonstrated its determination to actively drive reform and the concept of "adapting to local conditions and adapting to the times". The focus on "investing in politics in Industry-Academia-Research" and "government" ranks first, indicating that overall promotion requires continuous strengthening of the government's governance system and capacity. It is essential to overcome difficulties with a reform mindset that recognizes the necessity for change and seeks change and innovation. As one of the two driving forces behind Hong Kong's industrial layout of "South Finance and North Innovation", the Northern Metropolis area serves as the largest spatial carrier for implementing the concept of "Industry-Academic-Research Investment" to promote the development of Hong Kong's innovation industry. At present, the factors that hinder the construction progress of the Northern Metropolis are: First, there are social objections suggesting that Hong Kong should focus on developing advantageous industries, and the innovation industry requires large investment and has a long cycle and may not be successful, so its development should be delayed as much as it could; Second, the constraints of institutional processes, such as long period of consulting and approval procedures and insufficient supply of construction workers, are not problems that can be solved in the short term; Third, the financial pressure is large while public opinion regarding structural financial issue is not small.

In order to solve the related problems that restrict the development of science and technology innovation driven by the Northern Metropolis, the following suggestions are proposed: First, make full use of the experimental zone of Hetao Port Shenzhen Science and Technology Innovation Park to pilot mechanisms, processes and engineering construction, coordinating closely with Shenzhen to explore model experiences for the future development of Xintian Science and Technology City and even the entire Northern Metropolis. Second, comprehensively examine the unfavorable factors that restrict the development of the Northern Metropolis, and put forward solutions one by one, including rationalizing laws and regulations and examination and approval procedures, so as to improve efficiency. Simplifying construction processes and optimizing elements can help reduce construction time. Accelerating the introduction of industries will facilitate the early transformation of Hong Kong's scientific research strength into economic and social benefits. Third, speed up land planning related to the education city of Beidu University and invite qualified universities to settle in, and coordinate with the promotion of the development of creative industries, open up the Industry-Academia-Research chain, eliminating bottlenecks in the transformation of scientific research achievements, and forming a virtuous circle to promote industrial development. Fourth, plan and announce the financing principles of large-scale development projects in the Northern Metropolis as soon as possible, and introduce specific financing plans for large-scale development projects that have been planned and matured, enabling relevant institutions to prepare in advance. Fifth, strengthen government's communication and build social consensus, and better explain the strategic significance of the construction of the Northern Metropolis through various forms such as media publicity, exhibitions and forums, and explain the feasibility and economic prospects of the construction of the Northern Metropolis in terms of financial and industrial development, so that the public can realize that this is not only essential for the overall development of the country, but also vital for the sustainable development of Hong Kong society.

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主要經濟指標 (Key Economic Indicators)

一、本地生產總值 GDP	2022	2023	2024/Q2	2024/Q3
總量 (億港元) GDP(HKD 100million)	28,090	29,010	7,165	7,479
同比增長率 (%) YoY change(%)	-3.7	3.3	3.3	1.8
二、對外商品貿易 External merchandize trade			**2024/9**	**2024/1-9**
外貿總值 (億港元) Total trade(HKD 100million)				
總出口 Total exports	45,317	41,774	3,981	33,511
總進口 Total imports	49,275	46,450	4,513	36,203
貿易差額 Trade balance	-3,958	-4,676	-532	-2,692
年增長率 (%) YoY Growth(%)				
總出口 Total exports	-8.6	-7.8	4.7	10.7
總進口 Imports	-7.2	-5.7	1.4	7.1
三、消費物價 Consumer Price				
綜合消費物價升幅 (%) Change in Composite CPI(%)	1.9	2.1	2.2	1.9
四、零售市場 Retail market				
零售額同比升幅 (%) Change in value of total sales YoY(%)	-0.9	16.2	-6.9	-7.6
五、訪港遊客 Visitors				
總人數 (萬人次) Total arrivals(10 thousands)	60.5	3,400.0	306.2	3,258.9
年升幅 (%) YoY change(%)	561.5	5,523.8	10.5	39.7
六、勞動就業 Employment			**2024/7-2024/9**	**2024/8-2024/10**
失業人數 (萬人) No. of unemployed(10 thousands)	16.3	11.3	12.0	12.1
失業率 (%) Unemployment rate(%)	4.3	2.9	3.0	3.1
就業不足率 (%) Underemployment rate(%)	2.3	1.1	1.2	1.1
七、住宅買賣 Domestic property sales and price index			**2024/8**	**2024/9**
合約宗數 (宗) No. of agreements	45,050	43,002	3,654	2,848
住宅售價指數 (1999=100) Domestic price index	369.7	337.4	292.8	287.9
八、金融市場 Financial market			**2024/9**	**2024/10**
港幣匯價 (US$100=HK$) 期末值	780.8	781.1	777.0	777.3
HKD exchange rate (US$100 = HK$), end of period				
銀行體系收市總結餘 (億港元) 期末值	962.5	449.5	478.0	447.3
Closing aggregate balance(HKD 100million), end of period				
銀行總存款升幅 (%)	1.7	5.1	5.8	-
Change in total deposits(%)				
銀行總貸款升幅 (%)	-3.0	-3.6	-2.1	-
Change in total loans & advances(%)				
最優惠貸款利率 (%) 期末值	5.6250	5.8750	5.6250	5.6250
Best lending rate (%), end of period				
恒生指數 Hang Seng Index	19,781	17,047	21,134	20,317