Innovation policies in the Greater Bay Area:
Hong Kong and Shenzhen

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Key Points

► Hong Kong's innovation policy agenda is fragmented and overlapping, reflecting a lack of coordination.

► Innovation policies in Shenzhen are driven by a focused top-down policy framework with a clear division of duties.

► Four areas with considerable potential for collaboration between Hong Kong and Shenzhen:

- Cross-border talent recruitment
- Joint R&D in science, technology, and innovation
- Cross-border technology adoption
- Support for start-up development

► Three obstacles to collaboration:

- Limited interagency coordination within Hong Kong
- Institutional distance between Hong Kong and Shenzhen
- Insufficient mutual trust between the two cities

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Policy Focus

Recently, science and technology innovation has become the top priority in both Hong Kong and Shenzhen. Governments in both cities seek to jointly establish an innovation hub comparable to other leading hubs across the world. Our careful analysis, however, shows that innovation policy frameworks in Hong Kong and Shenzhen differ significantly, which may pose barriers to collaboration. On the one hand, specialization implies complementarities. On the other hand, institutional and cultural gaps may create obstacles to regional development.

Hong Kong and Shenzhen are both vibrant economic engines. Nevertheless, the Shenzhen River not only delineates the boundary but also creates a unique distinction in economic and institutional meanings

between the two cities. Hong Kong is a special administrative region of China but is governed by its own highly autonomous institutions, while Shenzhen has been selected as China's first special economic zone, enjoying a certain degree of flexibility in economic development. Because of its historical status as an entrepot, economic policies in Hong Kong are still influenced by a laissez-faire tradition. In contrast, Shenzhen's administrative structures are integrated with Mainland China's centralized political and legal apparatuses. Moreover, Shenzhen is a commercial and industrial epicenter serving South China, whereas Hong Kong is a trading and financial gateway connecting China and the world.

Our paper considers Hong Kong and Shenzhen's "cross-border regional innovation systems (CBRISs)" (Trippl 2010). In this study, we defined a border as the territorial dividing line between two regions of the same country with distinctive institutional, social, and cultural environments (Asheim et al., 2011; OECD, 2013; Sohn, 2014). Using this comparative framework, we sought to answer several important questions. First, what are the main differences between innovation policies in Hong Kong and Shenzhen? Second, how well do they make use of their synergy? Third, are there any areas in which comprehensive collaboration would pay dividends? Fourth, what are the obstacles to such collaboration?

Study Methodology
To minimize subjective interpretation, we applied hierarchical cluster analysis (HCA), a statistical method that is used to identify groups/categories that share distinctive characteristics based on information provided in a set of data.

First, we collected documents on innovation policies in the two cities and adhered closely to the guidelines set by the European Commission for identifying relevant innovation-promoting policies. We read and summarized each of these documents in detail and assigned variables to describe the characteristics of these policies.

Second, using these characteristic variables, we implemented HCA to generate two unique tree diagrams of hierarchical clusters that visualized the structure of innovation policies in Hong Kong and Shenzhen. The HCA method also enabled us to identify distinctive clusters of policies from these tree diagrams based on which agencies formulated the policies, which sectors the policies targeted, and the content of the policies.

Third, by comparing the tree diagrams of Hong Kong and Shenzhen, we obtained insights that were useful in addressing our research questions.

Findings and Analysis
Our most remarkable finding reveals a sharp contrast between the innovation policy frameworks of Hong Kong and Shenzhen. According to the algorithm, the number of policy clusters in Hong Kong is 20, indicating a highly fragmented policy structure. Moreover, differentiation between these policy clusters is low, reflecting extensive functional overlap.

In contrast, policy clusters in Shenzhen are fewer and highly concentrated. The algorithm suggests that its number of policy clusters is 7. Moreover, differentiation between policy clusters in Shenzhen is significantly higher than that in Hong Kong, reflecting a clear division of duties. This is because innovation policies in Shenzhen are designed following a clear, top-down, and highly targeted approach.

Another essential finding is that, according to Lundquist and Trippl's stages-of-integration model (2013), these two innovation hubs are operating at the weak integration stage with low social acceptance of integration, persistent wide gaps in institutions, and lack of mutual trust. Agencies in Hong Kong have begun developing channels with Shenzhen in innovation-related areas, but encouraging outcomes are rare, reflecting divergent, overlapping, and uncoordinated policy agendas in Hong Kong. Recently, nevertheless, accompanied by regional initiatives designed to promote regional integration (e.g., the GBA initiative), growing linkages in scientific and technological areas (e.g., Hong Kong's research institutes and branches in Shenzhen), and improving physical accessibility (e.g., high-speed rails and cross-border bridges), the relationship between these two innovation centers has come more closely to resemble the semi-integration stage.

Recommendations
After comparing innovation policy frameworks between Hong Kong and Shenzhen, we identified four areas – as well as the agencies that would be involved – with considerable potential for cross-border collaboration. They are summarized in Table 1.

Table 1   Opportunities for Policy Collaboration between Hong Kong and Shenzhen

Collaboration areas	Involved agencies (HK)	Involved agencies (SZ)
1. **Cross-border talent recruitment:** There is significant potential for the two cities to collaborate in enhancing the cross-border mobility of science, technology, and innovation talents. One example is the joint science and technology park between the two cities, the "Lok Ma Chau Loop".	• Hong Kong Immigration Department • Hong Kong Science & Technology Park Corporation • Cyberport	• Shenzhen Municipal Science, Technology, and Innovation Commission • Shenzhen Municipal Human Resources and Social Security Bureau
2. **Joint R&D in science, technology, and innovation:** There are remarkable prospects for collaboration between Hong Kong and Shenzhen to complement their comparative advantages, e.g., cross-border institutional linkages between universities and industries (Wang et al. 2021) and an integrated information platform for bridging information gaps regarding science, technology, and innovation-related opportunities.	• Innovation and Technology Fund • Applied Science & Technology Research Institute • Automotive Parts and Accessory Systems R&D Center • Nanotechnology and Advanced Materials Institute • Hong Kong Research Institute of Textiles and Apparel • Hong Kong Productivity Council • Logistics and Supply Chain MultiTech R&D Center • Research Grants Council	• Shenzhen Municipal Science, Technology, and Innovation Commission
3. **Cross-border technology adoption:** Technology adoption across these two cities constitutes another promising area for collaboration. Governments could encourage technology adoption among firms. Cross-border authorities could review social and institutional proximity and identify strategies to reduce intercultural, infrastructural, and regulatory differences.	• Hong Kong Productivity Council • Innovation and Technology Fund • Trade and Industry Department • Hong Kong Export Credit and Insurance Corporation • Hong Kong Mortgage Corporation • Office of the Government Chief Information Officer • Hong Kong Monetary Authority	• Shenzhen Municipal Small and Medium Enterprise Service Bureau • Shenzhen Municipal Development and Reform Commission • Shenzhen Municipal Economic, Trade, and Information Commission
4. **Support for start-up development:** These two cities can extend existing policies to promote cross-border start-ups, e.g., the Cyberport Guangdong–Hong Kong Young Entrepreneur Program, the HKSTP Co-Working Space Mainland Collaboration Program, the Technology Business Incubator Support Program, and the Maker Enterprise Project Funding Program.	• Cyberport • Hong Kong Science & Technology Park Corporation • Hong Kong Design Center • Hong Kong Mortgage Corporation • CreateHK • Hong Kong Monetary Authority	• Shenzhen Municipal Science, Technology, and Innovation Commission • Shenzhen Municipal Human Resources and Social Security Bureau

We also highlighted three main challenges to be tackled regarding the above-mentioned areas with the potential for collaboration:

1. Interagency coordination:
The primary obstacle is the lack of coordination across the fragmented government agencies in Hong Kong relating to innovation policies, e.g., the number of agencies involved in the four potential collaboration areas is eighteen in Hong Kong but only five in Shenzhen. The government needs to establish clearly defined policy directions and a reasonable division of duties across agencies. Moreover, external coordination with Shenzhen is also imperative.

2. Institutional distance:
There is considerable divergence between the two cities regarding institution-related factors, such as legal systems, taxation regimes, political-economic systems, treatment of IPR, technology and product standardization, certification processes, and more. Infrastructural and administrative reforms are necessary to narrow these gaps.

3. Mutual trust:
Vast differences between institutional and social environments in Hong Kong and Mainland China make it challenging to establish mutual trust. Mental and cultural

barriers preventing collaboration cannot be overlooked if the government wants to develop a mutually trustworthy relationship (Trippl 2010).

To enhance the compatibility of innovation policy frameworks, coordination between Hong Kong and Shenzhen is needed. This in turn requires coordination across policy agencies within Hong Kong. Whether this can be achieved remains an open question. Innovation policymaking could be less fragmented if various agencies were to enhance their coordination. The policy framework could be further synthesized if the government were to

restructure, consolidate, and upgrade some existing policy agencies. In the near future, two objectives could be accomplished. First, policy clusters supporting industries and academies could work more closely with each other because basic research and applied research are highly complementary. Second, administrative units could be established to coordinate the efforts of the fragmented agencies involved in the four collaboration areas. In the long run, there could be an overarching agency, e.g., the Innovation, Technology and Industry Bureau, or a more senior unit, serving as a leader to coordinate and reorganize the entire innovation policy portfolio.

Further reading

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