

# **A Microanalysis of Hong Kong's Reindustrialization**

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5 January 2022

After the initiative to reindustrialize Hong Kong was announced in the 2016 Policy Address, the Innovation and Technology Bureau established the Committee on Innovation, Technology, and Reindustrialization the following year. So far Hong Kong's industrialization has shown little progress while the general public have little idea of both the prospects of reindustrialization and related Government policy objectives. In view of this, in collaboration with the Hong Kong Productivity Centre, I have written a report on the "Reindustrialization Study – Hong Kong". Through a questionnaire survey of companies and focus-group discussions, the study provides a microanalysis of the challenges facing the manufacturing sector, the possibility and difficulties of upgrading and transformation through the use of Industry 4.0 (i4.0) technologies, as well as the feasibility of reindustrialization and policy expectations.

From July to September 2021, the research team of the University of Hong Kong (HKU) interviewed over 200 manufacturing companies headquartered in Hong Kong, identifying the following three industries with the greatest development potential: Food Technology (FoodTech), Health Technology (HealthTech), and Green Technology (GreenTech).

## **Capitalizing on advantages of industries**

These three industries were identified on the basis of Hong Kong's soft power and comparative advantages as well as the fact that they likewise face the mega trend of technology transformation. In terms of FoodTech, "future technology" encompasses foods and materials produced from synthetic organisms. Making food items through research and development (R & D) and innovative ideas will also help to resolve environmental issues.

Despite the plummeting share of value-added of the manufacturing industry in the overall economy since the early 1990s, the food, beverages, and tobacco industries

have become increasingly important. According to data of the SAR Government's Census and Statistics Department, the share of the value-added of these industries in local manufacturing increased from 4.4% in 1973 to 34.1% in 2019 while their employee count rose from 30,037 in 2013 to 34,053 in 2019. Under a sound food safety regulatory system, the "Made in Hong Kong" food label symbolizes product safety, brand recognition, and the good name of high quality. Industry stakeholders are looking to drive advanced food manufacturing as an engine of Hong Kong's reindustrialization through productivity-enhancing new technologies, including robots and artificial intelligence (AI), etc.

In terms of HealthTech, in addition to possessing world-class healthcare teams and fundamental R & D capabilities, Hong Kong is well positioned to take advantage of its unique integration of Chinese and Western medicine, which is conducive to pharmaceutical production and the development of life sciences. Data of the Hong Kong Trade Development Council shows that in 2019, there were around 250 biotechnology-related companies and 160 healthcare equipment manufacturers in Hong Kong. In the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area released in the same year, biotechnology (biotech) is listed as one of the new pillar industries. Given the government policy support, Hong Kong should be able to give full play to its traditional edge in biotech and pharmaceuticals, benefiting global users by commercializing outcomes of its world-renowned fundamental scientific research.

Hong Kong is the largest initial public offering (IPO) hub for biotech in the Asia-Pacific region and the second largest in the world. As of the end of June 2021, there were 67 healthcare companies publicly-listed in Hong Kong with IPO funds raised totalling HK\$209 billion, testifying to the thriving and maturing local biotech ecosystem.

Having said that, no doubt there is still room for the SAR Government to optimize its policy with greater efforts. According to a survey conducted by the Hong Kong Centre for Economic Research in 2017, 58% of the respondent companies said they found hiring difficult in Hong Kong, 17% higher in comparison with the Mainland. The reason for that obviously is that both wages and housing allowances in Hong Kong are higher than those up north. Coupled with that is the lack of locally-nurtured R & D talent, which makes it necessary for companies to hire from the

Mainland or overseas. Add to that keen competition around the world for R & D personnel, the depletion of such talent in Hong Kong has become acute. Given the shortage of healthcare practitioners, start-ups would find it even harder to recruit the professionals they need. To address this problem head-on, the SAR Government could take a leaf out of the research team's focus group conclusion, i.e. collaboration among the government, industry, academia, and R & D.

As for GreenTech, currently a worldwide trend, the recycling industry has come under the spotlight again, with the 3Rs (Reduce, Reuse, Recycle) evolving to the 5Rs (Refuse, Reduce, Reuse, Repair, Recycle). Waste treatment has long been a pressing issue for Hong Kong. According to the statistics of the Environmental Protection Department, solid waste dumped in landfills had reduced significantly since 2002 before slightly increasing again in 2011. To relieve the pressure on landfills, the SAR Government has been actively spearheading the development of the local recycling industry to prolong the lifespan of used items and convert them into useful products and materials for domestic consumption or even export.

Not only can GreenTech help to improve the environment but it can also enhance diversity in employment. A report released by the International Renewable Energy Agency in 2020 pointed out that the renewable energy industry had created as many as 11.5 million jobs around the world and predicted that its employees would grow to 42 million by 2050. According to the statistics of the HKSAR Government's Census and Statistics Department, 2019 saw the number of direct and indirect participants in recycling activities reaching 44,670 and their share in Hong Kong's total employment slightly rising to 1.2% from 0.9% in 2008.

Evidently, with ample opportunities for the recycling industry, if Hong Kong can successfully resolve its waste issue, it will be possible for the Hong Kong model to go nationwide or even worldwide. To gain a share of the global benefits of green technology, it is necessary to first upgrade the technology of industry and enhance the value-added of products. The HKU research team finds that over 60% of green companies require over 10,000 square feet of factory space for setting up their production lines in Hong Kong, reflecting that the recycling industry has failed to make use of advanced technology. Effective use of technology will serve to lower the costs of land use and production.

## **Composite survey results**

Based on the above analysis, with focus on the three industries with the greatest development potential, the research team interviewed 184 companies by online questionnaires. It is found that 90%, 37%, and 22% of the respondent companies consider Hong Kong, Mainland China, and South East Asia as their main target markets respectively. The market distribution by industry is as follows. The FoodTech industry focuses on the local market, with 98% of the companies targeting Hong Kong as their main market while just 28% and 20% of them regard the Mainland and South East Asia respectively as their main target markets. Among HealthTech companies, 74% of them regard Hong Kong as the main target market while 49% and 36% of them target the Mainland and Europe respectively as their main markets. Similar to the FoodTech industry, 90% of the GreenTech companies see Hong Kong as their main target market while 39% and 24% of them regard the Mainland and South East Asia respectively as their main target markets.

## **An inside look at what companies need**

Half of the surveyed companies are aware of i4.0 technologies, e.g. the Internet of Things (IoT), automation, AI, blockchain technology, etc. The majority of them believe i4.0 technologies can boost productivity, reduce production costs, and improve flexibility in operation. The above study reveals that 83% of the FoodTech companies, 64% of the HealthTech companies, and 71% of the GreenTech companies regard enhanced production efficiency as the primal benefit of i4.0 technologies.

The research report also covers land required and plant equipment. Surface area is not a crucial problem for many of the companies: around 30% to 40% of them regard less than 10,000 square feet as sufficient. Of the respondent companies, 44% of FoodTech companies, 46% of HealthTech companies, and 38% of GreenTech companies require less than 10,000 square feet of land. The main problem is insufficient space to set up an automated production line, e.g. inadequate unloading space and floor ceilings not high enough. It is encouraging that 52% of the surveyed companies plan to move or extend their production lines to Hong Kong, chief among them are 74% of FoodTech companies (in comparison to 41% of

HealthTech companies and 62% of GreenTech companies). I believe that the newly-completed Advanced Manufacturing Centre and existing industrial buildings will satisfy the companies' demand for space and attract more Hong Kong companies to relocate back to the SAR.

In addition, the report finds that 58% of the surveyed companies are engaged in R & D activities, including 73% of FoodTech, 50% of HealthTech, and 75% of GreenTech companies. 16% of the companies plan to move or extend their R & D to Hong Kong. The key factors affecting their decision when choosing their R & D destination are: availability of R & D infrastructure (66%), skilled R & D personnel (64%), close proximity to production facilities (62%), regulatory requirements (54%), funding (51%), etc. Their major considerations for choosing Hong Kong include: number of higher education institutions (46%), skilled local R & D personnel (37%), close proximity to production facilities (36%), R & D infrastructure (31%), funding (29%), etc.

As for the shortage of talent, only 28% of the companies are confident of finding suitable talent for i4.0-related work in the next one to two years. In the medium to long term, only 33% and 37% of the companies are confident of finding suitable talent in the next three to four years and five years respectively.

### **Crucial window for transformation**

On the whole, the three sectors examined by the HKU research team are faced with their respective challenges while many of the surveyed companies plan to relocate their production or R & D facilities back to Hong Kong. In the final analysis, solutions to land- and talent-related issues are pivotal to reindustrialization. The right amount of policy support can turn the SAR's soft power into hard power.

In the light of the economic changes and post-pandemic new normal brought about by the COVID-19, coupled with evolving geopolitical dynamics and the new measures of the Central Government and the SAR Government, I believe Hong Kong is now at an important crossroads of economic transformation. Hopefully, the SAR will transform into an international technology and innovation centre, driving its productivity to benefit economic development and improve people's livelihood. The strategy of reindustrialization will facilitate Hong Kong's connection with and complementation of the supply and innovation chains in the region.