New Productive Forces
Ignite New Momentum in Hong Kong Manufacturing

Hong Kong Manufacturing Industries Development Study Report

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hkpc 生產力局 New Industrialisation

Summary

"New Productive Forces" have become China's inherent pursuit and a key focus for the country's drive towards high-quality development, while developed economies around the globe formulate their national industrialisation strategies. How can Hong Kong keep pace with trends such as technological innovation, green manufacturing, and demands for customisation, and transform and upgrade its local manufacturing industry?

To explore the future direction of Hong Kong's manufacturing industry, the Hong Kong Productivity Council (HKPC) launched the "Hong Kong Manufacturing Industries Development Study" in 2024 where strategic research was conducted on the development of Hong Kong's manufacturing industry. This report is a combination of results from industry expert interviews, corporate surveys, as well as case studies, shedding light on the development trajectory of Hong Kong's manufacturing industry, overseas industrial policies and case references, as well as analysis of upgrading and transformation projects of Hong Kong-invested enterprises in the Greater Bay Area, to help all sectors understand the development status of Hong Kong's manufacturing industry and jointly explore the paths, directions, challenges, and opportunities for the upgrading and transformation of Hong Kong's manufacturing industry. This study also puts forward seven major recommendations for the future development of Hong Kong's manufacturing industry to revitalise new momentum for manufacturing.

Hong Kong's manufacturing industry has a long history but has ostensibly left the city with various rounds of economic restructuring. However, a comprehensive study shows that some of the headquarters functions of Hong Kong's manufacturing enterprises have remained in Hong Kong, transforming into ‘producer services’. In view of the "New Productive Forces" strategy proposed by China in 2023, Hong Kong must develop a high-quality green manufacturing industry to promote industrial innovation, upgrading and restructuring.

Faced with the shifting landscape of global manufacturing, Hong Kong's own manufacturing is facing four major challenges: increasingly fierce competition, global supply chain remodelling, consumer demand trending towards customised orders of smaller volumes, as well as demands for sustainability and compliance with environmental regulations. In response, Hong Kong's manufacturing must seize its unique advantages in developing green manufacturing and customised production, specifically with its pool of global talents, its alignment with international

standards, and its robust intellectual property protection regime and efficient logistics infrastructure.

To understand the current situation of Hong Kong manufacturing, 288 manufacturing companies in Hong Kong were surveyed with a summary of results as follows:

- 69% of surveyed enterprises agreed that **small order volume and customisation have become the new normal**
- 81% of manufacturing companies surveyed **have yet to adopt smartification** solutions to cope with the increasing demand for customisation
- 67% of enterprises have received or expect to receive requests from customers to **incorporate green and sustainable development standards into their manufacturing processes**
- Room for further development of Hong Kong's **high-value-added headquarters functions**

HKPC New Industrialisation conducted an in-depth analysis of more than cases of 1,300 successful upgrading and transformation of Hong Kong enterprises and concluded that enterprises need to take "**three major directions and ten major measures**" to achieve the transformation and upgrading of the manufacturing industry to develop New Productive Forces:

- **Direction 1 - Pioneering new manufacturing models:**
  1. Implementing digital transformation
  2. Enabling green manufacturing
  3. Promoting flexible production of “Microfactory”

- **Direction 2 - Exploring new growth engines:**
  1. Optimising product development market
  2. Expanding upstream and downstream industrial chain
  3. Commercialising patents
  4. Commercialising production technologies

- **Direction 3 - Realising value chain transformation:**
  1. Developing product design capabilities
  2. Establishing brand diversification strategies
  3. Expanding the scope of product or technology applications

The three main directions focus on enhancing the companies' product design capabilities, brand diversification strategies, expanding the scope of product or technology applications, and optimising production techniques and patent commercialisation to achieve the goal of upgrading and transformation. These strategies are not merely theoretical, as this report also presents an analysis of international references and the best practices of Hong Kong-owned enterprises, highlighting the impact and potential that "new industrialisation" brings to the manufacturing industry.

HKPC's Seven Major Actions to Ignite New Momentum in Manufacturing

In summary of the above research, this report proposes seven major action recommendations for the development of Hong Kong's manufacturing industry development, further divided into three levels: "made in Hong Kong," "headquarters functions," and "service industry for manufacturing."

1. Developing "Microfactory" According to Local Conditions

The Government should assess and allocate microfactory sites suitable for key industries and review existing industrial sites and buildings to encourage enterprises to make good use of innovation and technology resources to develop green and smart manufacturing in Hong Kong, enhance the output value of the space unit, and develop customised production with an agile and new manufacturing model. "Smart microfactory" can also promote cutting-edge technological research and accelerate the progress of pilot projects, R&D of new products, and the implementation of new technologies.

2. Strengthening the functions of the Hong Kong Headquarters

Strengthening Hong Kong's headquarters functions can effectively attract high-value-added enterprises to stay in Hong Kong. The government should offer tax incentives and preferential investment policies for diverse businesses such as technology and product R&D, intellectual property, finance, and asset management global procurement and commanding base for offshore manufacturing. This will consolidate Hong Kong's position as an international centre for finance, trade, transport and innovation and technology. At the same time, it will become the overseas business headquarters for mainland enterprises, promote cross-border e-commerce, and link up the Mainland with the global market.

3. Cultivating the Intellectual Property (IP) Industry

HKPC will work with stakeholders to expedite the establishment of the WIPO Technology and Innovation Support Centre (TISC), and propose to the HKSAR Government to introduce and enhance policies to support the IP ecosystem, covering creation, application, commercialisation, trade and professional services. This will help develop Hong Kong as a regional IP trading centre.

4. Developing Green Manufacturing Services

It is recommended to establish, strengthen and coordinate the development of green manufacturing services, such as green manufacturing certification and management, ESG compliance, energy efficiency optimisation, green finance, carbon neutral certification and trading, etc., to provide one-stop green manufacturing services for local, Mainland and overseas markets, and at the same time, chambers of commerce should encourage the industry to implement green manufacturing to cope with the new trend.

5. Accelerating Recruitment of Technical Talent

The Government should strengthen the existing talent policies and attract diversified technical talents with practical experience. Apart from high-end scientific research talents, the Government should also attract diversified and experienced technical talents, and consider incorporating practical techniques into university curricula to meet the talent needs of the manufacturing industry.

6. Creating a Large Language Model (LLM) for the Manufacturing Industry

The Government should promote collaboration among industry, academia and research institutes, encouraging them to jointly develop ManufacturingGPT, an LLM for manufacturing, which combines the latest Artificial Intelligence (AI) technologies to provide more efficient and smarter solutions for the manufacturing industry. Chambers of commerce should promote the sharing of big data among enterprises to facilitate the training of the LLM, and opens up ManufacturingGPT as a platform for scientific research to accelerate the development of local smart manufacturing technologies.

7. Promoting a New Image of the Manufacturing Industry

Enterprises make use of the Government's technological resources to optimise the factories through a new manufacturing model, provide quality job opportunities while taking into account environmental protection and occupational safety and introducing gamification in production management, and working with intersectoral stakeholders to promote and build a new image of the manufacturing industry, attracting and nurturing young talents to join the industry.

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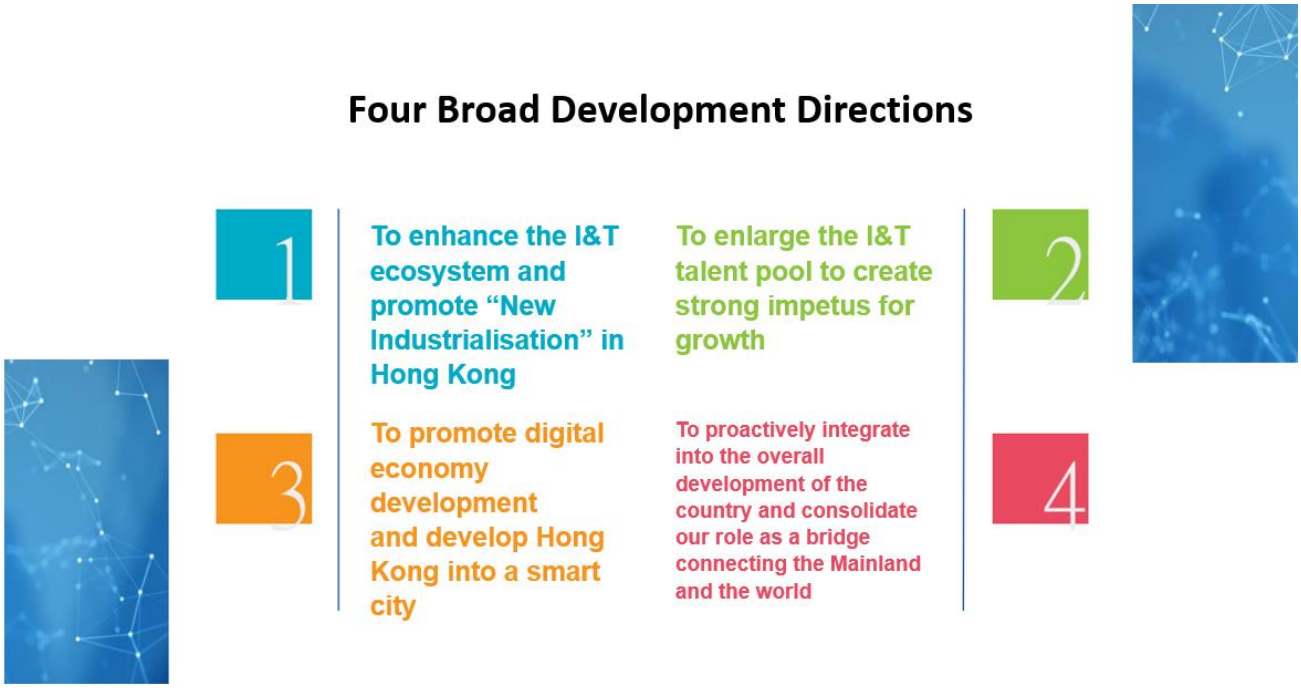
Chapter 1: Introduction

1.1. Background

The HKSAR Government set forth the goal of “Re-industralisation” in the 2016 Policy Address. Followed by the introduction of policies to promote new technologies and skilled production, the re-industrialisation strategy aimed to reverse the trend of de-industrialisation, revitalise the manufacturing industry, and stimulate diverse and high-value-added economic development. By transforming the manufacturing process with innovative technologies and production models, it aims to overcome Hong Kong's inherent limitations in labour, cost, and land. The strategy of re-industrialisation has now evolved into "New Industrialisation," which is one of the four broad development directions in the government's "Hong Kong Innovation and Technology Development Blueprint", launched in 2022.



Source: HKSAR Press Release

The "New Industrialisation" strategy first promotes the establishment of an I&T Ecological Chain, attracting strategically competitive technology industries to Hong Kong, such as the emerging industries of new energy and life science technology. Another key aspect of the strategy is the encouragement of the adoption of advanced technologies in traditional manufacturing industries for their upgrade and transformation, enhancing the overall

productivity and competitiveness of Hong Kong's manufacturing. A distinct and significant part of "New Industrialisation" is the integration of green manufacturing and sustainable development into the production process, where enterprises are encouraged to build green supply chains, in line with the vision of achieving carbon neutrality by 2050, while also addressing the market's rising demand for environmental protection. This shows that the HKSAR Government's "New Industrialisation" concept perfectly aligns with the strategy of "New Productive Forces" proposed by the Chinese government.

The concept of "New Productive Forces" was proposed by President Xi Jinping of China in September 2023, encompassing high technology, high efficiency, and high quality. Its core is breaking away from traditional economic growth models and adopting an innovation-driven model to foster novel and high-quality economic growth. In other words, "New Productive Forces" is driven by innovation and with which new paths of productivity are sought, aligning with forms of advanced productivity demanded by the novel development philosophy. Firstly, "high technology" emphasises the importance of technological innovation, especially original and groundbreaking innovations, and their full application in production processes. Secondly, "high efficiency" involves improving the efficiency of both production and the commercialisation of research deliverables. Lastly, "high quality" is development at a higher standard, in stark contrast to traditional models of economic growth that rely heavily on large resource inputs and high energy consumption. The "New Productive Forces" framework lets development overcome the constraints of resource-dependent growth while aligning with sustainable development standards during the process. Leading "New Productive Forces" and demanded by high-quality development is the full leverage of innovation — revolutionary technological breakthroughs, innovative allocation of production resources, and the full upgrade and transformation of traditional industries. The opportunities that "New Productive Forces" bring to key industries impact both traditional industries and emerging / future industries. Therefore, on one hand, "New Productive Forces" requires cultivating emerging industries, and on the other hand, it also promotes the upgrading and transformation of traditional industries to achieve comprehensive and coordinated development.

"New Productive Forces" was incorporated into the government's 2024 Policy Address in full support of national development. Hong Kong needs to continue leveraging its traditional advantages as a "Double Gateway" for global trade and finance while exploring new

opportunities in emerging / future industries and developing "New Productive Forces" according to local conditions. With the shifting global economic landscape and the advancement of the high-quality national development strategy, Hong Kong has immense potential in developing "New Productive Forces". To achieve the transformation and upgrading of traditional industries and play a greater role in the development of the Greater Bay Area and China, Hong Kong must leverage its unique functions, including its position as an international financial centre, an innovation and technology hub, a talent hub, a pioneer in green development, a legal services and international arbitration centre, a logistics and supply chain management hub, and a cultural exchange platform. These functions will be the key to Hong Kong's future economic development, further consolidating its position as a global connector and an important pillar of the development of China, contributing to the country's demand for high-quality development and integration into the global economy.

1.2. Study Objectives

Hong Kong needs to consider the local conditions when developing "New Productivity Forces", which itself is an extension of the "New Industrialisation" strategy. Since 2021, HKPC has researched emerging industries like Re-industrialisation, Life Science, and AI. Their 2024 focus is on Hong Kong's manufacturing industry, exploring the feasibility of implementing smart manufacturing in Hong Kong in the wider context of the ever-evolving global manufacturing supply chain, as well as the opportunities presented by "New Industrialisation" to Hong Kong enterprises. Specifically, the objectives of this research include:

1. **Understanding the overall development, challenges, and opportunities of Hong Kong's manufacturing**

   This report first provides an overview of the historical development of Hong Kong's manufacturing, followed by the four major challenges facing the industry against the backdrop of global manufacturing reshaping. In addition, case studies of other developed economies will be examined in terms of their industrial policies, with an analysis of how these countries enhance industrial value through technological innovation. The chapter further introduces China's "New Productivity Forces" policy, as well as how Hong Kong can adapt its local conditions to implement this policy and achieve the principles of manufacturing transformation and upgrading.

2. **Case studies of manufacturing enterprises: exploring paths of upgrading**
   Surveys and detailed case studies are presented in this report to get a holistic view of the current situation of manufacturing in Hong Kong and explore paths of upgrade and transformation through real-world cases. In our survey, 288 local manufacturers took part in our questionnaire, providing quantitative data on the current state of Hong Kong's manufacturing, allowing us to understand the challenges and needs of enterprises in the course of upgrading and transformation, as well as their sensitivity to market trends. In our case studies, the article delves into several successful transformation cases of Hong Kong enterprises, analysing their transformation strategies, and the challenges they faced and overcame, thereby presenting suitable upgrade paths for Hong Kong's manufacturing industry.

3. **Recommendations for the Future Development of Hong Kong's Manufacturing**
   Based on the above research, recommendations for the industry's development strategies are provided at three distinct levels: "Made in Hong Kong," "Hong Kong's Headquarters Functions," and "Offshore Manufacturing Base." This approach results in seven targeted and practical recommendations catering to the various strata and needs of Hong Kong's manufacturing industry.

1.3. Approach and Methodology

This report will analyse the development of Hong Kong's manufacturing and trends in the global supply chain from multiple perspectives, proposing practical recommendations for New Industrialisation with the aid of comparative case studies. The research is mainly qualitative but supplemented by quantitative analyses. The mix of qualitative and quantitative research methods is believed to provide more comprehensive and in-depth insights. Quantitative research offers a breadth of data, allowing for statistically significant results from larger samples, while qualitative research provides a depth of data, gaining a thorough understanding of the reasons behind participants' perspectives and behaviours. This complementarity allows the research to flexibly adjust the direction, revealing trends and patterns as well as explaining the reasons behind these trends.

Qualitative analysis

Qualitative analysis forms a significant part of the study. Firstly, qualitative analysis can provide a deep understanding of the challenges and opportunities that enterprises face during their transformation. Through analysing interviews, motivations behind enterprise decision-making can be revealed. Secondly, qualitative analysis can capture the impact of policy changes and market dynamics on enterprises, providing a rich context that explains the complexity of manufacturing industry transformation. In addition, qualitative analysis allows the exploration of real-world applications of innovation and technology. Case studies of successful and failed experiences offer references for other enterprises. The detailed steps of the qualitative analysis conducted are as follows:

Step 1: This study utilises desktop research to analyse the development, current status, challenges, and opportunities of Hong Kong's traditional industries, examining their development trends in recent years. It also analyses the new trends in the global manufacturing supply chain, such as the application of new technologies, I&T advances, sustainable development, and related policy support. Finally, the study

applies global trends to the current status of traditional industries in Hong Kong enterprises to identify gaps, bottlenecks, and underlying causes.

Step 2: Five successful and valuable overseas cases as benchmarking examples for analysis and induction. The aim was to identify relevant strategies suitable for the industrial environment in Hong Kong. In addition, the study further analysed over 1,300 successful upgrade and transformation cases of Hong Kong enterprises to discuss the future development direction and path for Hong Kong's manufacturing industry.

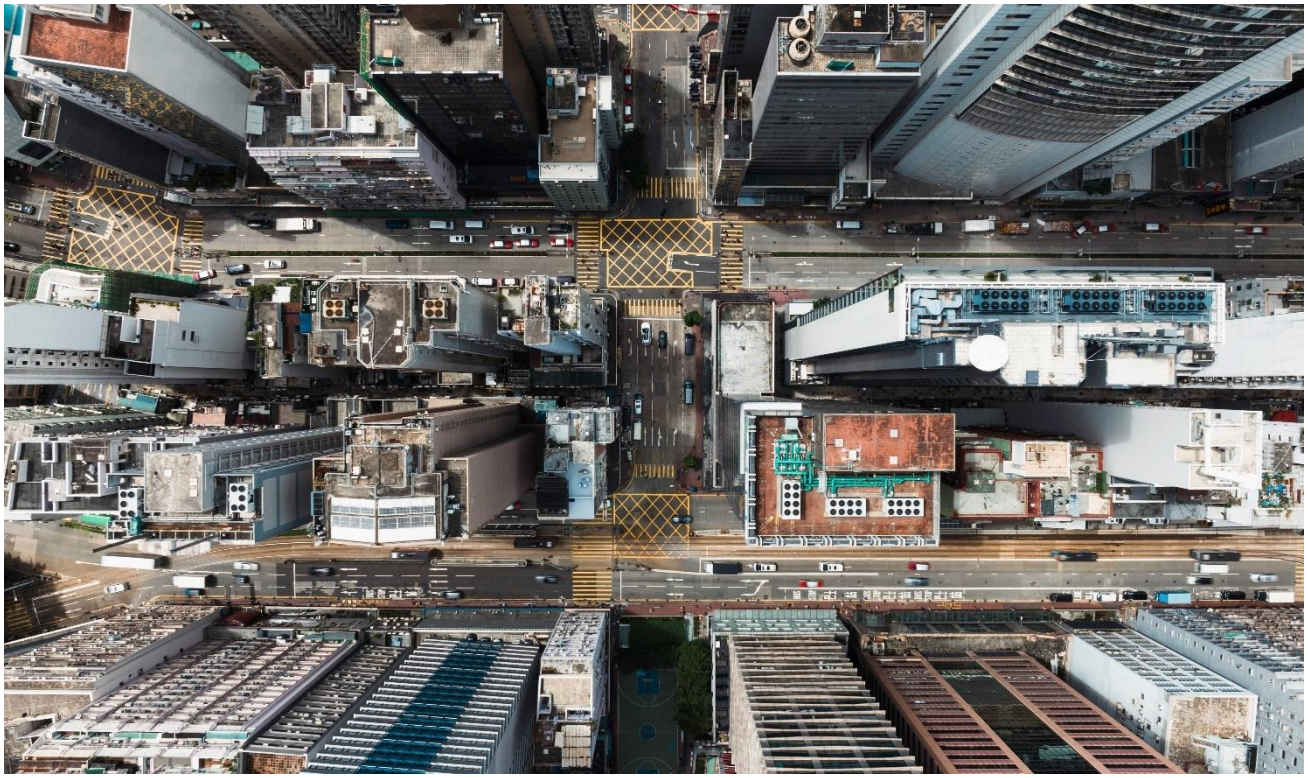
Step 3: Based on analysis using the two methods above, this study proposes a series of recommendations on how Hong Kong can transform traditional industries to enhance productivity, innovation, and sustainable development. Feasible measures will also be proposed for the collaboration between HKPC, the government, and stakeholders to support such transformation. Through the above analysis, this study explains the specific measures of new industrialisation in terms of economic growth, job creation, and environmental protection.

Quantitative analysis

Quantitative analysis can provide tangible data and statistical results in research. Quantitative assessments can explain phenomena more objectively, complementing qualitative analysis. On the other hand, quantitative analysis can validate hypotheses through statistical proof, thus supporting the conclusions to be reached.

The quantitative components of this report involve surveying 288 local manufacturing enterprises through a survey. Based on the results, the latest trends in the industry, changes in customer demand, and the readiness of traditional industries for upgrading and transformation are assessed, with recommendations for best practices.

Chapter 2: Overview of Hong Kong's Manufacturing Industry



The past few decades saw rapid globalisation and industrial shifts, and a significant portion of Hong Kong's manufacturing activities has moved overseas. However, the industry's headquarters functions and the producer services sector have remained in Hong Kong, serving as an important foundation for the city's pillar industries and economic development. Hong Kong has transformed into a knowledge-based economy dominated by the service industry, consisting of manufacturing-derived services, referred to as producer services. With China's proposal of "New Productive Forces" in 2023, it is time for Hong Kong to upgrade and transform its manufacturing industry, while also developing high-quality green manufacturing.

2.1 The History of Hong Kong's Manufacturing Industry

The history of manufacturing in Hong Kong can be divided into three main stages. Hong Kong's economy transformed and established itself as a global trade and finance hub while manufacturing gradually shifted to other regions due to factors such as cost and land.

Consequently, the proportion of manufacturing in the local GDP has fallen from a peak of 30% in the first stage to less than 1% in the third stage.

Phase One: Dominance of The Manufacturing Industry

Hong Kong's industrialisation began in the mid-20th century when labour-intensive light industries rose to prominence after World War II with the push of processing trade. Before the 1950s, Hong Kong's economy was mainly trade-oriented with a weak industrial foundation. Shipbuilding was the only scaled industrial sector due to the demands of maritime trade, along with small and scattered light industries such as food processing and printing. After 1950, due to a different political landscape on the mainland, which faced an international trade embargo, Hong Kong received capital, talent, and industrial technologies transferred from the mainland, forming a comprehensive industrial system. Subsequently, Hong Kong rapidly underwent industrialisation within a few years, even becoming one of the most prominent industrial cities in East Asia. During the decade leading up to the late 1950s, the number of industrial enterprises in Hong Kong increased at an average rate of 14.6% annually, and the population employed in manufacturing grew by an average of 12.6% per year. From the 1970s to the 1980s, Hong Kong's local manufacturing reached its peak, contributing to almost 30% of the GDP and employing more than 40% of the workforce at the time. During this period, Hong Kong's industrial system was dominated by light industry, notably textile, garments, toys, watches, and plastic products. The export volume was even comparable to that of South Korea and Taiwan, two economies where manufacturing was larger in scale.

Value of Industrial Exports in Hong Kong and Two Emerging Economies, in 1962 and 1975

Types of industrial products	Year	Value of Exports converted at the annual USD exchange rate (in '000 USD)		
		Hong Kong (Region of)	Taiwan (Region of)	South Korea
Textiles	1962 1975	1,033 4,333	330 6,480	22 6,489
Garments	1962 1975	2,007 20,360	111 8,884	11 11,321
Toys	1962 1975	291 3,242	1 1,740	0 690
Metals	1962 1975	236 1,222	14 1,368	6 1,241
Electronics	1962 1975	186 5,630	13 6,979	1 4,416
Watches	1962 1975	9 1,301	0 503	0 434
Office supplies	1962 1975	23 428	1 364	0 231
Footwear	1962 1975	226 517	3 3,085	2 1,912

Data Source: Hong Kong Census and Statistics Department,
"Hong Kong Economy in Transition " by Bangyan Feng

Phase Two: Relocation of Factories and Transformation to a Service-Oriented Economy

Since the 1980s, due to the shortage of industrial land and the soaring labour costs in Hong Kong, coupled with the reform and opening up of mainland China, the vast majority of Hong Kong factories were attracted to move their production lines northward to the neighbouring cities of Shenzhen, Dongguan, and others in the Pearl River Delta. Hong Kong-owned enterprises combined Hong Kong's capital and the mainland's abundant low-cost labour and land, allowing the scale of production to expand exponentially. At the same time, they kept their headquarters in Hong Kong, leveraging its trade network which is well-connected with Western markets. The geographical proximity between Hong Kong and the Pearl River Delta region fostered a close collaboration between the service industry in Hong Kong and the manufacturing industry in the Pearl River Delta, establishing a unique "front shop, back factory" model of division of labour. The headquarters functions that remained in Hong Kong operated in the form of trading companies. In the mid-1990s, the vast majority of Hong Kong's manufacturing activities had started to leave Hong Kong for the Pearl River Delta region. The workforce engaged in manufacturing in Hong Kong fell from 905,000 in 1984 to 289,000 in

1997. During the same period, Hong Kong-owned enterprises in the Pearl River Delta region employed as many as ten million people at their peak. The relocation of the manufacturing industry not only freed up space but also provided an opportunity to promote the rapid development of the service industry in Hong Kong. The business components of the original Hong Kong industrial enterprises had been separated from the production counterparts, only retaining the business services and trade departments, managing areas such as procurement, quality control, product management and planning, R&D, marketing, testing and certification, commercial law and logistics.

Proportion of Enterprises Retaining Certain Departments in Hong Kong in 2002

Functional department	Maintain the proportion of the functional department in Hong Kong
Procurement of raw materials	92%
Product Design	65%
Quality Control	65%
Suuply Chain Management	54%

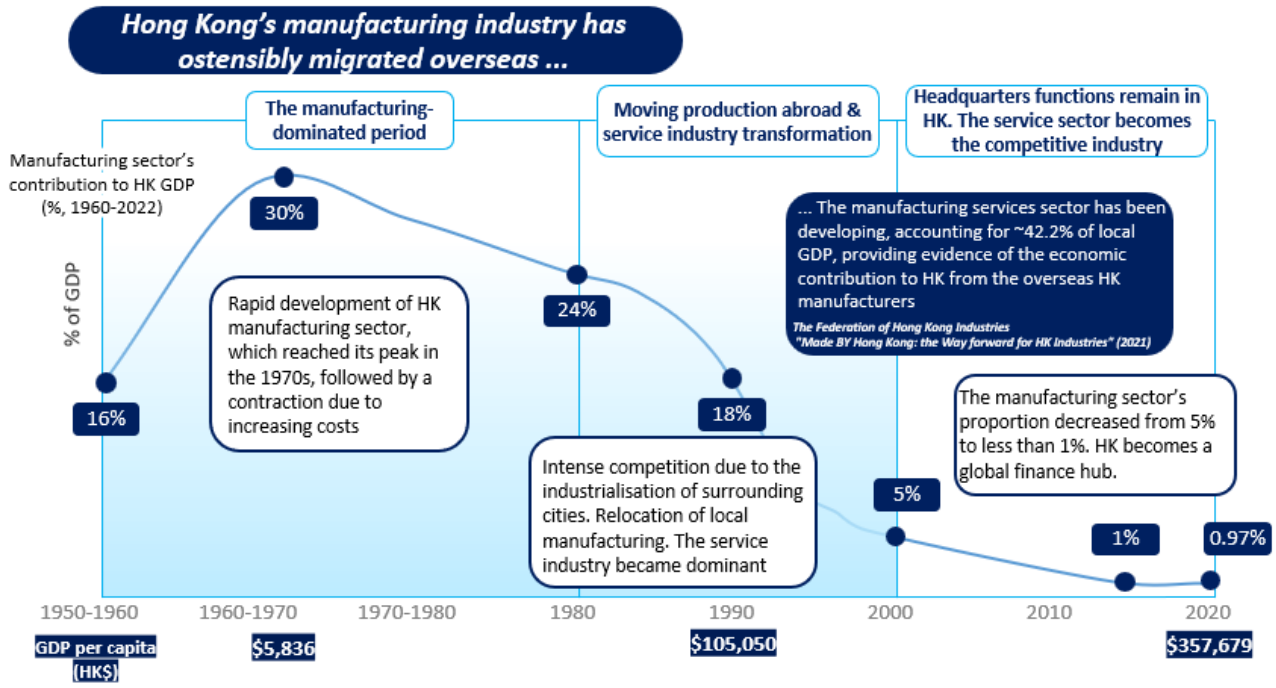
Data Source: Hong Kong Trade Development Council

Phase Three: Headquarters Functions Remain and the Rise of the Service Industry

Up to this day, the manufacturing industry in Hong Kong accounts for around 1% of the GDP, while the four major pillar industries of finance, trading and logistics, professional services and tourism began to flourish. Hong Kong has gradually transformed into a service economy. After the 1997 handover, Hong Kong, with its comparative advantage, forged a closer industrial division of labour with the mainland, with production factors allocated to value chain segments with higher marginal profits. Following China's accession to the WTO in 2001, its economy embraced a new stage of rapid development. Hong Kong accelerated its development into an international centre of finance, trade, logistics, commerce and professional industrial and commercial services, as well as a hub in the Asia-Pacific region for international communications, broadcast, exhibitions, aviation, and more. As for the manufacturing industry, only the production components have relocated, while the headquarters functions and sales in fact remained in Hong Kong, responsible for product design, marketing, business development, testing and certification, transportation and

warehousing, trade and financing, investments, mergers and acquisitions, and supply chain management (including trade and commerce and customer services). Due to the general classification of manufacturers' producer services activities into trade and other service industries in statistics, there is an inaccurate perception of a total decline in Hong Kong's manufacturing industry. In fact, these services should be regarded as "producer services". According to the statistics of the Federation of Hong Kong Industries in 2021, the "manufacturing services" accounted for about 42.2% of the local GDP, proving the significant economic contribution of Hong Kong-owned manufacturers' overseas manufacturing activities to Hong Kong.

The History of Manufacturing in Hong Kong



Data Source: the Census and Statistics Department, market research;
Deloitte interviews, research, and analysis

After decades of development, the current state of Hong Kong's manufacturing can be summarised by two main elements: headquarters functions and producer services. Although the "Made in Hong Kong" tag is no longer commonly seen on exported products, many products could not have come to life without the coordination of Hong Kong's headquarters, as the highest value-added segments of supply chains depend on Hong Kong's services. In addition to the "headquarters economy" onshore, Hong Kong also maintains close ties with a wide global production network offshore. These connections, combined with Hong Kong's

existing software and hardware advantages in talent, infrastructure, research, and legal system, provide a solid foundation for Hong Kong to realise New Industrialisation.

Looking ahead, the manufacturing headquarters and producer services in Hong Kong will continue to enjoy its irreplaceable status. The development of the manufacturing industry will undoubtedly continue to leverage Hong Kong's inherent advantages in the two areas, adapting to local conditions. That being said, technological advancements have brought about groundbreaking innovations to traditional production models, and the reshaping of global manufacturing has also created various gaps in the market, providing various opportunities for Hong Kong's manufacturing industry. Hong Kong is by no means short of the potential and capability to break through its own limits as its manufacturing industry has new room for manoeuvre brought about by the research and production of high-value-added products under the introduction of "New Productive Forces".

2.2 Four Major Challenges Facing Hong Kong's Manufacturing Under the Remodelling of Global Manufacturing

The global manufacturing landscape is rapidly reshaping: decarbonisation, rising production costs, geopolitical changes, and evolving consumer behaviour all have a profound impact on the industry, driving it towards a transformative era. The reshaping of global manufacturing has a broad impact on Hong Kong's manufacturing industry, involving areas such as technological innovation, environmental protection, cost control, and regulatory compliance. The following section discusses the four major challenges facing Hong Kong's manufacturing amidst the reshaping of global manufacturing, and explores how to turn these challenges into opportunities.

Challenge One: Increasingly Fierce Competition

Manufacturers in Hong Kong have earned a place in the global market with their brand reputation, excellent quality management, and innovative capabilities. However, with the rapid development of manufacturing in mainland China, domestic Chinese brands have emerged, and manufacturers in the mainland have narrowed or even closed the gap with Hong Kong manufacturers in many aspects. Driven by the vast domestic consumer market, manufacturers in mainland China quickly expanded their production scale, and their scale advantage in turn enhanced their R&D and production capabilities, leading to significant improvements in product quality. At the same time, they are able to offer similar goods at lower prices, increasing their competitiveness in a global market that is increasingly sensitive to prices. In a fierce and even saturated market competition, Hong Kong businesses are facing challenges of declining market share and continued pressure on profits. On the other hand, this also brings impetus to Hong Kong businesses to upgrade and transform themselves, for instance, from traditional single production/processing to providing one-stop solutions, or transitioning from a single production and processing to offering one-stop product design solution services.

Challenge Two: Global Supply Chain Remodeling

In recent years, the China-United States Trade War and geopolitical tensions have continued to affect the manufacturing industry, and product technical requirements and tariffs are already uncertain factors. Coupled with rising production costs in China, many enterprises are establishing new production bases outside of China. The global supply chain is

remodelling, driving international manufacturers to adopt a "China+1" supply chain strategy, meaning that while international companies retain their production lines in mainland China, they also expand their production facilities to other countries. Practically, this may involve transferring production bases for products sold in the US market to Southeast Asia, while production of high-tech components remains in the mainland instead of a complete withdrawal from the country. Furthermore, a product may need to be shipped multiple times between the mainland and Southeast Asia during its supply chain lifecycle, making the offshore supply chain management of Hong Kong manufacturers more complex. They need to invest more resources in managing and monitoring the dispersed supply chain, while also implementing more future-proof logistics management and strategic planning.

Challenge Three: Small Order Volume + Customisation Become the New Normal

With the remodelling of global manufacturing, more brands are starting to abandon the traditional model of bulk production in low-cost regions. More customers are demanding a personalised experience, and the market's demand for small order volumes and customised products continues to rise. Consequently, the manufacturing industry has to abandon the traditional large-scale production model and shift towards a more flexible "small order volume with customisation" model. The majority of Hong Kong-owned manufacturing enterprises surveyed in this study also confirmed that the industry is seeing a tendency for product demands for more variety and smaller quantities. Customisation challenges the traditional production model, and enterprises need to respond quickly to customer demands. The challenge for Hong Kong enterprises in this trend is that the business model of moving production lines to low-cost areas such as Indonesia and Bangladesh for mass production of standard products is being disrupted. On the other hand, Hong Kong's local manufacturing industry can seize the opportunity to turn this new trend into an opportunity. As an international city, Hong Kong is not short of talents equipped with global vision and business acumen. The city also prides itself on its sound intellectual property protection regime and efficient logistics infrastructure, all of which provide competitive advantages for Hong Kong of adopting the "small batch, customisation" trend.

Challenge Four: Sustainability is on the Move

As sustainability production regulations tighten in the European, American, and Chinese markets, Hong Kong-owned manufacturing enterprises targeting these markets find it challenging to adapt to these changes. The European Union has passed a series of regulations requiring manufacturers to tighten the monitoring of supply chains to ensure their alignment with environmental standards, including regular assessments and monitoring of suppliers' carbon footprints. Earlier, California in the United States also passed the SB 657 legislation requiring retailers and manufacturers to disclose the greenhouse gas emissions in their supply chains.

Mainland China has also issued the "Promotion of Clean Production" scheme as part of the 14th Five-Year Plan. The scheme stipulates that by 2025, the system for clean production will be established preliminarily, promoting the implementation of clean production in manufacturing, agriculture, services, and other fields. In addition, the latest revision of the "Solid Waste Pollution Prevention and Control Law" in 2020 has detailed provisions for the management of solid waste, strengthening the sorting management of industrial solid waste and hazardous waste, and setting higher requirements for green production in manufacturing. Evidently, the market demand for green production is no longer limited to brand owners themselves; in the future, it will also be necessary to trace the carbon footprint of upstream suppliers. The challenge faced by Hong Kong-owned enterprises is to cope with the newly enacted and frequently changing environmental regulations in the West. Therefore,

enterprises need to constantly update their knowledge systems and adjust production processes to ensure compliance with standards. On the other hand, Hong Kong has always been aligned with international standards, and there is a rich supply of international talents, which allows Hong Kong-owned manufacturers to develop producer services oriented towards the international market, such as green finance, carbon auditing, and green production compliance services.

Four Major Challenges Facing Hong Kong's Manufacturing Under the Remodelling of Global Manufacturing

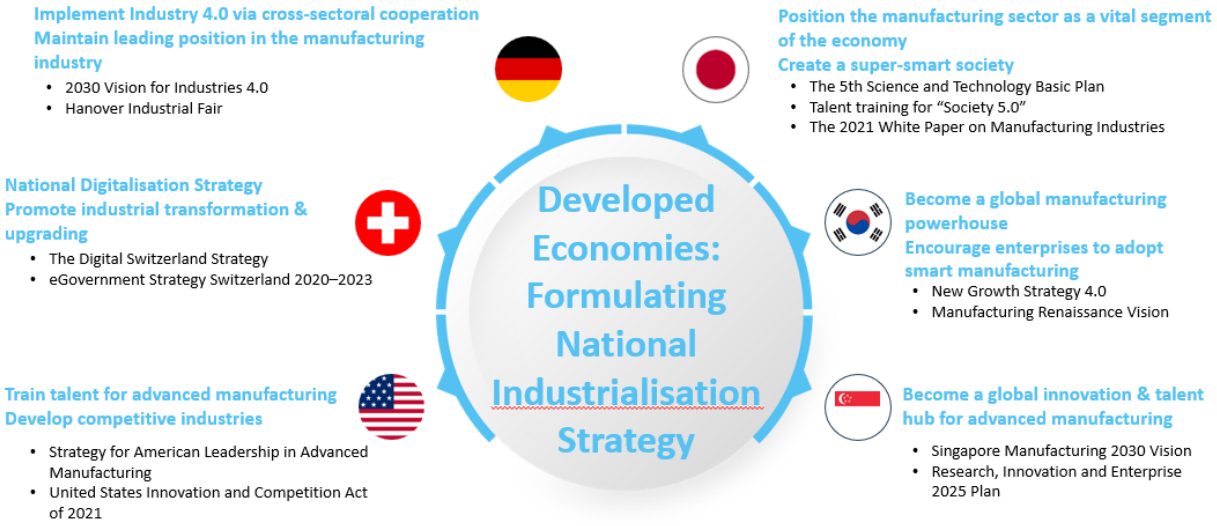
Data Source: Industry Expert Interviews

After analysing the four major challenges brought by the remodelling of global manufacturing, we can see that both challenges and opportunities are present in Hong Kong's manufacturing. Increasingly fierce competition, global supply chain remodelling, normalisation of customisation, and sustainability are all crucial trends in manufacturing. Enterprises must continue to innovate while actively responding to the rapid changes in the international market. Through these measures, not only can the Hong Kong manufacturing industry overcome current challenges, but it can also seize new growth pathways, achieve industrial transformation and upgrading, and maintain its unique position in global manufacturing.

2.3 Lessons from National Industrialisation Strategies of Developed Economies: Enhancement Value Through Innovation

Currently, major developed economies around the world are actively formulating and implementing strategies for the upgrading and transformation of manufacturing. These strategies, despite being varied, follow a few common directions: intelligence and automation, sustainable development, response to a global supply chain, international cooperation and division of labour, all driven by innovation. To adopt automation, many countries are investing in robotics, AI, and digital production lines to enhance production efficiency and product quality while reducing labour costs. Sustainable development emphasises environmental protection and energy conservation, adopting low-carbon technologies and green production processes to ensure that economic growth and environmental protection complement rather than conflict with each other. The remodelling of the global supply chain is complex with geopolitical factors playing a significant role.

Industrialisation strategies of major developed economies



Data Source: Policy documents of various countries, market research;
Deloitte interviews, research, and analysis

The "China+1" strategy has therefore become a focus for many enterprises and governments due to the need to diversify the supply chain and reduce reliance on China as the only supplier. On the other hand, innovation-driven development has become the core for enhancing national competitiveness. From the R&D of new materials to the application of advanced

manufacturing technologies, innovation is seen as an inexhaustible driving force for industrial upgrade. These national policies not only reflect the external changes facing global manufacturing, such as globalisation, technological revolution, and evolving market demands, but also embody the needs of internal development. In this context, cooperation between the government and the industry is particularly important. The government needs to provide policy support and financial investment to create an innovation-friendly environment, while the industry must adapt to market changes, seek technological breakthroughs, and innovate business models. Only through collaboration between the government and the industry can challenges be effectively tackled and opportunities for future manufacturing be seized.

Germany: Intersectoral Collaboration Drives Industry 4.0

Background

Germany has a world-leading position in automotive, mechanics, chemical engineering, and electrical technology. However, with the rapid development of the internet, German enterprises have started to fall behind in cutting-edge technology and digitalisation. Domestically, according to a report by The Commission of Experts for Research and Innovation (EFI), Germany has fallen into a "competence trap", meaning that while established industries continue to attract R&D investment and top scientific talent, emerging industries are constantly losing talent, making it difficult for them to develop comprehensively. Facing external competition, major German corporations (such as BASF, Bayer, Daimler, Siemens, etc.) are considerably behind international technology companies in terms of revenue, profitability, number of employees, and market value. Domestically, Germany needs to implement industrial upgrades as soon as possible to promote the development of emerging industries such as digital technology, in order to escape the competence trap quickly. Internationally, Germany needs to compete in the global market with both developed countries like the United States and emerging countries like China.[1] Faced with such a situation, Germany put forward the concept of "Industry 4.0" in the 2011 Hanover Fair, which was incorporated into the " High-Tech Strategy 2020 for Germany". In 2019, Germany released the "National Industrial Strategy 2030" and the "2030 Vision for Industry 2030",

[1]"Germany Development Re port (2018): Where is Germany Heading in the Merkel 4.0 Era?"

creating new opportunities for the transformation of traditional industries, promoting the enhancement of production efficiency and competitiveness, and also setting new bars for technological development and collaboration.[2]。

Policies

Germany's "Industry 4.0" policy is a successor to "Industry 1.0" (mechanised production), "Industry 2.0" (Technological Revolution), and "Industry 3.0" (the Information Age). "Industry 4.0" revolves around the Internet of Things (IoT) and the Internet of Services (IoS), with rapidly developing next-generation Internet technology as its core, marking a technological revolution that penetrates revolutionarily into manufacturing and other industries.

Source： Plattform Industrie 4.0

"The 2030 Vision for Industrie 4.0"[3] pointed out that Industry 4.0 will reshape the global value-creating networks. Germany will leverage its flexible global value-added network system to accelerate the application of digital business models and the construction of digital infrastructure. By integrating new solutions into the Industry 4.0 system, a standardised, integrated, and efficient digital ecosystem will be constructed, further consolidating

[2]EEWorld Information, "Digital Transformation, Multi-domain Collaboration to Create New Opportunities"

[3]Federal Ministry of Economic Affairs and Energy (2019). 2030 Vision for Industrie 4.0: Shaping Global Digital Ecosystems

Germany's leading position as a global supplier of Industry 4.0 equipment. Digital infrastructure is an important foundation for traditional industries to move towards intelligent and automated production. Building an agile value network can help traditional industries transition to more flexible and efficient production models. System integration services can ease the adoption of new technologies in traditional industries too.

"The National Industry Strategy 2030: Strategic Guidelines for German and European Industrial Policy" refocuses on industrial policy, aiming to enhance the strength of German industrial technologies and the stability of the industrial chains. The guidelines aimed to protect and rebuild the competitiveness of German industry amid intensifying global competition and rapid digital development. The guidelines categorise ten manufacturing industries, including steel, copper, aluminium, chemical, mechanics, automotive, optics, medical devices, green technology, national defence, aerospace, and 3D printing, as "key industrial sectors" for which targeted support is provided, aiming to increase the proportion of manufacturing in the total economic value added from 23% to 25% by 2030. The strategy ensures that all stages, from product R&D to the production of basic materials, manufacturing, processing, as well as product distribution and services, can be completed within the European Union.

Measures

In the process of promoting Industry 4.0, Germany has made intersectoral advancements in education, industry practice, and academic research support, enhancing synergies.

Firstly, in terms of cultivating talent, Germany has implemented the "Educational Strategy for a Digital Knowledge-based Society," which includes the framework of "Vocational Education 4.0". This policy aims to adapt the German national economy to the new demands of industry and the wider economy for labour under the Industrial 4.0 environment. Its core includes the digitalised curricula in vocational education and the R&D of new digital solutions, thereby raising secondary students' digital skills level. In 2019, the German Trade Union Confederation initiated the "Industrial 4.0 Apprenticeship Training Programme," allowing apprentices in their second and third years of technical studies to participate, helping them to quickly adapt to and master digital technology to meet the needs of Industrial 4.0. This programme not only enhances the technical skills of apprentices but also cultivates a large number of high-quality digital talents for the German manufacturing industry.

Secondly, German companies are actively engaged in the transformation of Industry 4.0. Among them, leading enterprises such as Siemens, BMW, and Audi have accelerated their digital transformation efforts. These companies continuously improve their production processes and enhance product quality and market competitiveness through the application of advanced digital technologies. At the same time, German industrial associations are also actively formulating relevant standards. The German Engineering Federation and the Association of the Electrical and Digital Industry have jointly established the "Industry 4.0 Platform," which focuses on regulation, security, research, and innovation, providing an important foundation for the implementation of Industry 4.0.

In the academic research of Industry 4.0, the Fraunhofer Institute, a proponent of Industry 4.0, has been continuously developing this concept over the years. The institute provides enterprises with professional technical support to help them overcome technical challenges in the digital transformation process. Moreover, German trade fairs have been actively promoting the concept of Industry 4.0 both domestically and internationally. Since 2013, the Hannover Messe has been focusing on Industry 4.0, serving as an important channel for promoting this concept.

Summary

Germany has always been a leader in automotive, mechanical engineering, chemicals and electrical technologies, but with the rapid development of the Internet economy, its disadvantages in cutting-edge technologies and digitisation are gradually becoming significant. In response to these challenges, Germany proposed the concept of ‘Industry 4.0’ in 2011, later becoming part of the "The High-Tech Strategy 2020 for Germany". Subsequently, Germany released the National Industrial Strategy 2030 and Industry 4.0 Vision 2030, aiming to accelerate the application of digital business models and enhance the productivity and competitiveness of traditional industries. Germany promotes the implementation of Industry 4.0 through cross-sectoral co-operation in education, industrial practice and academic and research support, nurtures digital talents, facilitates the intelligent transformation of enterprises, and formulates relevant standards. These measures not only consolidate Germany's leading position in the global supply of Industry 4.0 equipment, but also create new opportunities for the long-term development of its manufacturing industry.

Switzerland: A Comprehensive National Digitalisation Agenda that Promotes Industrial Transformation and Upgrading

Background

The Federal Government of Switzerland has listed digitalisation as a key development policy during its term. As early as 2015, the Swiss government proposed the "Digital Switzerland" strategy to promote the development and application of digital technologies in the country, enhancing the productivity and competitiveness of various industries beyond manufacturing, including government, finance, healthcare, education, and other sectors. The government emphasises the need to strengthen digital infrastructure, enhance data security, and promote digital skills training to support enterprise digital transformation. It encourages companies to use big data, the Internet of Things, and automation to improve production processes. Implementing the "Digital Switzerland" policy allows local manufacturers to better integrate digital technologies, thereby increasing production efficiency and product quality, and fostering innovation and technological upgrades.

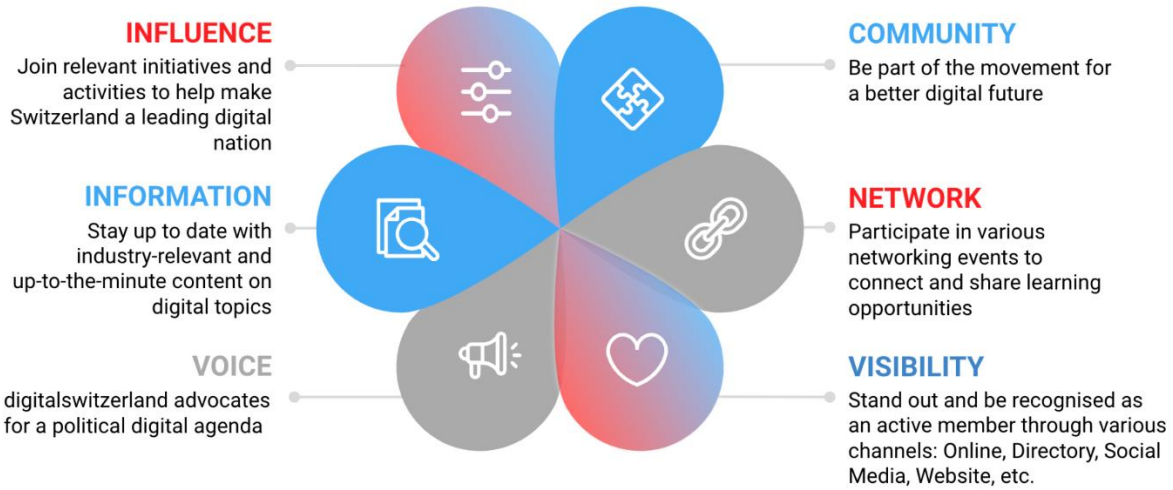
Policies

In September 2018, the Swiss government released the guidelines and action plan for "Digital Switzerland," encompassing four major principles and four core objectives, and proposed nine action policies. To address new economic, legal, technological, and social developments and changes, "Digital Switzerland" is updated at least every two years. In September 2020, the Federal Council updated the policy focus of "Digital Switzerland," following which the development and application of digital technology, will place more emphasis on environmental protection and the use of data, studying the important role of digital technology in the country under crisis situations.[4]In the 2022 edition of "Digital Switzerland", the Federal Government established three key themes for 2023: digital-friendly legislation, digitisation of the healthcare system, and digital sovereignty. On December 13, 2024, the Swiss Federal Council approved the 2025 edition of the "Digital Switzerland Strategy".[5]It raises three major themes: the legal status of AI and its use in federal administrative agencies, strengthening information security and cybersecurity across Switzerland, and promoting the application of

[4]China Investment Guide Network "Guidelines for Foreign Investment Cooperation by Country (Region)"

[5]The Federal Council of Switzerland; Tsinghua University Institute of Intelligent Rule of Law

open-source software in federal administrative agencies, thereby enhancing Switzerland's innovation and competitiveness, and fostering the skills needed for individuals, companies, and public institutions to fully utilise new technologies.



Source: Digital Switzerland

In 2018, the Swiss government launched a digital transformation programme, focusing on promoting the digitalisation process across various industries. This programme emphasises the value of data, encouraging enterprises to utilise digital tools to improve decision-making and business operations, and provides financial support to assist enterprises in digital transformation. In the manufacturing sector, the government specifically established a digital transformation fund to provide financial support for corporate technology investments and training, thereby enhancing the competitiveness of the manufacturing industry.

In 2020, the Swiss government launched the "Swiss eGovernment Strategy for 2020-2023" aimed at promoting the digitisation of government services, and enhancing the administrative efficiency and transparency of public services. The core objective of this strategy is to speed up the digitalisation of government services, enabling citizens and enterprises to access public services and information conveniently. This policy has also had a profound impact on the manufacturing industry, as digital government services can simplify administrative processes for enterprises and improve operational efficiency. The strategy also emphasises data sharing and collaboration, encouraging government institutions to cooperate with enterprises and academia, making data more open and accessible, fostering innovation, and

allowing local manufacturers to conveniently utilise the resources provided by the government and integrate into a larger innovation ecosystem.

In 2021, the Swiss government incorporated sustainable development into its digital framework and launched a series of policies to drive the adoption of green technology. The government encourages enterprises to adopt eco-friendly technologies and resource-efficient production methods during digitalisation. With the trend of reducing environmental impact in consumption, the application of green technology opens up new market opportunities for local manufacturing industries.

In 2022, the Swiss government strengthened international cooperation with other countries to promote technology exchange and reach new markets. By participating in international trade agreements, Switzerland provided broader market opportunities for local manufacturers, enhancing the competitiveness of enterprises in the global market. In addition, the government encouraged enterprises to seek partners globally, continuously innovating technology and expanding business operations.

Summary

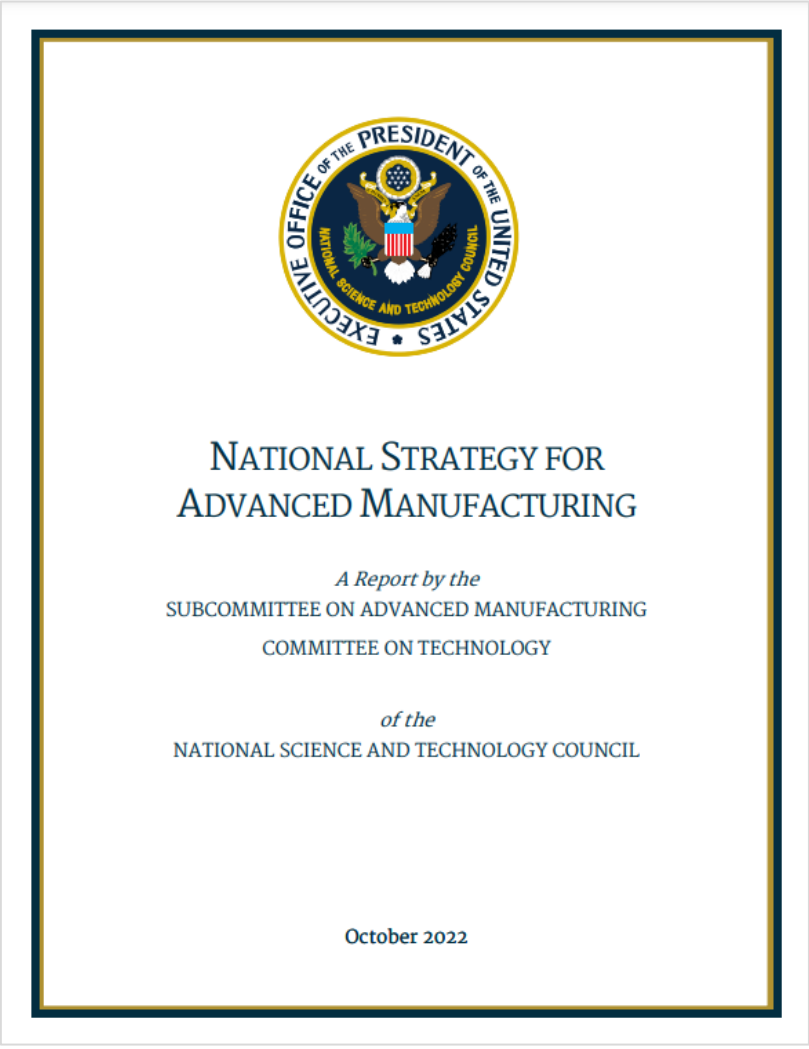
It is worth noting that the Swiss corporate structure is dominated by small and medium-sized enterprises. According to a 2019 special report on Swiss enterprises by the Neue Zürcher Zeitung (NZZ), nearly all enterprises (99.6%) are categorized as small and medium-sized. Of these, about 2.27 million employees work in small and medium-sized enterprises with more than 200 employees, and these companies employ about two-thirds of the nation's total workforce. Therefore, small and medium-sized enterprises are not only the cornerstone of the Swiss economy but also play a crucial role in innovation, employment, and economic growth. In fact, according to a study commissioned by AXA in 2024 and conducted by Sotomo, a research company, among 300 Swiss small and medium-sized enterprises (SMEs) with 5 to 250 employees, 55% of the surveyed enterprises have applied AI to their business processes in certain ways. This finding proves the effectiveness of these enterprises in implementing their digital policies. The government has regularly released updates to the "Digital Switzerland" strategy since 2015, selecting the most appropriate themes based on the latest social situation, thereby establishing policies that the government and various sectors should implement accordingly.

USA: Training Future Talents to Strengthening Pillar Manufacturing Industries

Background

Amidst the increasingly keen global competition, the United States (US) manufacturing industry faces numerous challenges. In order to enhance the competitiveness and innovation capabilities of the manufacturing sector, the US government has implemented a series of policies and measures aimed at strengthening the cultivation of new manufacturing talents, increasing financial support, and fully leveraging the collaboration between the government, industry, academia, and research institutions.

Policy



Source: National Science and Technology Council

First, in response to the demand for transformation and upgrading in the manufacturing industry, the US has been actively cultivating talent. In 2016, the US released "Advanced Manufacturing: A Snapshot of Priority Technology Areas Across the Federal Government", outlining plans to strengthen manufacturing education and labour training. This plan emphasises the significant impact of highly skilled STEM talent on innovation and competitiveness in the US manufacturing.

The "American Advanced Manufacturing Leadership Strategy" released in 2018 pointed out that advanced manufacturing is the engine of the US economic development and the pillar of national security. The report emphasises that workers with high-level skills in the STEM (Science, Technology, Engineering, and Mathematics) fields have a significant impact on the innovation and competitiveness of the US manufacturing industry. Therefore, education, training, and gathering of manufacturing workers are the three major goals of the report, aimed at enhancing the overall manufacturing capabilities and competitive advantages of the country.

The FY2020 Federal R&D Funding by Budget Function reveals that the US has listed strengthening workforce training as a priority policy. This reflects the importance of enhancing workforce skills to maintain the country's competitiveness in the global economy as it addresses the rapidly evolving market demands. By enhancing training, the country hopes to provide talents with the necessary skills across various industries to promote economic growth and innovation, strengthening the foundation for future economic development.

Second, the US government financially supports innovation activities such as core technologies R&D to ensure the sustainability of manufacturing. In 2019, the financial budget funds provided by the US for The Small Business Innovation Research Programme (SBIR) reached $3.28 billion, aiming to encourage technological innovation in small and medium-sized enterprises.

In addition, the United States Senate passed the "United States Innovation and Competition Act of 2021," an emergency funding bill allocating $49.5B to the "CHIPS" over a period of five years. This measure aims to develop the semiconductor industry and maintain the country's advantage in the global technological competition. The US hopes to increase financial

investment to provide the necessary resources to support manufacturing, and promote technological R&D, and industrial upgrading.

Finally, the innovation of manufacturing cannot be achieved without the collaborative efforts of all parties. In 2014, the US issued the "Revitalise American Manufacturing and Innovation Act," and the National Network for Manufacturing Innovation (NNMI), which was renamed "Manufacturing USA" in September 2016 when it officially became a statutory programme. This programme promotes advanced manufacturing technologies and their application through a network of manufacturing innovation centres distributed nationwide. These innovation centres not only provide technical support to the manufacturing industry but also foster collaboration and exchange between different sectors.

The "Made in America" initiative emphasises the bridging role of research institutions in promoting industry-academia-research collaborative innovation. Research institutes, by connecting industry, academic, and government partners, utilise existing resources to enhance collaboration and cooperative investment, bringing innovation and research closer to the needs of enterprises and the market. This collaborative model not only improves the efficiency of technology transfer but also enhances the overall innovation capability of the industry.

In 2019, the US Department of Commerce released "The Future of American Manufacturing: A National Strategy," a report that emphasises once again the importance of strengthening manufacturing infrastructure, promoting the adoption of new technologies, and enhancing workforce skills to support economic growth and innovation. The report provides a series of policy recommendations aimed at fostering the revitalisation and sustainable development of local manufacturing, marking the economic impact of this national strategy.

Summary

In response to challenges facing the manufacturing industry amid the increasingly keen global competition, the US has adopted a series of effective policies and measures to enhance the competitiveness and innovation capabilities of its manufacturing industry. From strengthening the training of new manufacturing talents and increasing financial fund support, to fully leveraging the capabilities of government, industry, academia, and research, the US

government has demonstrated its attention to the future of the manufacturing industry. These measures have laid a solid foundation for the transformation and upgrading of the US manufacturing industry and have also provided valuable references for the development of global manufacturing. With continuous innovation and increasing competitiveness, the US manufacturing industry is set to defend its leading position in the global market.

Japan: A Strategic Manufacturing Hub Creating A Super-Smart Society

Background

Japanese manufacturing has long been renowned worldwide for industries such as automobiles and electronics. Although its economy is dominated by the service sector, manufacturing still accounts for 20% of GDP. Among Japan's exports, 220 product categories have a global market share of over 60%.[6]

However, Japanese manufacturing relies on imported raw materials, and in recent years, its supply chain has also faced instability such as rising energy and raw material costs, as well as a reduced supply of semiconductors. These factors have made a smarter supply chain more attractive. Furthermore, as one of the first countries to have a rapidly ageing population, Japan's labour force is shrinking and its economic and demographic structures are continuously changing with the influx of foreign labour. By 2024, Japan was hosting 2 million foreign workers.[7]At the same time, with a highly educated population, it is generally easy for the country to accept mechanisation and new technologies, which provides favourable conditions for further digitalisation. Therefore, in response to demographic, economic and even geopolitical challenges, and to maintain the competitiveness of the manufacturing industry, the Japanese government has initiated a series of manufacturing transformation policies centred around talent, finance, and scientific research.

In 2016, the Japanese Cabinet approved the "5th Science and Technology Basic Plan (2016-2020)", which proposed the concept of a "Super-smart" society, referred to as "Society 5.0". Japan will focus on the manufacturing industry, flexibly utilising information and communication technologies, based on the Internet (of Things), to build a world-leading "Society 5.0", continuously creating new values and services.

[6]Japan External Trade Organization, "Digitalization and decarbonization will be the driving trends of Japan's manufacturing industry."

[7]The New York Times, "Japan Needs Foreign Workers. It's Just Not Sure It Wants Them to Stay."

Policies

"Society 5.0 " is a society into which the internet space and the real world are highly integrated. It is a new model of society that Japan is striving for. With "Society 5.0" and Japan's experience in robotics and smart manufacturing, Japan is gradually developing an "Interconnected Industry". Examples include using driverless vehicles to reduce carbon dioxide emissions, deploying robots to care for the elderly, and incorporating sensor technology into patient care systems to alert users when necessary. For this, Japan is also actively cultivating the talent needed for the interconnected industry and "Society 5.0".

Japan's latest "Manufacturing Industry White Paper" in 2024 focuses on talent cultivation and technological transformation. It states that Japanese manufacturers must swiftly transform their business models, adopt new technologies, strengthen industrial data sharing between companies, and develop "platform businesses". In terms of talent, the overseas business proportion of Japanese manufacturers continues to rise, so it is necessary to unify the talent systems in domestic and overseas offices to smoothen the company's operations.

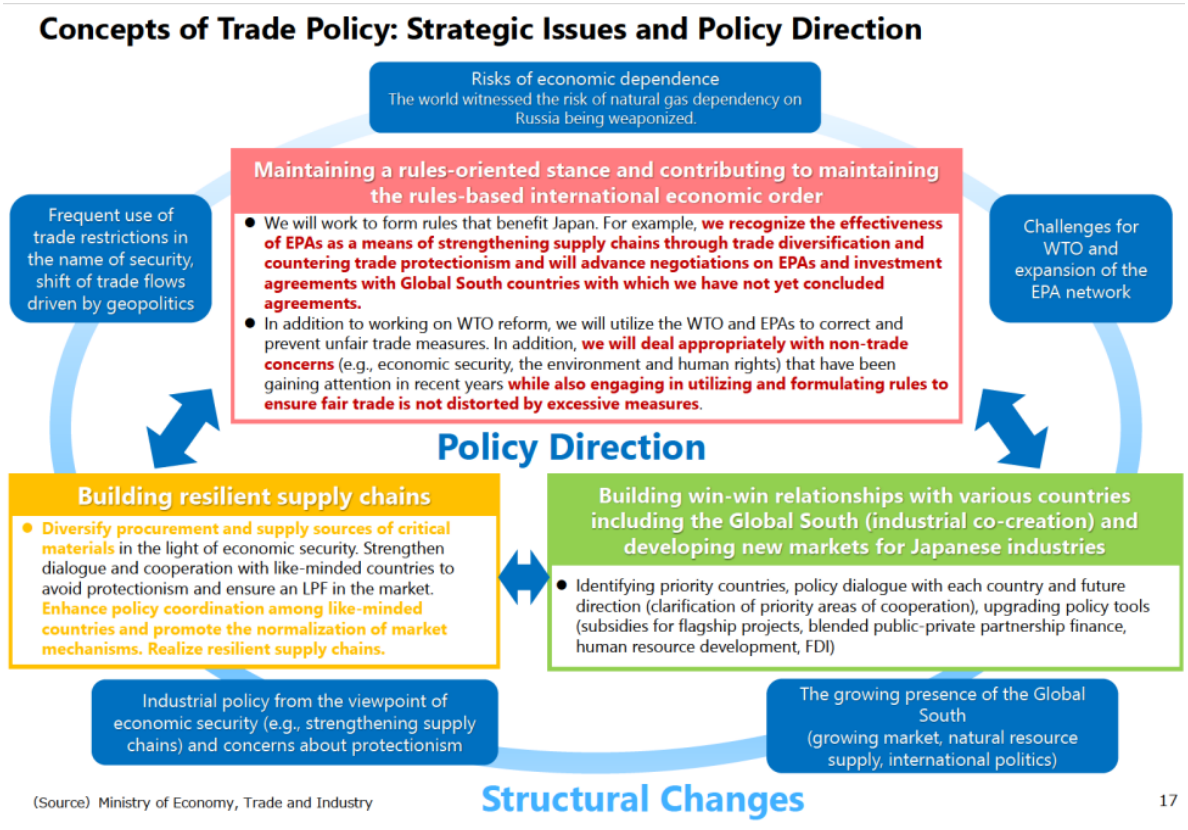
Measures

To turn these policies into action, the Japanese government has increased financial support for R&D in core technologies and strategic industries. With the publication of white papers, the Japanese government provides financial support for the R&D of core technologies and the development of competitive industries. For instance, Japan established a fund totalling 200B yen in 2008 to expand the production of technologies such as semiconductors and to strengthen the domestic semiconductor industry chain.

The Japanese government promotes collaboration among the government, industry, academia, and research. The national technological transformation should align with the research of academia to gain a competitive edge globally. The Japanese government is aware of this and, after proposing Society 5.0, introduced the "AI Strategy" in June 2019, aiming to make Japan the most capable country in the world for fostering and attracting AI talent, thereby enhancing its AI competitiveness. Subsequently, in December of the same year, in response to the Japanese government's AI policy, the University of Tokyo signed an agreement with SoftBank Corporation, announcing the joint establishment of a world-class AI research institute dedicated to fundamental and applied research in AI.

In addition to encouraging collaboration with academia, the Japanese government has also promoted cooperation within the manufacturing industry. In 2017, the Ministry of Economy, Trade and Industry of Japan issued the "Tokyo Initiative 2017" for Connected Industries" to develop connected industries. In March 2018, the Industrial Value Chain Initiative (IVI) released the "Industrial Value Chain Reference Architecture", proposing a next-gen industrial value chain reference framework IVRA-Next, as a guide for the development of Japanese connected industries.

In May 2021, the Japanese Cabinet approved the 2021 edition of the "Manufacturing Industry White Paper," which requires the domestic manufacturing industry in Japan to strengthen supply chains, accurately assess risks, and promptly implement decarbonisation and digital strategies, emphasising Japan's determination to reform its manufacturing industry time and again.



Source: Japan's "Manufacturing Industry White Paper"[8]

[8]Ministry of Economy, Trade and Industry of Japan, 2018

Summary

Japanese manufacturing is facing challenges such as instability in supply chains and demographic changes, which threaten its global competitiveness. In response, the Japanese government has proposed the concept of "Society 5.0" to promote the smart transformation of the manufacturing industry. The policy focuses on talent training, financial support, and scientific R&D to address an ageing population and a shrinking labour force. Japan has strengthened vocational training, promoted technology integration, and invested in core technologies R&D by issuing relevant white papers and implementing various favourable policies. The government also encourages intersectoral collaboration to promote the development of AI and connected industry, thereby enhancing the competitiveness of the manufacturing industry and bracing for future challenges.

South Korea: A Manufacturing Powerhouse Encouraging Smart Manufacturing

Background

In the mid-20th century, South Korea successfully developed high-end manufacturing industries despite the lack of raw materials and capital, earning its place among the world's manufacturing powerhouses, which came to be known as the "Han River Miracle". South Korea mainly exports electronics, automobiles, and semiconductors, with its shipbuilding industry boasting the highest export volume in the world. [9]Manufacturing accounts for more than 27% of South Korea's GDP, [10]a higher proportion than most major developed countries. The country even topped Bloomberg's "Global Innovation Ranking" in 2021. South Korea's manufacturing industry is dominated by several leading large enterprises, with emerging industries mainly including semiconductors, new metals, and high-tech textiles. The country is highly digitalised, equipped with excellent software and hardware for digitalisation, leading the world in internet speed and penetration rate, as well as in the proportion of higher education graduates. However, South Korea's manufacturing industry also faces a series of challenges similar to Japan's, mainly including an ageing population, competition with Chinese exports, geopolitical tensions, and the rise of protectionism. Faced with rising labour costs domestically, many South Korean conglomerates have successively moved part of their production lines to Southeast Asian countries such as Vietnam. At the same time, South Korea not only has a low fertility rate, but its pace of importing foreign labour also lags behind that of Japan. [11]Its manufacturing export value has fallen for 16 consecutive months by the end of 2024. [12]The overall economic growth has also plateaued.

South Korea previously published the "Manufacturing Renaissance Vision" and the "New Growth 4.0 Strategy" roadmap in response to the global economic downturn and the slowdown in domestic economic growth, hoping to rejuvenate its manufacturing and maintain its global competitiveness.

[9]Jae-Fu Kim, "Korea Leads Global Shipbuilding Orders in October, Outpacing China," Korea Economic Daily, November 7, 2023
[10]"Stability, Innovation, and World-Class Manufacturing: Reasons to Invest in Korea" by Invest Korea
[11]McKinsey, "What challenges is Korea facing today?", December 1, 2023
[12]S&P Global South Korea Manufacturing Purchasing Managers' Index (PMI), November 2024

Policies

Firstly, in June 2019, the South Korean government issued the " Manufacturing Renaissance Vision" explicitly setting forth the goals for the revitalisation of manufacturing over the next decade. The South Korean government plans to shed its image as a market follower and transform South Korea into a novel manufacturing powerhouse within the next ten years. The blueprint focuses on four strategies: smart, eco-friendly, convergence, and upgrading traditional industries with innovative ones, This reorganises the industrial ecosystem with a focus on challenges, and strengthening the government's role in investment and innovation.

In addition, on January 20, 2023, the South Korean government released the "New Growth 4.0 Strategy" roadmap and plans to implement more than 30 key programmes within 2023 to ensure the growth momentum of future industries. With the "New Growth Strategy 4.0," South Korea aims to strengthen support for strategic industries such as semiconductors, batteries, and cutting-edge OLED displays, ensuring long-term development in these key technology areas. Subsequently, in the first half of 2023, the South Korean government implemented more than 20 specific measures, accelerating the R&D of next-gen technologies, including quantum computing, urban air mobility (UAM), 6G, AI, and more, promoting their commercialisation. In March 2023, the South Korean government released a strategy to strengthen the ecosystem for system chips and studied the production lines for a new generation of secondary batteries, among others. This shows the government's emphasis on the importance of industrialisation.

Building on the foundation of industrialisation, the South Korean government has also emphasised the importance of technological innovation. For example, the South Korean government regards emerging fields such as 6G communication technology, quantum computing, and urban air mobility (UAM) as key areas for future technological innovation, investing substantial funds to promote technology development and commercialisation. In 2023, the South Korean government will also launch the "Universal Artificial Intelligence (AI) Daily Promotion Plan" to develop AI technologies widely applicable in areas such as caregiving, education, and healthcare. South Korea plans to promote innovation in biomedical technology and the development of infectious disease vaccines by establishing a K-Livelihood Vaccine Fund with a scale of 500 billion won.

Measures

The implementation of the "Renaissance Vision" includes multiple investments targeting emerging industries. For instance, the government plans to inject 84 trillion won for R&D in three key industries (non-memory chips, future transportation, and biotech), and to prompt private enterprises to invest a total of 1,800 trillion won. At the same time, it accelerates intelligent manufacturing, with a plan to build 2,000 AI factories by 2030. Through the development of data centres and smart manufacturing facilities (such as robots, sensors, etc.), it aims to enhance the efficiency and innovation capabilities of the manufacturing industry. By reorganising the industry structure towards smartness, eco-friendliness, and innovative convergence, manufacturing can be revitalised, increasing its contribution to the national economy, and aiming to raise the proportion of manufacturing in the added value to 30% by 2030.

The "New Growth Strategy 4.0" strategy includes a variety of measures aimed at improving the funding mechanism and hardware for scientific research and high-value-added industries. For instance, the South Korean government has listed industries such as semiconductors, OLED displays, and batteries as national strategic technologies, providing relevant tax incentives and policy support to encourage the expansion and business upgrading of these industries. Moreover, South Korea is also constructing an advanced semiconductor industrial park in the cities of Pyeongtaek and Yongin in Gyeonggi-do, improving the infrastructure for strategic industries and accelerating their development. At the same time, the government has adopted measures such as accelerating the approval of factory construction and facility investment and streamlining the process of creating industrial parks.

Summary

Through the above policies, the South Korean government hopes to promote the long-term development of strategic industries, including key industries such as semiconductors, OLED displays, and batteries, to ensure South Korea's competitive advantage in the global industrial chain. The South Korean government aims to lead the world in emerging technologies such as 6G, quantum computing, and AI through substantial investment, enhancing the nation's technological innovation capabilities. Ultimately ensuring its economic growth momentum and reviving exports and investment in a global economic downturn.

Singapore: A Global Hub for Advanced Manufacturing and Talent

Background

As one of the Asian Tigers, Singapore has always had a development model similar to that of Hong Kong. Singapore topped the IMD World Digital Competitiveness Ranking 2024 and also regained its top position in the World Competitiveness Ranking in the same year. This demonstrates the rapid digitisation development in Singapore, and its experience is indeed valuable for reference.

Policies

Singapore's "Manufacturing 2030 Vision" aimed to transform and upgrade the manufacturing sector through a series of policies, ensuring that the industry continues to serve as an economic driver. Firstly, the Singaporean government updated the Industry Transformation Map (ITM) for manufacturing in 2022, covering five key industries: electronics, precision engineering, energy and chemicals, aerospace, and logistics. These industries contribute most to the manufacturing value-added, with the four major industries of electronics, precision engineering, energy and chemicals, and aerospace accounting for 80% of the annual manufacturing output, while logistics is a critical enabler for the flow of goods globally and regionally.

The ITM reveals that Singapore focuses on technological innovation, digitalisation, and sustainable development, striving for the smart, eco-friendly, and interconnected development of these industries. To enhance the competitiveness of the manufacturing sector, the Singaporean government strongly supports R&D and technological innovation. In the electronics industry, the government has attracted global leading semiconductor companies to invest and establish bases, strengthening Singapore's advantage in high-value components. In addition, the government has identified five research pillars in the microelectronics field and plans to invest over 100 million Singapore dollars in establishing a gallium nitride research centre to meet the future growth in demand for chip materials. These investments will help Singapore maintain its position as a global hub for technological innovation. At the same time, digital transformation is one of the core policies of Singapore's manufacturing transformation. Taking precision engineering as an example, Singapore launched a three-stage digital transformation programme to help small and medium-sized enterprises enhance their digital economy resilience, gradually implementing automated

smart business operations. This not only improves business production efficiency but also enhances their global competitiveness.

Sustainable development is equally important in the transformation of Singapore's manufacturing industry. The energy and chemicals industry is undergoing a shift towards zero-carbon operations and producing high-end, low-carbon products. Singapore is focusing on developing low-carbon energies such as natural gas, solar energy, and hydrogen energy, and investing in a low-carbon energy research funding programme to support green technology projects, including carbon capture and storage technologies. These measures help to enhance Singapore's competitive advantage in the global green transformation of the manufacturing industry. To meet the talent demand for the transformation of the manufacturing industry, talent development programmes are in place. For instance, in the aviation and aerospace industry, there are plans to cultivate more than 3,000 MRO technical talents through cooperation with trade unions and educational institutions to fill the vacancies in technical positions within the industry. In the logistics industry, with the widespread application of Industry 4.0 technologies, the government, through vocational transition programmes and skills enhancement programmes, help employees adapt to new positions, upgrade their skills, and thereby cope with industry changes.

These measures not only enhance the output and innovation of manufacturing but also drive continuous improvement in the industrial structure. Singapore's manufacturing industry is moving towards a more intelligent, eco-friendly, and interconnected direction, leading the global advanced manufacturing sector. In the next decade, Singapore is expected to increase the added value of the manufacturing industry by 50% and maintain the manufacturing sector's contribution to GDP at around 20%, while laying a solid foundation for the sustainable development of the economy.

Measures

In addition, Singapore's Research, Innovation and Enterprise Plan 2015 (RIE2025) lays out a variety of strategies to promote the reform of manufacturing, aimed at maintaining global competitiveness and fostering long-term development. Firstly, the plan emphasises stable and continuous R&D investment by establishing world-class research infrastructure and attracting top global talent to conduct research in emerging technologies in the city-state,

thereby continuously enhancing the innovation capabilities of the manufacturing industry. These R&D investments focus on key technology areas such as Micro-Electro-Mechanical Systems (MEMS), AI, and Machine Learning, to promote the application of new technologies, helping enterprises to seize new opportunities, especially in emerging industries such as automobiles and medical wearable devices.

Meanwhile, the RIE2025 emphasises digital transformation to help the manufacturing industry enhance the resilience and efficiency of the supply chain through technological innovation. Singapore promotes the application of additive manufacturing and other technologies to assist manufacturers in implementing supply chain transformation and strengthening their ability to meet global supply chain challenges. This digital transformation not only boosts the productivity of the industry but also enhances the competitiveness of enterprises in the international market. In addition, the RIE2025 actively promotes sustainable development, especially in the manufacturing sector. Singapore is committed to developing carbon reduction technologies and sustainable fuels and applying these technologies in the aviation and maritime sectors to help enterprises address environmental challenges and enhance industry sustainability. These measures not only help reduce carbon emissions but also reinforce Singapore's position in global green manufacturing. The RIE2025 plan also focuses on the commercialisation of innovative technologies by expanding the innovation and enterprise platforms, accelerating technology transfer, and helping enterprises commercialise R&D outcomes more quickly. The effective commercialisation of technology promotes sustainable growth in the manufacturing industry and creates more economic value for Singapore.

Summary

Singapore's Manufacturing Vision 2030 enhances the competitiveness of the manufacturing sector through updating the industry transformation programme to focus on the five key sectors of electronics, precision engineering, energy and chemicals, aerospace and logistics, increasing its competitiveness by promoting technological innovation, digitisation and green and sustainable development. The government is committed to supporting research and development (R&D) and technological innovation, attracting global investment, and promoting digital transformation and green development. In addition, Singapore's Research, Innovation and Enterprise 2025 (RIE2025) strategy emphasises stable R&D investment,

digital transformation and sustainability, and facilitates the commercialisation of innovative technologies. These policy initiatives have not only increased the output value and innovation capacity of Singapore's manufacturing sector, but also contributed to the continuous improvement of the industry structure, ensuring Singapore's competitiveness in the world's advanced manufacturing industries and laying a solid foundation for sustainable economic development.

2.4 "New Productive Forces": The National Industrialisation Strategy Presenting Transformation and Upgrading Opportunities for Hong Kong's Manufacturing

As "New Productivity Forces" become the inherent demand and key focus for the nation's drive towards high-quality development, a new wave of technological innovation will provide opportunities for transformation and upgrading in Hong Kong's manufacturing industry.

China's "New Productive Forces" Industrialisation Strategy

At the Third Plenary Session of the 20th Central Committee, the Chinese state proposed an industrialisation strategy called "New Productive Forces," reiterating that China's economic development must rely on the driver of scientific and technological innovation. It also needs to integrate the transformation and upgrading of the manufacturing industry, the application of green eco-friendly technology, and talent cultivation, among other aspects, to achieve high-quality development. The following is a detailed breakdown of the four core areas:

1. Tech Innovation as a Key Driver of "New Productive Forces"

Technological innovation is regarded as the key driver driving "New Productivity Forces". As the world enters the digital economy era, technological innovation is reshaping the production methods and operation models of various industries. Currently, mainland China has made significant achievements in the digital economy sector. Its digital industry relentlessly expands, reaching an added value accounting for approximately 10% of the GDP. Looking ahead, the country will strive to accelerate the application of digital smart technology in traditional industries, promoting deep integration of the digital economy and the real economy, and achieving the digital transformation of industries. This includes the development of the industrial internet, propelling traditional manufacturing towards adopting smart and digitalised processes, thereby enhancing production efficiency and the competitiveness of enterprises.

AI is regarded as a new generation of universal technology among new technologies. To this end, China will accelerate the popularisation and application of technologies such as AI, big data, and cloud computing, and break through the bottlenecks of three core technologies: computing power, algorithms, and data. Such breakthroughs not only improve production efficiency but also promote the smart upgrading of various industries, forming new industrial clusters. The country also plans to establish a sound data security regulatory system to ensure the security of data resources in circulation and application, while actively participating in the formulation of global digital economy rules to ensure China's competitiveness on the international stage.

In key industries, China emphasises the strengthening of cutting-edge technology research targeting specific industrial chains, which has led to a series of original, strategic, and high-quality technological achievements. Many enterprises and institutions, such as Sinochem Group, are actively integrating global high-quality R&D resources, especially in the field of agriculture, where they are accelerating breakthroughs in technology innovation related to the seed industry, plant protection, and animal nutrition. For instance, a newly developed highly efficient gene-editing tool enabled autonomous and efficient application of crop gene-editing technology, which in turn enhances the global competitiveness of Chinese agricultural technology.

As for future industries, China continues to fortify the forward-looking planning of cutting-edge technologies such as quantum technology, life sciences, and AI, and establish a growth mechanism for investment in future industries to ensure that China maintains a competitive advantage in the global innovation scene. Quantum technology has the potential to be disruptive, with profound implications for national defence, telecommunications, and computing. Therefore, China will increase its R&D investment in quantum technology, striving to dominate the future technological race. In the field of life sciences, developments in genetic engineering, stem cell technology, and precision medicine will enable China to achieve breakthroughs in biomedical fields, thereby enhancing the country's competitiveness in the global pharmaceutical market.

2. Transforming and upgrading manufacturing to raise global competitiveness

The country is committed to promoting both technological and industrial innovation, transforming traditional industries in both ways and cultivating emerging industries.

In the current global economy, strategic emerging industries are becoming a key force driving economic development. A new round of industrial reform is reshaping the global economic and industrial landscapes, with major economies sparing no effort to develop high-performance, technology-intensive, and high-value-added industries. Against this backdrop, many countries and enterprises are focussing on national strategic needs, cultivating and strengthening forward-looking and strategic emerging industries in response to the development of the national economy. These efforts will not only promote the integration of industrial, digital, and low-carbon economies but also narrow the gap with international technological standards, and make world-leading achievements in smaller areas.

National policies also emphasise the improvement and upgrade of traditional industries by enhancing national standards and encouraging enterprises to utilise digital, smart and green technologies to transform traditional industries. By leveraging the technology and resources from strategically emerging industries, enterprises can accelerate the digital, smart, and green transformation of traditional industries. This promotes the simultaneous development of traditional and new industries. For instance, modern agricultural technology service centres promote digital agricultural technologies and products that transform traditional agriculture into modern digitalised agriculture and disseminate modern equipment and business models to agricultural practitioners, solving the problems of planting, marketing, and management in agricultural production.

Facing the global market, effective resource allocation is a crucial component of "New Productivity Forces". Intra- and international interactions are valued by many countries and companies. New products from multinational enterprises are entering different markets at the moment, while world-class R&D centres and production bases have been set up and begun operations in multiple locations, forming independent local industrial clusters. Looking forward, Chinese companies will further expand their global businesses, establish high-quality brands, and adopt a global market development model of "local technology" and "local manufacturing", which will help in building a "nation of quality".

3. Strict Adherence to Environment-First Policy with Green Tech Innovation

Climate change is worsening fast, and green development has become a global consensus key to "New Productive Forces". Mainland China needs to accelerate the shift towards a cleaner, low-carbon energy structure in line with global decarbonisation goals. This involves promoting renewable energy and driving the green upgrading of the industrial structure. For instance, energy saving and emission reduction should be advocated in industries such as manufacturing, transportation, and construction, along with the development of green manufacturing.

In view of this, China will accelerate the innovation and application of green and low-carbon technologies, transform traditional high-energy-consuming and high-emission industries, and strengthen support for emerging green industries. Specific measures include transitioning from "double control of energy consumption" to "double control of carbon emissions", establishing a corporate carbon footprint system, and developing renewable energy sources such as solar and wind power, thereby reducing the country's reliance on fossil fuels.

For pollution prevention and control, China will strengthen the treatment of major pollution sources, and construct waste-free cities and industrial parks, ensuring that solid waste is utilised as reusable resources or treated harmlessly. At the same time, China will also enhance the governance of air pollution, water pollution, and soil contamination to ensure continuous improvement in environmental quality. These measures will not only allow the country to achieve a balanced development between economic growth and environmental protection but also lead to a global green economic transformation.

4. Consolidating Talent Supply to Cultivate "New Productivity Forces"

The nation emphasises that "talent is the top resource, and innovation-driven development is essentially talent-driven." China is consolidating the foundation of talent through a series of measures dedicated to cultivating and expanding the "New Productivity Forces" to secure a world-leading position. Firstly, China promotes the reform of the labour and talent development management system, improving the mechanisms for the cultivation, attraction, utilisation, evaluation, and mobility of talent. This includes setting up exchange programmes among universities, research institutes, and enterprises, cultivating innovative skilled talents, and effectively utilising human resources. The Third Plenary Session of the 20th Central Committee emphasised that the nation will expand the reform of the talent mechanisms, fortifying the country's soft power with talents, and focus on cultivating strategic scientists, top scientific and technological leaders, and highly skilled talents, thus providing a solid foundation for the development of "New Productive Forces."

At the same time, the state encourages enterprises and institutions to focus on creating a friendly environment that encourages innovation and tolerates failure. The comprehensive incentive and guarantee mechanism stimulates the creativity of technology talents by rewarding teams and individuals making outstanding contributions to technological innovation and business performance. In the future, China will continue to improve the innovation environment, promote the implementation of medium and long-term incentives such as project profit sharing and rewards for scientific and technological achievements, give priority to high-tech and in-demand talents, stimulate innovation momentum, and accelerate the attraction of high-level scientific and technological talents. Through these measures, the state is gradually consolidating the talent foundation and promoting the sustainable development of the "New Productivity Forces".

The Significance of "New Productivity Forces" for Hong Kong

"New Productivity Forces" hold significant implications for Hong Kong's manufacturing industry: Apart from investing in emerging and future industries, a comprehensive transformation of the city also requires traditional industry models to transform into high-quality, sustainable and innovative models. Only in this way can Hong Kong better align with China's development needs and leverage its own strengths, and promote deeper economic transformation and progress.

In December 2022, the Innovation, Technology and Industry Bureau (ITIB) announced the "Hong Kong Innovation and Technology (I&T) Development Blueprint", which sets a clear path and systematic strategy for Hong Kong's I&T development over the next five to ten years, aiming to lead Hong Kong towards an international innovation and technology hub. The government started with top-level planning, advancing the development of I&T through the following four major directions, hoping to accelerate the creation and development of the "New Productivity Forces" with Hong Kong's advantages and promote Hong Kong's competitiveness in the global I&T landscape.

Source: Innovation, Technology and Industry Bureau (ITIB) Website

1. **To enhance the I&T ecosystem and promote "new industrialisation" in Hong Kong:** optimising the I&T ecosystem to facilitate the transformation of traditional industries towards high-quality, sustainable innovative models.
2. **To enlarge the I&T talent pool to create strong impetus for growth:** Cultivate and attract more tech talent to strengthen talent support for Hong Kong's innovative development.
3. **To promote digital economy development and develop Hong Kong into a smart city:** accelerate the development of digital economy, drive the creation of smart city, and enhance the quality of urban management and services.
4. **To proactively integrate into the overall development of the country and consolidate our role as a bridge connecting the Mainland and the world:** enhance cooperation with both the mainland and international counterparts, making full use of Hong Kong's unique advantages to promote the exchange and collaboration of resources and technologies.

The "New Industrialisation" policy advocated by the Hong Kong government echoes the country's call for "New Productive Forces". Hong Kong's "New Industrialisation" emphasises technological innovation and advancement, while being attentive to environmental protection and sustainable development needs, all of which align with the core of "New Productive Forces". To promote "New Industrialisation", Hong Kong has implemented a range of policies, such as the recently launched New Industrialisation Acceleration Scheme (NIAS), which aims to fund enterprises engaged in industries of strategic importance (i.e., life and health technology, AI and data science, as well as advanced manufacturing and new energy technologies) to establish new intelligent production facilities. The scheme also encourages approved enterprises to conduct R&D or expand their R&D scale.

In terms of upgrading and transforming traditional industries, the manufacturing sector in Hong Kong needs to focus on technology integration. By introducing advanced technologies such as AI and new materials, it can improve production processes and hence product quality. In addition, enterprises should implement smart production line projects to increase efficiency. At the same time, adopting green technologies and standards, reducing environmental impact, and committing to sustainability goals can enhance brand image and market competitiveness, achieving the transformation of traditional industries. To encourage local manufacturers to shift towards smart manufacturing and support enterprises in developing

"New Productive Forces", the government optimised the " New Industrialisation Funding Scheme (NIFS)" under the Innovation and Technology Fund in January 2024. Each eligible enterprise can receive a maximum subsidy of HK$15 million for smart production line projects within Hong Kong in the form of matching funds. Moreover, they can carry out up to three projects simultaneously, with a total subsidy amounting to HK$45 million.

In the development of new high-quality industries, Hong Kong actively cultivates and attracts top talent, creating a talent pool for emerging industries. The government has also implemented talent schemes – the " Research Talent Hub (RTH)" and the " Technology Talent Admission Scheme (TechTAS)" – aiming to hire research talent and non-local skilled workers. These schemes not only demonstrate the future direction of Hong Kong's manufacturing but also provide specific paths to achieve targets. Through these efforts, it is believed that Hong Kong's manufacturing industry will be able to maintain its competitiveness in the global market. Additionally, the government has implemented the " New Industrialisation and Technology Training Programme (NITTP)" (formerly known as the "Reindustrialisation and Technology Training Programme" before October 2023), providing matching funds in a ratio of 2:1 to support local employees in participating in high-end technology training, especially training related to "new industrialisation."

Chapter 3: Transformation and Upgrading of Hong Kong-owned Enterprises: Exploring Practical Paths and Directions

3.1 General Data Analysis of Hong Kong's Manufacturing

As the global market demands evolve, Hong Kong's manufacturing industry is experiencing and adapting to two major trends: "customisation" and "green manufacturing". This not only reflects the industry's adaptability to market changes but also demonstrates Hong Kong's high value-added function as a regional management headquarters. To collect quantitative data for analysis, this study conducted a corporate survey, successfully interviewing 288 Hong Kong enterprises engaged in manufacturing to gather data on the current state of Hong Kong's manufacturing industry, as analysed below.

Statistics of Interviewed Enterprises

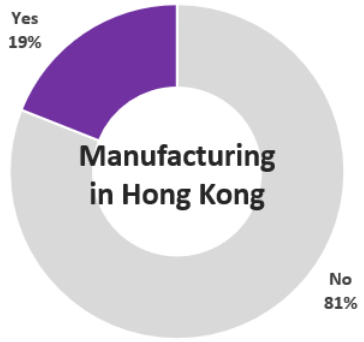
The survey reveals that small and medium-sized enterprises (SMEs) dominate the manufacturing industry in Hong Kong, reflecting their significance in economic activities. The wide range of sectors covered demonstrates the diversity and flexibility of Hong Kong's manufacturing sector, capable of adapting to various market demands. Specifically, 70% of the surveyed enterprises were SMEs, while the remaining 30% were large enterprises. The varied industries include textiles, electronics, stationery, printing, household products,

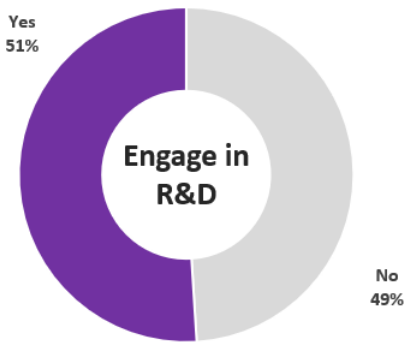
jewellery, machinery, hardware, construction, watches, health and personal care, chemicals (including plastic), toys, food, packaging, and other sectors.

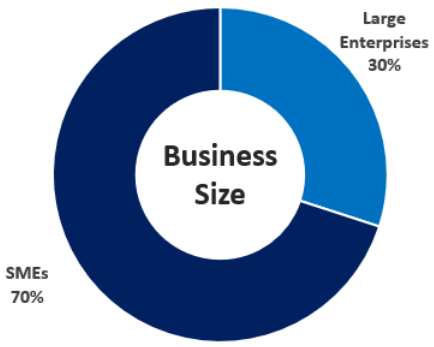
Among the surveyed enterprises, only 19% carried out manufacturing in Hong Kong, while the remaining 81% had their production lines overseas. Additionally, just over half (51%) of the surveyed enterprises were engaged in R&D activities, with the remaining 49% not doing so. Evidently, the majority of enterprises chose to establish production lines overseas while only a few carried out manufacturing in Hong Kong, indicating that the local manufacturing industry needs more support and policy guidance to attract Hong Kong-owned enterprises to set up production lines locally.

288 manufacturing companies in Hong Kong completed the survey

Covering textiles, electronics, stationery, printing, home products, jewelry, machinery, hardware, building materials and equipment, watches, health and personal care items, chemicals, toys, food, packaging and other industries.

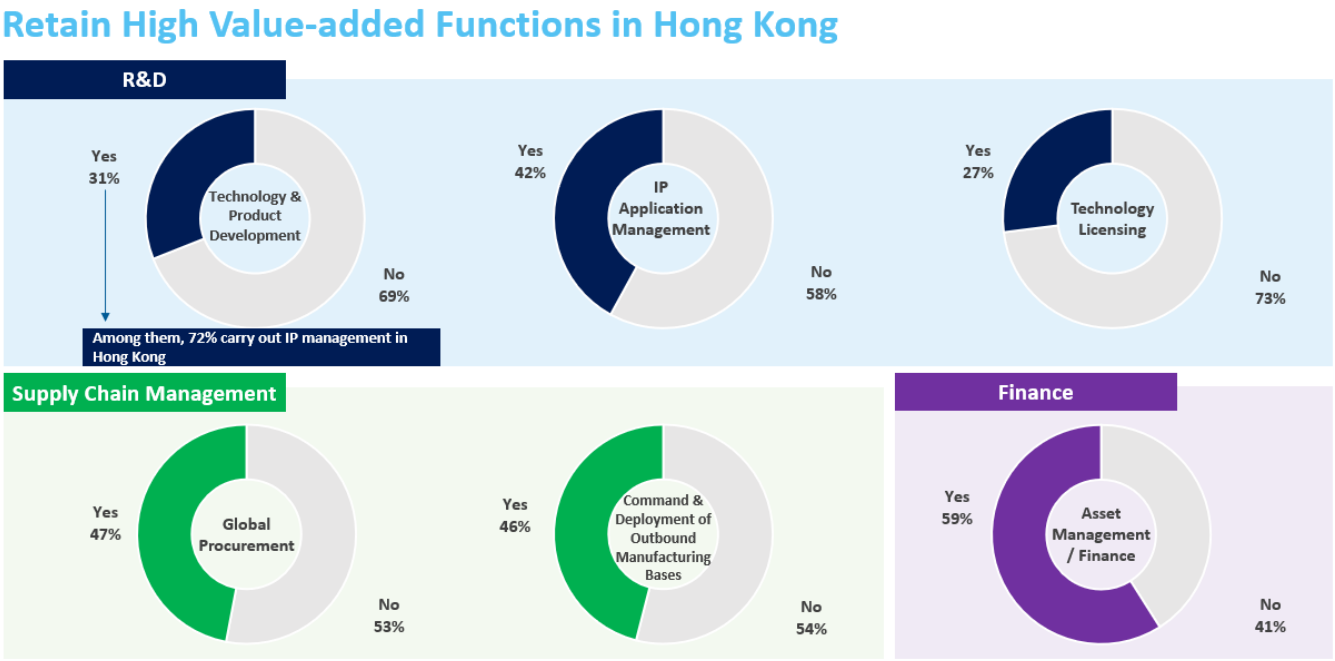






Analysis of Survey Results

1. Hong Kong's Functions as High-Value-Added Headquarters: Room for Development



The survey results show that the majority of the enterprises surveyed keep their headquarters functions in Hong Kong, mainly responsible for high-value-added businesses. According to the survey results, the headquarters functions in Hong Kong mainly include the following aspects:

- **R&D**: 31% of the surveyed enterprises conducted technology and product development in Hong Kong, of which 72% also managed intellectual property for their new technologies in the city. Additionally, overall, 42% of the surveyed enterprises chose to apply for intellectual property management in Hong Kong, and 27% conducted technology licensing here.

- **Supply chain management**: 47% of the surveyed enterprises chose to conduct global procurement in Hong Kong, and 46% of them managed offshore manufacturing bases from within the city. This indicates that nearly half of the businesses were leveraging Hong Kong's advantages in business management and its connections with the global market.

- **Financial Management**: 59% of the surveyed companies financed or managed their assets in Hong Kong, reflecting the long-standing attractiveness of Hong Kong's financial industry.

It can be seen that most of the manufacturing functions of Hong Kong manufacturers rely on lower-cost offshore manufacturing bases, but Hong Kong still retains its headquarters functions and is more active in trade and financial activities. However, Hong Kong's capabilities in R&D and supply chain management are relatively lacking, hence there is room for further development of Hong Kong's role as high-value-added headquarters.

At the same time, as a free port, Hong Kong has an absolute advantage over its neighbours in import and export, which should leveraged in supply chain management. However, currently, only 47% of manufacturers conduct global procurement in Hong Kong and 46% direct overseas manufacturing bases from within Hong Kong. Despite reaching half, there is still room for improvement in supply chain management in a comprehensive transformation.

2. Customisation Becoming the New Normal

As for the trend of customisation, 69% of the surveyed enterprises believed that the "lots of variety in fewer quantities" production model is the future of manufacturing. However, 81% of the surveyed manufacturers had not yet introduced smart solutions to address the new trend of customisation. Only 19% of the surveyed enterprises had adopted smartification solutions, 20% were planning to do so, 8% were using other solutions to cope with customisation (such as enhanced promotion), and 53% indicated that they had no way of dealing with the trend. The data reflect that although enterprises acknowledge the importance of customisation and smaller order volumes, in reality, the adoption of smartification is still insufficient. In order to promote the transformation and upgrading of manufacturing, "small order volume and customisation" is a top challenge.

In response to the demand for small order volume and customisation, Hong Kong should leverage its unique advantages rather than focusing on competing in production volume and price. As a free port, Hong Kong is highly efficient in both importing raw materials and exporting products, capably meeting the demands of international customers. Currently, the biggest advantage of establishing a factory in Hong Kong is its flexibility and efficient production. In this regard, HKPC is promoting a new manufacturing model called "smart microfactory," which maximises production efficiency within a limited space through the application of advanced intelligent technology. This model features small batch sizes and inventory and is, therefore, able to increase the value per unit of space, enhancing production flexibility to meet diverse market demands while reducing inventory accumulation. The concept of smart microfactories aims to reduce reliance on labour through highly automated production lines, thereby improving product quality and production efficiency.

3. Green & Sustainable Development: The Essential Issue

The demand for sustainability is even more significant, with 67% of companies reporting that they had received or were expecting to receive requests from clients for green manufacturing.

Green & Sustainable Development Essential Issue for the Manufacturing Industry

67% Have received or expect to receive relevant requests from customers

Examples of Green Manufacturing Requirements & Services :

- Carbon-reduction Energy Solutions
- Energy Management
- Carbon Capture, Carbon Credit Certification, Carbon Trading
- International Sustainable Development Certification Services
- Sustainable Development Training Course
- ESG Reporting, Assurance, Consulting Services
- Green / ESG Rating
- Green Finance
- Sustainability-themed Financing

Source: Research by the Productivity Council

In this study, both expert interviews and corporate surveys suggest that sustainability is a global consensus. Manufacturers should adopt more eco-friendly and sustainable technologies and methods in their production processes to reduce environmental impact and meet the increasing consumer demand for green products. This has become an essential issue in manufacturing. The requirements and range of green manufacturing services are extensive, involving energy management and carbon reduction, international sustainability certification and training, ESG reporting, verification and rating, and green finance. For the green transformation, the government has consistently supported the development of local green technology through the "Green Tech Fund" and the "Innovation and Technology Fund", transforming research projects with practical application potential into locally produced technologies or products with commercial value.

3.2 New Trends in Manufacturing: Customisation and Sustainability Reflect Hong Kong's Function as High-Value-Added Headquarters

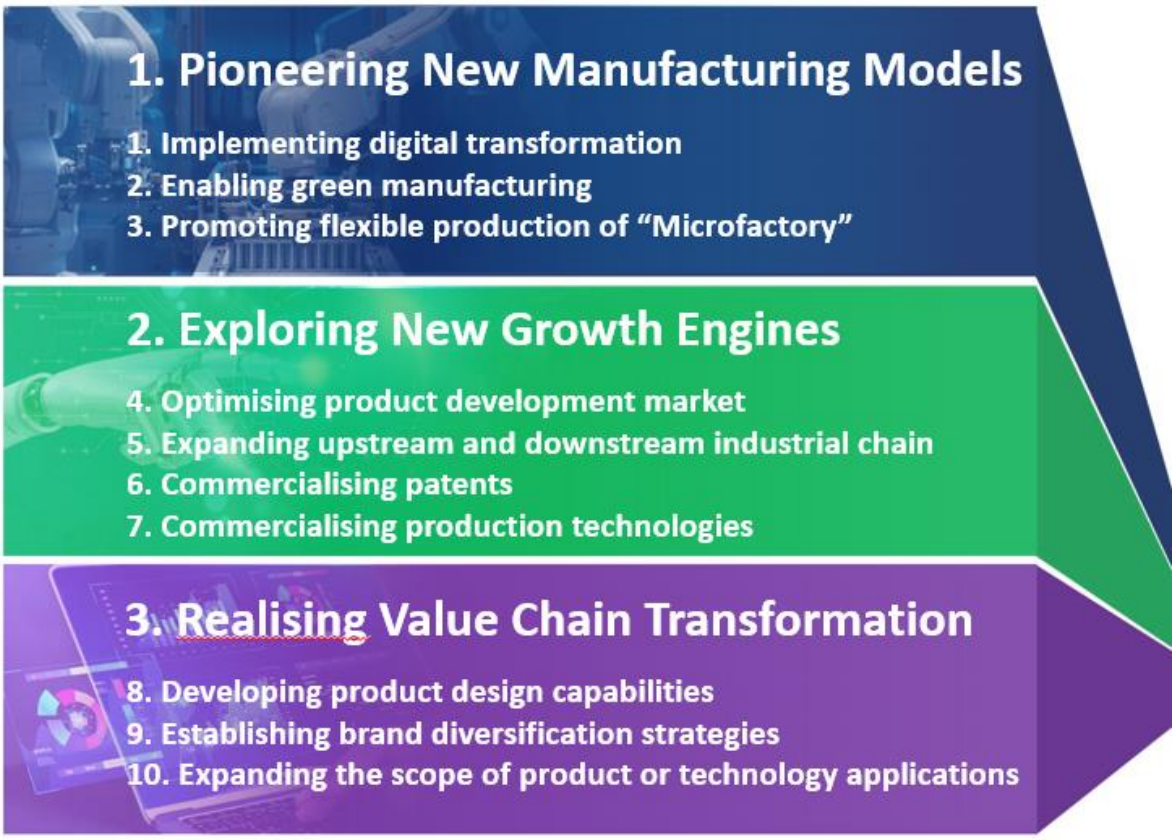
The research reveals that only about 20% of enterprises retained their manufacturing operations in Hong Kong, while only half are engaged in R&D activities. Furthermore, these enterprises regard Hong Kong as their management headquarters, conducting high-value-added functions in the city. In terms of R&D, 30% of enterprises developed their technologies and products in Hong Kong, with 72% within this 30% managing intellectual property in the city. Overall, 40% of enterprises manage intellectual property rights in Hong Kong, and more than 20% license their technologies here. In supply chain management, about half of the enterprises conduct global procurement and direct their off-shore manufacturing bases from Hong Kong. Financially, over 50% are engaged in asset management and financing in the city. These figures all indicate that the manufacturing industry in Hong Kong needs to transform and upgrade according to new trends in development.

One important trend revealed by the survey is "small order volume and customisation". In the research, most manufacturers agree that lots of variety in fewer quantities is a new trend in the industry. To transform and upgrade Hong Kong's manufacturing industry, this is the first challenge that needs to be overcome. The second direction is "green and sustainable development". When asked if enterprises had encountered customer requests for compliance with green and sustainability standards in manufacturing processes, 67% of the enterprises reported that they had received or were expecting to receive such requests. Examples of related green manufacturing requirements and services include low-carbon energy solutions, energy management, carbon capture, carbon credit certification, carbon trading, international sustainability certification services, sustainable development training courses, ESG reporting, verification, consulting services, green bonds, and sustainable development-themed loans. This important trend shows that Hong Kong's manufacturing industry needs to embrace green manufacturing to gain public and industry support.

3.3 Three Major Directions to Lead the Development of New Productive Forces

In today's ever-changing global market environment, Hong Kong-owned manufacturing industries are facing unprecedented challenges and opportunities. Summarising the case studies and data analysis of this research, manufacturers in Hong Kong must cope with the evolution of the global supply chain and the keen market competition, cultivate "New Productive Forces," and achieve "new industrialisation." This report proposes "three major directions" as a strategic framework for the development of Hong Kong's manufacturing industry, aiming to lead enterprises to break away from traditional thinking, and through innovation and technology application, achieve a comprehensive transformation from the production model to the value chain. After conducting a survey and an in-depth analysis of 1,300 cases of upgrading and transformation of Hong Kong'-owned enterprises, the following will discuss three major directions for Hong Kong-owned manufacturing industries to move forward under a brand-new landscape.

Three Major Directions to Transform and Upgrade Hong Kong's Manufacturing



Direction 1: Pioneering New Manufacturing Models

1. Implementing digital transformation

The manufacturing industry in Hong Kong should move early to keep up with the global trend of digitalisation, enhancing production efficiency and cost-effectiveness. Digital transformation is one of the core trends in modern manufacturing. According to a report by McKinsey & Company, digital transformation can increase production efficiency by 20% to 30%. By introducing advanced technologies such as the Internet of Things (IoT), AI, and big data, production processes will become smart and automated, thereby improving product quality and flexibility. According to Deloitte's "2021 Global Digital Transformation Survey", approximately 70% of manufacturers worldwide had started to implement digital transformation and were planning to increase investment in the coming years.

2. Enabling green manufacturing

For Hong Kong-owned enterprises, green manufacturing will become an indispensable element in their supply chain. With the increasing environmental awareness, green manufacturing has become a significant consideration for consumers and governments around the world. Moreover, green manufacturing also helps enterprises save production costs. According to the report "Energy Efficiency 2020" by the International Energy Agency (IEA) in 2020, the implementation of green manufacturing can improve an enterprise's energy efficiency by 15% to 20%. Enterprises need to reduce resource consumption and waste generation in production processes and utilise renewable raw materials and clean energy. According to data from BloombergNEF, global investment in renewable energy reached approximately 500 billion USD in 2020, demonstrating enterprises' commitment to sustainability. Green manufacturing not only reduces environmental pollution but also enhances the brand image of Hong Kong manufacturers and their competitiveness in the international market.

3. Promoting flexible production of “Microfactory”

Smart microfactory, distinct from traditional factories, adopts high-tech smart production technologies and achieves a highly flexible production model that increases production flexibility and spatial efficiency as they require much less space, making it especially suitable for small-batch smart production, aligning well with Hong Kong's unique land and market conditions. According to PwC's 2021 report "Industry 4.0: How to Succeed in the New Manufacturing Ecosystem," around 50% of manufacturing executives believe that smart manufacturing will become the primary mode of production within the next five years. The smart microfactory model allows enterprises to quickly adjust production lines in response to market demands, thereby enhancing customer satisfaction. By integrating automation and digital management, smart microfactories enable enterprises to produce a variety of products efficiently with reduced delivery times. According to market research company Statista, the intelligent manufacturing market is expected to reach 400 billion USD by 2025, and its vast growth potential is undeniable.

Direction 2: Exploring New Growth Engines

4. Optimising product development market

Optimising the product development process is crucial as it enables Hong Kong-owned enterprises to quickly adapt to market changes and meet consumer demands. To optimise the product development process, manufacturers need to agilely and continuously listen to and respond to the ever-changing demands of consumers. According to Gartner's research, improving the product development process could increase the speed of product launches by 20% to 30%. Enterprises can adopt agile development methods, enhance cross-departmental collaboration, and achieve rapid feedback and iteration, thus effectively conducting market research and user feedback during the development process. This

strategy not only helps to enhance enterprise competitiveness but also promotes innovation and creativity, reduces development risks, and improves return on investment.

In addition, according to the 2020 report "Accelerating Innovation in the New Normal" by McKinsey & Company, if businesses better respond to customer needs and market trends during the development process, the chances of successful new product development would increase by about 50%. Therefore, fully understanding market trends and customer needs is key to optimising product development.

5. Expanding upstream and downstream industrial chain

Expanding the upstream and downstream industrial chains is a crucial growth strategy for Hong Kong-owned enterprises. According to PwC's report "2021 Global Supply Chain Survey" 2021, about 65% of enterprises indicated that integrating the upstream and downstream supply chains can reduce costs and improve efficiency, thus promoting business growth. The report points out that companies that integrate their supply chains can, on average, reduce their operating costs by 10% to 15%. Moreover, research by Gartner shows that supply chain integration can also improve an enterprise's on-time delivery rate, with an average increase of 20%. This kind of integration not only enhances the flexibility of the supply chain but also reduces the risks brought about by market fluctuations, giving enterprises a competitive advantage.

6. Commercialising patents

Hong Kong's intellectual property system is highly mature and aligned with the international standards. The commercialisation of patents is a significant growth engine, capable of transforming the innovation of Hong Kong-owned enterprises into economic benefits. According to Deloitte's 2019 report "The Value of Intellectual Property," successful patent commercialisation can bring an average growth potential of up to 20% for enterprises. Companies can enhance their market competitiveness by licensing patents, engaging in cooperative development, or directly converting patents into new products. Moreover, acquiring and protecting patents can also enhance the brand value and market position of enterprises.

According to data from IP Watchdog, companies with a strong patent portfolio are more likely to attract investment and partnership opportunities, and these patents often become one of the core indicators for corporate evaluation. This implies that patent strategy is not only a part of technology management but also a significant driving force for a company's long-term growth.

7. Commercialising production technologies

The commercialisation of production technology refers to the transformation of internal production technologies and processes of a company into commercial products or services. According to the report "Global Manufacturing Technology Market Analysis" by ReportLinker in 2022, the market of commercialised production technology is expected to grow to 50 billion USD in the next five years. This will not only help enterprises expand their revenue sources but also enhance their market influence.

The commercialisation process of production technology includes technology transfer, collaborative development, and technology licensing. Hong Kong-owned enterprises can collaborate with other companies or institutions to promote their production technology, achieving technology sharing and resource improvement. According to the report "2021 Sustainability Report" by Schneider Electric, if a company can successfully commercialise their new technologies, it can significantly enhance its competitiveness and market value, and production efficiency will also increase by 20% to 30%. A sound strategy for technology commercialisation can significantly enhance a company's competitiveness.

Direction 3: Realising Value Chain Transformation

8. Developing product design capabilities

Product design capabilities are the cornerstone of corporate innovation and market competitiveness. A 2021 "Design Value Index" report by The International Council of Societies of Industrial Designers noted that companies that integrate design into their strategies typically outperform their competitors by about 219% in the market. Therefore, design capability not only enhances product quality but also strengthens brand image, thereby increasing customer satisfaction. Moreover, effective product design can not only enrich the functionality and aesthetics of products but also reduce production costs, thus improving overall profit margins. Deloitte's 2020 report "The Business Value of Design"

pointed out that every dollar companies invest in design can bring an average return of 4 to 10 dollars. Therefore, continuous innovation in design can be transformational, helping Hong Kong-owned enterprises to expand their market share.

9. Establishing brand diversification strategies

Brand diversification is the strategy of exploring new product lines. Hong Kong-owned enterprises can adapt to market changes and shifting consumer demands. According to Deloitte's 2021 report "2021 Global Marketing Trends," successful brand diversification can achieve a growth rate of about 20% to 30% for enterprises in new markets. Therefore, brand diversification not only attracts different consumer groups but also increases market share. Moreover, the Harvard Business Review in 2022 found that companies that had successfully undergone brand diversification had an average increase of 15% in customer retention rate. Therefore, this strategy not only increases sales but also enhances the enterprise's ability to withstand market risks.

10. Expanding the scope of product or technology applications

With the rapid advancement of technology, Hong Kong-owned enterprises need to continuously expand the scope of application for their products or technologies to meet market demands. According to the "Worldwide Digital Transformation Spending Guide" report by IDC, a market research firm. In 2022, approximately 60% of global enterprises started to explore the application of new technologies and plan to expand it over the next few years. Therefore, if enterprises can successfully incorporate new technologies into their products, they can significantly enhance their market competitiveness. For instance, many enterprises are integrating AI and the Internet of Things (IoT) into their products to raise the level of product intelligence and user experience. Statista predicts accordingly that the global IoT market will reach about 1.1 trillion US dollars by 2025, demonstrating the immense potential of technology application. If Hong Kong-owned enterprises agilely expand the application scope of their products, they can not only increase the added value of the products but also create new business models.

3.4 Cases of New Productive Forces Development of Hong Kong Enterprises

Manufacturing enterprises in Hong Kong have always been flexible and adaptable. Many enterprises have long recognised the growth potential that new technologies bring to their businesses, upgrading and transforming their manufacturing processes while responding to market and customer demands for customisation and green manufacturing. The following two case studies illustrate strategies and specific actions for upgrading and transformation, as well as demonstrate the various impacts of these reforms on their businesses.

Case Study 1:

Background

The Hong Kong head office of a mould and injection moulding product manufacturer is responsible for strategy and investment management, finance, personnel, innovation and R&D and supply chain decision-making management. It plays an important role in the Hong Kong headquarters economy and has production bases in the mainland and Southeast Asia and aims to provide customers with precision injection moulding parts and mould products with intricate technology. With its unique mould and injection moulding technology developed in-house, it offers one-stop solutions for clients in industries such as medical, healthcare, automotive and industrial supplies, electronics etc.

Challenges

The moulding manufacturer is facing challenges of rising production costs and digital transformation, while also needing to meet green manufacturing requirements and enhance

product added value. They also had to explore new growth engines, improve product development, and expand the upstream and downstream industrial chains to enhance market competitiveness and achieve value chain transformation.

Their Experience of Upgrading and Transformation:

- **Digital Transformation:** Reaching the Industry 4.0 Level-1i maturity standard, the company developed an AI-based digital management system (DMS), and has successfully digitalised the whole process, from product development to mass production. They also connected the data systems of various operating bases, making real-time monitoring of the operations in different locations through a single system possible

1. **Enabling Green Manufacturing:** The company is committed to building a green & low-carbon factory. It is now producing products that meet international standards & customer corporate social responsibility requirements. They have also obtained several quality management certifications.

2. **New manufacturing models:** The company has been transformed from producing traditional moulds to R&D and precision plastic products, expanding the business into various industries and supply chain applications with high-quality and precision products. They also started to collaborate with R&D institutions to develop new materials. The company owns multiple mould technologies and new material patents and applies them to products co-developed with clients.

3. **Exploring new growth drivers:** The company is focusing on improving product development and expanding the upstream and downstream industrial chains, as well as commercialising patented products to enhance market competitiveness and bring new sources of revenue to the company.

4. **Realising Value Chain Transformation:** The company designs solutions from concept to finished product to meet the needs of different industries. The company has a professional engineering team to assist in clients' product developments, thereby increasing customer satisfaction.

Results

The company has made significant progress in its value chain transformation, product design capabilities and the scope of product/technology application. To address the needs of different industries, the company has designed solutions from concept to finished product and established professional engineering teams to assist customers in product development,

strengthening cooperation with customers and enhancing their satisfaction. The application of new manufacturing models and patented technologies has expanded the scope of market application of products and increased the added value of products. Expansion of upstream and downstream industrial chains and commercialisation of patents have created new sources of revenue and enhanced market competitiveness. The professional engineering team and comprehensive product solutions have enhanced customer satisfaction and loyalty, and building long-term relations. Overall, these initiatives have not only enhanced the company's existing business performance but also ensured its long-term competitive advantage and sustainable growth.

Case Study (2)

Background

A plastic toy manufacturer primarily engaged in injection moulding and OEM manufacturing.

Challenges

With the continuous rise in costs, the company realised the need to upgrade and transform to maintain competitiveness. Therefore, the company actively introduces the concept of Industry 4.0, hoping to digitalise factory management, while also hoping to develop ODM services, international brand licensing and establish its own brand, to produce toy products meeting demands of both parent-child interaction and STEAM education.

Their Experience of Upgrading and Transformation:

1. **Digital Transformation:** The company has reached the Industry 4.0 Level-1i maturity standard. They have established a smart production process, from raw materials to finished products, an intelligent production line, and have successfully digitalised daily production and production data.

2. **Enabling Green Manufacturing:** The company has achieved resource conservation and environmental pollution reduction through smart production. It obtained several social responsibility & international production certifications, and all of its products meet the safety standards of their respective distribution countries.

3. **New Production Models:** The company has made progress in optimising product development, where it developed new education solutions, by integrating technologies such as AR & mobile apps based on the original plastic toy product. This increases the product's added value.

4. **New Growth Engine and Value Chain Transformation:** The company focuses on cultivating product design capabilities to diversify the brand. It started handling the entire business chain, covering product design, manufacturing, distribution & retail, for world-renowned brands. The company also started to develop self-owned brands, offering educational toys & promoting environmental conservation information, as well as developing interactive STEAM courses.

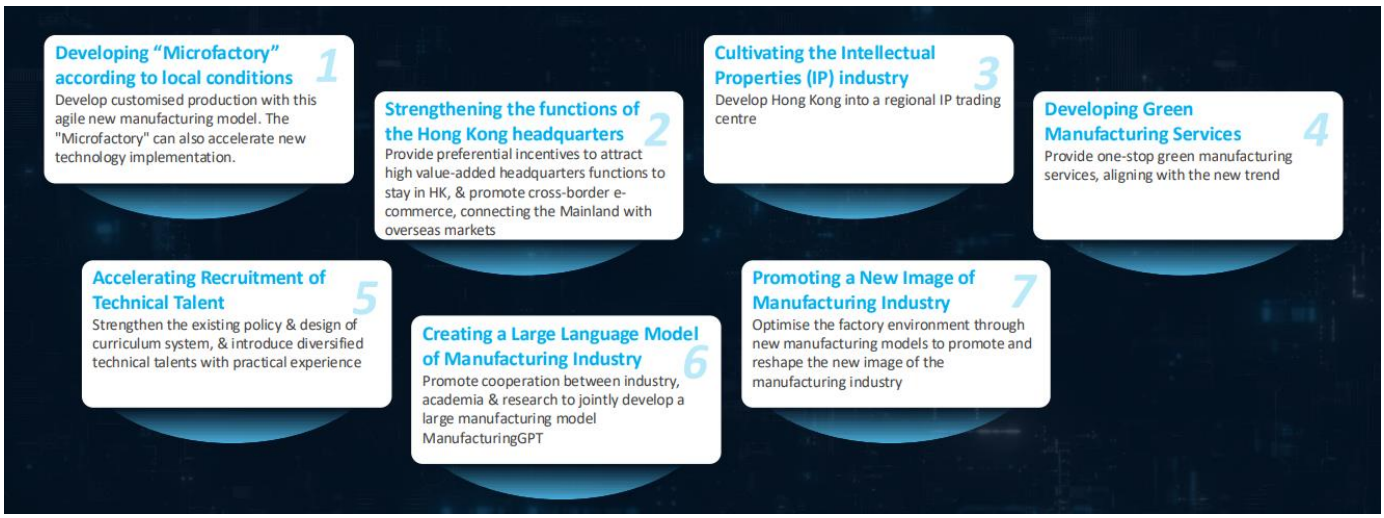
Results

Digital transformation has enabled it to significantly improve its production efficiency and management standards, reaching the 1i maturity standard of Industry 4.0. In terms of green manufacturing, the enterprise has reduced resource consumption and environmental pollution, and has obtained a number of international certifications to enhance market trust. In addition, by combining AR technology and mobile apps, the enterprise developed a new teaching programme, increasing the added value of its products. The brand diversification strategy and enhanced product design capabilities enabled the enterprise to provide comprehensive services to renowned brands and to develop its own brands focusing on educational toys and environmental conservation, further consolidating its market position and brand influence. These measures have not only enhanced production efficiency and market competitiveness, but also achieved significant results in environmental protection and social responsibility, laying a solid foundation for sustainable development in the future.

Chapter 4: Hong Kong Manufacturing Industry Development Strategy: Seven Major Actions to Ignite New Momentum

In summary of the above research, this report proposes seven major action recommendations for the development of Hong Kong's manufacturing industry development, further divided into three levels: "made in Hong Kong," "headquarters functions," and "service industry for manufacturing." The recommendations cover areas including technological innovation, industry upgrading, talent cultivation and policy support, comprehensively increasing the industry's competitiveness. Through these multifaceted recommendations, HKPC hopes that Hong Kong's manufacturing industry can enhance its competitiveness on the global stage and pave the way for diverse economic growth in the future. Not only will this realise the sustainable development of Hong Kong's economy, but also cope with the changes and challenges in the global market, thus providing a solid guarantee for Hong Kong's long-term prosperity.

4.1 Seven Major Recommended Actions



Action 1: Made in Hong Kong
Developing "Microfactory" According to Local Conditions

Firstly, considering Hong Kong's advantages, it is recommended to develop "microfactory" to strengthen Hong Kong's response to the customisation and small-batch intelligent manufacturing model. Allowing for Hong Kong's limited resources, microfactories will allow us to catch up with new trends. The government should plan for suitable land for "smart microfactories" according to the needs of key industries and comprehensively review the existing industrial land and factory buildings. This not only encourages enterprises to make good use of innovative technology resources but also promotes the practice of green smart manufacturing. Through these strategies, enterprises can enhance the output value of spatial units and adopt new and flexible manufacturing models to customise production. Moreover, "smart microfactories" can also become an important base for driving cutting-edge technology research, accelerating pilot transformation, R&D of new products, and the application of new technologies, injecting new vitality into Hong Kong's economic growth.

Smart microfactories can not only meet the needs of Hong Kong's development in innovative technology but also play a crucial role as a pilot base in the process from R&D to industrialisation, accelerating the transformation and application of new technologies and products. For its spatial needs, despite Hong Kong's size, it boasts efficient land use and advanced infrastructure. Hong Kong's advantages as a free port offer significant benefits in import and export, helping enterprises quickly respond to market changes and customer demands, and achieving flexibility in small batch production. Hong Kong's manufacturing talent possesses a dual identity as a product designer and consumer, enabling them to swiftly perceive market demands and trends, thus having a sharp market acumen. These unique advantages of Hong Kong provide a broad market and business opportunities for customisation and small-batch production.

For a long time, HKPC has been focussing on promoting and developing "new industrialisation" as its core priority, dedicated to driving productivity enhancement in enterprises through technological innovation, and developing "New Productive Forces". Over the past decade, HKPC has assisted the industry in successfully promoting more than 1,300 industrial smartification projects in the Greater Bay Area and has driven the establishment of smart production lines in Hong Kong, covering various sectors, including advanced materials, life and health, as well as traditional industries such as food and textiles. There are numerous cases of intelligent microfactories in the city, which are able to utilise AI visual analysis coupled with robotic arms to promptly reflect accidental situations occurring within the factory, thus making good use of resources to improve and increase productivity, while also providing high-quality employment opportunities and improving the working environment for employees.

Action 2: Hong Kong Headquarters

Strengthening Hong Kong's Headquarters Functions

The traditional definition of the headquarters functions in Hong Kong refers to the practice where a company establishes its core business operations, such as management, decision-making, R&D, finance, and marketing - high value-added sectors, in Hong Kong, managing large-scale production at offshore manufacturing Bases. Firstly, as an international city, Hong Kong benefits from convenient logistics, a free trade environment, and a mature financial system, which is conducive to companies conducting business globally. Secondly, the headquarters function emphasises high-value-added businesses, such as technological R&D and product design. With the economic transformation, the manufacturing headquarter functions in Hong Kong have also shifted from a single production model to diversified business management.

To further increase Hong Kong's international competitiveness, it is suggested that the high-value-added headquarters functions in Hong Kong should be further enhanced to attract businesses to grow in Hong Kong The government should offer tax incentives and preferential investment policies for diverse businesses such as technology and product R&D, intellectual property, finance, and asset management. This would encourage these enterprises to establish their headquarters in Hong Kong, connecting the mainland with the global market,

and consolidating Hong Kong's unique role as a "super-connector" and "super value-adder" between the mainland and the rest of the world.

This study recommends the further enhancement of Hong Kong's headquarters functions. The government and industry should continue innovating financial services, strengthening R&D capabilities, optimising supply chain management, and promoting green manufacturing, so as to enhance Hong Kong's competitiveness and achieve economic transformation and upgrading, as detailed below:

Innovation in Financial Services: As an international financial centre, one of the directions for the enhancement of Hong Kong's headquarters functions is to become a financial centre that supports international technological innovation. The Government can formulate policies to attract more venture capital and private equity funds to Hong Kong, and set up financing platforms specifically targeting technology and innovation enterprises. The industry should actively participate in these platforms by providing more diversified financial products and services, especially international financing support for start-ups, so that Hong Kong can become a financing hotspot for technology and innovation enterprises.

Increase R&D Capabilities: Hong Kong needs to enhance its R&D capabilities and become a source of technological innovation. The Government should increase funding and tax incentives for R&D activities, and establish support mechanisms for technology transfer and intellectual property protection. Enterprises should invest more in technology and product development in Hong Kong and actively participate in technology licensing and transfer activities, thereby enhancing the R&D dimension of Hong Kong's headquarters functions.

Supply Chain Management: As a free port, Hong Kong has the advantage of developing supply chain management. The Government should encourage enterprises to leverage Hong Kong's import and export advantages to develop global procurement and supply chain management, and provide relevant infrastructure and policy support. Enterprises should increase the proportion of global sourcing in Hong Kong and enhance their capability to direct and deploy offshore manufacturing bases , thereby improving the efficiency and flexibility of the supply chain.

Green Manufacturing Standards: While enhancing the functions of its headquarters, The government should implement and promote green manufacturing standards, provide relevant incentives and subsidies, encouraging businesses to develop green manufacturing. Enterprises should proactively adopt green manufacturing technologies and processes, implement the green manufacturing standards, so as to set a benchmark for sustainability in the global market.

Action 3: Producer Services - Cultivating the Intellectual Properties (IP) industry

Adding to the two previous levels, Hong Kong can further transform and upgrade its current professional service industry, creating an ecosystem of "producer services".
Hong Kong's professional service industry covers multiple sub-industries, including financial services, IP management, legal services, accounting and auditing, logistics and supply chain management, marketing and advertising, information technology services, as well as design and creative industries. These industries play a significant role in supporting the development of the manufacturing sector, . Among them, the IP industry is specifically recommended for further cultivation to strengthen the manufacturing industry.

In 2024, China National Intellectual Property Administration announced that HKPC has been selected as a Technology and Innovation Support Centre (TISC) organisation jointly recognised by aforementioned Administration and the World Intellectual Property Organisation (WIPO). The organisation is now actively working with stakeholders to launch the Centre by 2025, with a view to assisting the industry to maximise their innovative potential and to create, protect, manage and commercialise their intellectual property. At the same time, TISC-related services, publicity activities will be launched to facilitate Hong Kong's I&T sector and SMEs to better understand TISC's services and IP-related information, cultivating I&T talents with knowledge related to patenting, thereby empowering the development of New Productive Forces. In addition, the HKSAR Government should introduce and enhance policies to support the IP ecosystem, covering creation, application, commercialisation, trade and professional services. This will help develop Hong Kong into a regional IP trading centre, enhance the competitiveness of local enterprises and attract more international enterprises to invest in Hong Kong.

At the same time, Hong Kong should draw on the experience of the Mainland, the United States and Singapore to promote information transparency and encourage IP trading through the establishment of an effective secondary market. At the same time, Hong Kong should deepen its cooperation with the Mainland by participating in the Patent Prosecution Highway (PPH), strengthening cooperation with patent offices of different jurisdictions, mutually recognising each other's granted patents and streamlining the examination procedures, so as to consolidate Hong Kong's position in the global IP arena and expand the international network of IP platforms to facilitate the transfer and licensing of Mainland IP to the "Belt and Road" and BRICS countries. The Government should introduce and enhance IP policies to support the development of the IP ecosystem, covering areas such as creation, application, commercialisation, trade and professional services. This will help Hong Kong become a regional IP trading centre, enhance the competitiveness of local enterprises and attract more international enterprises to invest in Hong Kong.

Action 4: Producer Services - Develop Green Manufacturing Services

With the global emphasis on environmental protection and sustainable development, the development of green producer services is also an important direction for Hong Kong's future. The government should establish, strengthen, and coordinate the services related to green manufacturing, including green finance, green environmental protection industry, and green manufacturing services, then provide one-stop green manufacturing services to the local, Mainland and overseas markets. At the same time, Chambers of Commerce should encourage the industry to adopt green manufacturing to cope with the new trend. Hong Kong possesses advanced financial markets and abundant experience in professional services. In 2023, the scale of green bonds issued in Hong Kong exceeded 50 billion USD, accounting for more than one-third of the Asian market. It is fully capable of a significant role in the development of the Greater Bay Area and the Belt and Road Initiative in the field of green finance. To seize such tremendous opportunities, Hong Kong can further leverage its advantages in the financial market to promote the construction of green infrastructure and encourage local governments and enterprises in the mainland to issue green bonds in Hong Kong. This will assist in their green transformation and sustainable development, providing the necessary market momentum. At the same time, Hong Kong can strengthen its role in the carbon credit and carbon trading markets. By establishing a robust carbon credit trading market, Hong Kong can not only provide the necessary market momentum for enterprises

within the region to encourage their investment in low-carbon technologies and solutions but also drive the development of the voluntary carbon market throughout the Greater Bay Area.

Green Environmental Industry: Hong Kong should utilise the land supply in the new development areas to establish additional environmental facilities, such as constructing eco-parks, to further promote the development of the green industry. Moreover, Hong Kong must innovate in terms of energy efficiency and renewable technologies. The government's incentives and public-private partnerships will help to drive green technology projects, promote the development of new energy, and strengthen the environmental recycling industry to reduce the carbon footprint and enhance energy security.

Green Manufacturing Services: Green manufacturing services, part of the global demand for sustainability, is also an important direction for Hong Kong's future manufacturing. The government should establish, strengthen, and coordinate the development of services related to green manufacturing, including one-stop services such as green manufacturing certification, ESG compliance, energy efficiency optimisation, and carbon neutrality certification. Chambers of Commerce should encourage the industry to actively implement green manufacturing, aligning with the new trends, which will not only help enhance the corporate social responsibility image but also attract more environmentally conscious consumers.

Action 5: Industry Supporting Measures - Accelerate the Recruitment of Technical Talents

In terms of talent cultivation, the government needs to strengthen and expand the existing talent attraction policies. Under the upgrading and transformation of the manufacturing industry, the entire industry chain requires a diverse range of talents. In addition to high-end scientific research talents, Hong Kong should also

introduce diverse technical talents with practical experience. Moreover, the government should promote "skill-based" training for the existing local talents to help them adapt to future industry needs.

While developing and consolidating the inherent strengths of academically oriented universities, it is necessary to accelerate the development applied sciences education at higher education institutions, offering degree programmes that integrate theory and practice. These universities should closely cooperate with the professional and technical industry sectors. Curricula should incorporate internships and placement opportunities to effectively cultivate students' applied skills. It is important to promote and prioritise vocational education as well. In addition to opening up another path for local students, efforts should also be made to attract non-local students, especially those from mainland China and Southeast Asia, to come to Hong Kong. The " Immigration Arrangement for Non-local Graduates (IANG)" scheme should be improved, and additional advanced diploma courses should be introduced to attract talent to remain in the city, addressing the shortage of professional and technical (grey-collar) labour force.

The government should actively engage with the world's top talent, especially the overseas Chinese diaspora, such as university research teams or corporate core teams, and provide incentives to attract them to settle in Hong Kong, creating a promotional effect, which in turn drives the entire related "talent chain" to converge in Hong Kong. At the same time, the "talent chain" is built upon the "industrial chain," with the "innovation chain" deployed around the "industrial chain" to provide talent with research-oriented and international learning opportunities, encouraging them to stay in Hong Kong and contribute to technology innovation. Combined with the "Study in Hong Kong" brand, this further strengthens the technology innovation ecosystem.

Enhance the overall skill level of the workforce: The government should promptly review the Reform and Retraining Bureau, establish training courses and strategies that are "skill-based" for the entire labour force while increasing resources and cooperation with higher education institutions and leading enterprises, strengthen services such as career planning and job matching, and at the same time, consider the current skill level of the overall

workforce when designing courses, launching corresponding courses that genuinely meet the needs of the workforce.

Action 6: Industry Supporting Measures - Creating ManufacturingGPT

In order to promote the transformation of Hong Kong's manufacturing industry towards smartification and high value-addedness, it is proposed that the Government should actively promote in-depth co-operation among industry, academia and research institution to jointly develop ManufacturingGPT, a large-scale large language model tailored to the manufacturing industry. This model will incorporate the latest AI technology to provide the manufacturing industry to provide efficient and intelligent solutions for the manufacturing industry.

The Government can consider setting up a development fund and an incentive scheme to provide tax incentives or subsidies to enterprises actively participating in data sharing, so as to encourage more enterprises to join the development of large-scale language models. Chambers of Commerce can set up a platform to promote and organise member enterprises to participate in data sharing, and facilitate the sharing of production data and operational experience, so that ManufacturingGPT can better tackle practical problems.

Meanwhile, to protect data security and privacy, the government should make reference to international standards and formulate laws and regulations specifically for data sharing in the manufacturing industry, so as to clarify the ownership, usage and user responsibility of data, and supervise the operation of data sharing platforms to ensure that the use of data complies with the law. In addition, blockchain technology can be introduced to record the data sharing process to enhance the transparency and traceability of data transactions and further improve data security.

ManufacturingGPT can be applied not only to the manufacturing industry, but can also be extended to areas such as supply chain management, logistics optimisation and market forecasting. For example, it can be used to optimise inventory management by analysing supply chain data, reduce logistics costs by using intelligent logistics management technology, and guide new product development by analysing market data. In addition,

ManufacturingGPT's technologies can be fully extended to emerging and traditional manufacturing industries to promote Hong Kong as a diversified smart manufacturing hub. The Government and the industry should regularly evaluate the effectiveness of ManufacturingGPT's application, collect feedback, and continuously optimise the model according to the industry's needs. Meanwhile, the use of ManufacturingGPT in environmental protection should be promoted to help enterprises optimise energy use and reduce waste emissions, so as to promote the development of Hong Kong's manufacturing industry in a green and sustainable direction. These measures will enhance the competitiveness of Hong Kong's manufacturing industry in the global market and consolidate its position as an international innovation and technology centre.

Action 7: Industry Supporting Measures - Promoting a New Image of Manufacturing Industry

To enhance the image of the manufacturing industry, enterprises should make good use of the innovative technology resources provided by the government to improve occupational safety apart from promoting new production models. While promoting new manufacturing models, they should also improve the working environment in factories, applying new technologies such as robotics and accident detection to workplace safety, and providing high-quality employment opportunities that balance environmental protection and occupational safety. Introducing Gamification into talent recruitment and production management processes, along with the joint promotion of stakeholders from different sectors, will help reshape the manufacturing industry's traditional image, which has been predominantly low-tech and tedious. This approach will attract and cultivate young talent to join this challenging and opportunity-filled industry, fostering the long-term development of the manufacturing sector and igniting new momentum.

Enterprises should actively make use of the government's Innovation and Technology Fund and support programmes to introduce advanced technologies such as automation, AI and IoT, with a view to promoting the development of smart manufacturing models. For example, robotic technologies can enhance production efficiency and reduce reliance on repetitive manual labour; AI can be used to optimise production processes and reduce resource wastage; and real-time monitoring and predictive maintenance of equipment can be achieved through IoT, thereby enhancing overall operational efficiency. These technologies not only

improve productivity, but also present a high-tech image of the manufacturing industry, breaking the traditional low-skill stereotype.

Enterprises should apply new technologies in the areas of occupational safety and environmental protection to create a safe, healthy and sustainable working environment. For example, intelligent safety monitoring systems can be introduced to detect potential hazards (e.g. gas leakage, equipment malfunction, etc.) in factories in real time using sensors and AI, and issue timely alerts to reduce workplace accidents. In addition, green manufacturing technologies, such as energy-saving equipment and waste recycling systems, can be used to reduce carbon emissions and resource consumption in production processes, providing quality employment opportunities that incorporate environmental protection and occupational safety, thereby enhancing corporate social responsibility.

The industry should introduce Gamification into the processes of talent recruitment, production management and staff training to arouse the interest of the younger generation. For example, interactive games or VR experiences can be designed in recruitment processes to allow job seekers to simulate workplace scenarios in a factory environment and learn about the real-world operations and challenges of the manufacturing industry. In production management, employees can be motivated to improve efficiency and innovation through game-based mechanisms. In addition, the introduction of game-based learning platforms in staff training will enable staff to acquire new skills in a fun and relaxed atmosphere, thus enhancing the effectiveness of training.

The government, enterprises, education institutions and industry associations should work together to promote the high-tech image of the manufacturing industry. For example, students, parents and the public should be invited to visit modern chemical factories to showcase the advanced technology and working environment; educational institutions can co-operate with enterprises to offer career-oriented courses related to the manufacturing industry, to allow students to learn about the industry's prospects; and industry associations can share successful cases and innovations through publicity and promotion on social media platforms to change public stereotypes.

Through cross-sectoral co-operation with technology, design, cultural and creative industries, etc., the application and market space of the manufacturing industry can be expanded. For example, cooperation with tech companies to develop smart home products, co-operation with designers to create high-end customised products, or co-operation with cultural and creative industries to launch special cultural and creative products. Such co-operations will not only enhance the added value of the manufacturing industry, but also attract more diversified talents to join the industry, bringing in new opportunities .

4.2 Closing Remarks

The seven recommendations drawn from the discussion on the future development of Hong Kong's manufacturing industry provides a clear blueprint for us, which is not limited to technological innovation and smart manufacturing but also covers the enhancement of headquarters functions, the support of producer services, the cultivation of intellectual property rights, the promotion of green manufacturing, and the cultivation of talent, among other key areas. These strategic recommendations aim to comprehensively enhance the competitiveness of Hong Kong's manufacturing industries, promote industrial restructuring and upgrading, and lay a solid foundation for the sustainable development of Hong Kong's economy. It is hoped that this study can provide comprehensive and strategic guidance for the transformation and upgrading of Hong Kong's manufacturing industry, assisting them in repositioning themselves in the global market and achieving high-quality growth.

The manufacturing industry in Hong Kong is experiencing a critical moment of transformation. We look forward to the government, various chambers of commerce, enterprises and academia working together to implement these strategies, allowing "made in Hong Kong" to reach new heights. With full efforts to promote "new industrialisation" and foster "New Productivity Forces", we firmly believe that Hong Kong will be able to reposition itself on the international stage and occupy a significant place in the global manufacturing scene.

Meanwhile, we also look forward to Hong Kong's manufacturing keeping abreast of the trend and opportunities of green and sustainable development, not only injecting new momentum into economic growth but also committing to environmental protection.

Responding to the country's call for "New Productive Forces", let's join hands in our efforts to make Hong Kong manufacturing stand out in the global market, achieving long-term prosperous development and igniting new industry momentum!

Appendix

I. Survey design

"Research on the Upgrading and Development of Hong Kong's Manufacturing Industry"

The Hong Kong Productivity Council is currently conducting a study on "Hong Kong Manufacturing Industry Upgrading and Development" (the study), which aims to understand the needs of Hong Kong enterprises for the development of manufacturing, as well as the challenges and opportunities they face. After analysing the collected data, recommendations will be made to the government, the Council, and the industry.

Your valuable opinions are of great importance to the future development of Hong Kong's traditional industries. You are cordially invited to participate in this survey. We would greatly appreciate you spending about 10 minutes to complete the survey. Please answer the questions based on the general situation of your company.

We extend our advanced gratitude for your participation in this study. The data you submit will be handled with strict confidentiality.

(A) Company Overview

1. Is your company currently conducting the following businesses, including those in Hong Kong, the mainland, and overseas? Please select all applicable answers. [Multiple Choice]

Manufacture or production of products (including general consumer goods, pre-packaged foods, etc.)	1
R&D of products (including general consumer goods, prepared meals, etc.)	2
Others, please specify: _____ [End of Survey]	11

2. How many full-time employees does your company have in total across all offices (including employees of all different functions and those around the world)? Please select the most appropriate answer. [Choose one]

1-5 people	1
6 to 9 people	2
10 - 19 people	3
20 - 49 people	4
50 to 99 people	5
100 to 199 people	6
200 to 499 people	7
500 people or more	8

3. Is your company's headquarters currently located in Hong Kong? [Choose 1]

Yes	1
No	2

4. Regardless of the current location of your company's headquarters, which of the following headquarters functions are carried out in Hong Kong?

   If the headquarters function is conducted in Hong Kong, it represents that the decision-making and production indicator management for that function is located in Hong Kong, coordinating the

management of the core businesses in different regions, as well as formulating and promoting regional objectives and strategies. [Multiple Choice]

Commanding Offshore Manufacturing Bases	1
Manufacturing/Production	2
Technology and Product Development	3
Procurement	4
Intellectual property, patent application, and Management	5
Technology Licensing	6
Product testing and international standard certification	7
Financing	8
Asset management	9
Human Resources/Training	10
Others, please specify: _____	11

5. Regarding your company's current situation compared to five years ago, would you say there is currently a trend towards "more varieties with smaller quantities" in production or R&D? [Choose 1]

Yes	1
No	2

6. **[Only ask about companies currently trending towards "more varieties, less quantity" (Q5 code 1)]**

How does your company adapt to this shift in trends? [Multiple Choice]

Intelligent technology has been introduced.	1
Intelligent technology will be introduced.	2
No solution is in place	3
Others, please specify: _____	4

7. **[Only ask about companies currently with "command functions of offshore manufacturing bases" and "manufacturing/production/R&D" functions in Hong Kong (Q3 code 1 OR 2).]**

You mentioned earlier that your company's " commander of offshore manufacturing bases" or "manufacturing/production/R&D" is primarily located in Hong Kong. Why is Hong Kong chosen for this? [Multiple choice]

Possessing leading manufacturing technology and talent	1
Product and technology R&D are conducted in Hong Kong.	2
The management or production decision-makers are located in Hong Kong.	3
Possesses advantages in intellectual property management	4
Convenient international transport hub and information exchange	5
There are already mature manufacturing demonstration sites for other manufacturing bases to reference.	6
Others, please specify: _____	7

8. **[Only ask about companies whose intellectual property, patent application, and management functions are not currently in Hong Kong (Q3 NOT code 5)]**

You mentioned earlier that your company's "intellectual property, patent application, and management" are not located in Hong Kong. What is the reason for that? [Multiple choice]

Lack of talent with professional knowledge in intellectual property rights, patent applications, and production technology	1
The cost of intellectual property application and management in Hong Kong is high	2

R&D work is conducted in other regions.	3
Failed to manage intellectual property rights	4
Unknown	5

9. Do your current clients require your company to engage in green production or to meet standards of green and sustainable development during the production process?
Green production aims to save energy, reduce consumption, and minimise pollution, using management and technology as means to implement pollution control throughout the entire process of industrial production, thereby minimising pollution levels [Choose 1].

Yes, there are such clients	1
There is currently none, but it is estimated or budgeted that such a requirement will arise in the future.	2
No requests received	3
Unknown	4

10. Is your company currently conducting product testing in Hong Kong to ensure the products meet environmental and safety regulations and meet international standards? [Single Choice]

There is/are	1
Not at the moment, but this is expected to happen	2
No, the testing is conducted overseas.	3
No, I am not familiar with the testing facilities in Hong Kong.	4
No tests and certifications are conducted at my company	5

(F) Company Background

11. Company Name: _____
12. Interviewee Name: _____
Interviewee contact phone: _____
Interviewee Email Address: _____

~ End of Survey ~

II. Acknowledgements to Industry Experts Interviewed

Surnames sorted alphabetically

Industry Expert	Organisation
Ms. Ching Wah Chan	Federation of Hong Kong Industries
Mr. Henry Chan	Federation of Hong Kong Industries
Mr. Wilson Cho	Keurig Dr Pepper Inc.
Mr. Felix Choi	The Federation of Hong Kong Industries - Hong Kong Mould and Die Council
Ms. Cherry Chong	Innovative Entrepreneur Association
Professor Johnny Ho	City University of Hong Kong
Mr. Eric Liu	The Hong Kong Institution of Engineers
Mr. Parco Lo	The Garden Company
Mr. Herbert Lun	Hong Kong Electrical Product Council of FHKI
Professor Michael Yang	City University of Hong Kong
Dr. Alfred Ng	The Federation of Hong Kong Industries - Hong Kong Electronics Industry Council
Mr. Timothy Sin	Bissell Homecare
Dr. Sidney Tam	Part-time Lecturer at the Hong Kong University Institute for China Business
Professor Michael Tse	City University of Hong Kong
Ms Cansie Ruan	Hong Kong Woollen & Synthetic Knitting Manufacturers' Association

III. Summary of Key Points from Industry Expert Interviews

1. The current development status of Hong Kong merchants

- **Hong Kong businesses are facing increasingly fierce competition on the mainland, making it more difficult for businesses to survive.**
  - The increase in labour costs, the rise in transportation costs, and the regulatory authorities' requirements for eco-friendly production are among the reasons that have led to higher production costs for Hong Kong businesses in the mainland. The model of low-cost production that was once suitable for the "World's Factory" is no longer applicable.
  - The production and manufacturing level in the mainland is on par with that of Hong Kong, and the differentiation between the large and "involution"-prone mainland enterprises and Hong Kong merchants is diminishing.
  - The production segment in the mainland has strengthened its requirements for product functionality and trends, with the low-value-added segments showing a trend of shifting to Southeast Asia and other regions, while the high-value-added segments remain in the mainland.
  - Some Hong Kong merchants mentioned that mainland manufacturers have started to increase their investment in production line upgrades, which most Hong Kong merchants have failed to keep up with. Further investigation into the reasons behind this reveals that some believe mainland manufacturers receive substantial support from local governments, whereas Hong Kong merchants lack equivalent government support.
  - The market environment and regulatory environment vary from region to region in the mainland, and local enterprises may receive policy support. Hong Kong businesses still find it difficult to adapt to the mainland market.

- **The situation in the US and European markets**
  - The US has intensified trade restrictions on China and imposed additional tariffs. Hong Kong businesses facing the US market must shift their production capacity to the Southeast Asian markets, with Vietnam as the main destination. The European market has not been affected by geopolitical issues and can still rely on the production capacity of the mainland for partial production and export.

- **The situation of supply chain shifts among Hong Kong merchants**
  - Geopolitical factors are not the only reason for Hong Kong businesses to shift their production lines; such shifts began more than a decade ago. A significant reason is the rising costs and industrial upgrading in the Pearl River Delta region, leading many Hong Kong businesses to relocate to Southeast Asia.
  - Some respondents indicated that the Pearl River Delta is no longer the primary production base for Hong Kong businesses. For instance, in the Yangtze River Delta, there is a higher presence of Hong Kong-owned production lines, particularly in the electronics and electrical appliances sectors. In addition to that, production lines are also established in countries such as Vietnam, Indonesia, and Bangladesh.
  - Interviewees indicated that geopolitics is part of the de-risking process in the supply chain. Post-pandemic, foreign brands' procurement strategies have required suppliers to diversify regionally. Therefore, Hong Kong businesses also need to establish production lines in multiple overseas locations to address the corresponding challenges.
  - Due to the fact that the technical capabilities of workers and the supporting infrastructure in countries outside of China are still not on par with those in mainland China, some high-tech, high-value-added parts and products with strict time-sensitive requirements are still produced in mainland China. Meanwhile, emerging industrial regions such as Vietnam and Bangladesh only produce low-tech, low-value-added parts and products.

2. Issues faced by Hong Kong entrepreneurs in industrial transformation and upgrading

- With long product life cycles, how to utilise digital technology to shorten the product life cycle and reduce inventory risk?
  - An interviewee from the textile industry cited their own company as an example, stating that the product lifecycle from design to market launch is about 9 months, which means that large-scale production is required each time, equivalent to placing a huge financial bet on the unknown market environment 9 months in the future. They believe that digital methods can effectively shorten the lifecycle and reduce inventory risk.

- The mainland market remains a high-potential market, but Hong Kong businesses face many challenges when expanding into the mainland market.
  - Currently, Hong Kong businesses still largely rely on sales to the European and American markets as their main stream of revenue. Although the mainland market is vast, they are constrained by multiple factors, making it difficult for them to shift and expand the proportion of their sales in the mainland market.
  - The "involution" market environment brings significant competitive pressure to Hong Kong merchants. The gross margin for the same product in the mainland market is often much lower than that in the European and American markets. Hong Kong merchants have advantages in selling to overseas markets, but they lack the advantage and willingness to compete in the mainland market.
  - Interviewees pointed out that compared to their mainland counterparts, most Hong Kong businesses choose to continue relocating to low-cost areas, while a few opt for transformation and upgrading.
  - Due to reasons such as product regulations, industry practices, and trade rules, the cost structure of products exported to Europe and America is not the same as that of products sold domestically in the mainland. The products and advantages of Hong Kong merchants are reflected in the export of products to Europe and America, and there is a lack of desire to transform and adapt to the cost structure of the mainland market.
- Some Hong Kong merchants are willing to transform and upgrade, but long cycles and high costs often become obstacles. The acceptance of transformation and upgrade by business owners, management, and their subordinates, as well as the recruitment of the required relevant talent, are also issues faced by some Hong Kong merchants.

3. The path of industrial transformation and upgrading for Hong Kong merchants

- In terms of product R&D and product management, Hong Kong businesses still hold an advantage due to their reach and sensitivity to overseas markets, which differentiates them from mainland enterprises. It is suggested that Hong Kong could further develop into a Design and Product Development Centre.
- Hong Kong still holds a reputation advantage in brand prestige, especially in terms of IP value. Hong Kong merchants can further consolidate and build upon their

strengths in intellectual property, achieving differentiated brand premiums for Hong Kong-owned enterprises.

  - The interviewer used "B Duck", an original local brand,as an example; the IP effectively enhances the attention and value of various products (such as bedding) through licensing.

- In terms of circulation environment and marketing sales, Hong Kong merchants can adopt more e-commerce, live streaming sales, and other models to open up sales channels in the mainland.
- The interviewees are familiar with the concept of intelligent microfactories, which is a part of Flexible Manufacturing. They believe it is suitable for Hong Kong's high-cost, spatially limited environment. However, they think the biggest bottleneck is the lack of local talent supply in Hong Kong. Even though some entrepreneurs are interested in investing, they find it difficult to recruit relevant personnel.
- Several respondents suggested that for the upstream part of the value chain, such as production, procurement, and R&D, Hong Kong businesses can rely on synergy with the mainland / the Greater Bay Area, leveraging the talent advantage of the Greater Bay Area to recruit higher-calibre technical talent with lower costs from the mainland.

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