WORKING PAPER NO. 1
HONG KONG’S THIRD ECONOMIC TRANSFORMATION AND THE DEVELOPMENT OF INNOVATION AND TECHNOLOGY

Purpose

1. This paper aims to present some observations on the third economic transformation of Hong Kong and examine the development of innovation and technology in Hong Kong and its strategic planning implications on Hong Kong's long term development.

The Third Economic Transformation

2. Over the past fifty years, Hong Kong had experienced two major economic transformations. The first was in the 1950s to 60s, when Hong Kong was facing a trade embargo enforced by the western countries with China. Hong Kong shifted from entrepot trade to manufacturing/processing industries as the main economic activity. The second was in the late 1970s and 80s, when China adopted the open door policy. With the bulk of manufacturing activities being relocated to the Mainland due to low labour and land costs in the Mainland, Hong Kong expanded its service industry to serve the Pearl River Delta area and become the main part of Hong Kong's economy; thus, further enhancing Hong Kong as a financial, trading and transportation centre in the Asia Pacific region.

3. However, in the past few years, a property boom boosted the Hong Kong economy and lifted rents and wages to levels that undermine Hong Kong's competitiveness as a financial and service hub. The Asian Financial Turmoil had bursted this economic bubble and exposed Hong Kong's high costs. It led to severe economic pain, like high unemployment and devaluation of property assets. To enhance its competitiveness, it is necessary for Hong Kong to undergo another economic transformation. Moreover, the imminent merging of Chinese economy into the world's economy, the globalisation of economic development and rapid development of information technology all add impetus to Hong Kong's economic transformation.

4. Developing innovation and technology based high value-added industries in Hong Kong is seen as a direction for Hong Kong's economic transformation. Hong Kong has many advantages to support this transformation. Hong Kong is an air and sea transportation hub and a maritime/shipping centre. It is a free port with abundant and various types of supporting services offered. It has excellent telecommunications facilities, is a major international financial centre and a centre for regional headquarters for multinational corporations and a major merchandise trading centre. It has sound administrative and legal system and a lot of entrepreneurs and management staff, who are familiar with international market practices.

5. The focus on high value-added industry has been promulgated in CE's 1998 Policy Address as a means to readjust Hong Kong's economy. The high value-added industry requires the application of science and technology including the application of more advanced technology, professional knowledge, special techniques and innovative ideas.

6. The high value-added industry includes high value-added services sector as well as high value-added manufacturing sector. Since Hong Kong had already developed a strong service industry base, the main focus of the next round of economic restructuring would likely be in the development of high value-added service industry. This refers to the service industry that needs to utilise innovation and technology to attain a higher quality and standard of services. Hong Kong has been strong in "technologizing" its service industry particularly in finance and telecommunications sectors. So far, Hong Kong has been able to keep abreast with the global technological development trends and utilize the most updated technologies to provide high value-added services.

7. Development of high value-added service industry in Hong Kong is also crucial to the economic development of the Pearl River Delta area. Currently service industries in the Mainland only contribute to 33% of the GDP growth, while in Hong Kong service industries contribute about 85% of the GDP growth. With Hong Kong's expertise in the middleman and facilitator functions plus the long experience of putting free flows of information and internationalization to good use, Hong Kong should be uniquely position to fill in the gap for services by providing many manufacturers in the Mainland with service supports, such as financial arrangement, product design and marketing as well as to help the Mainland develop its own service industries.

8. While it is important to develop high value-added services sector, it is equally important to develop high value-added...
manufacturing industries (industries with a high ratio of research and development expenditure). In fact, Hong Kong can base on her comparative advantages to further decide whether bio-tech industry, genetic engineering industry or software industry are possible areas of development. This would help to raise the export competitiveness and further strengthen the base of Hong Kong's service industry.

**Impacts of Economic Transformation**

9. The transformation of Hong Kong's economic structure towards high value-added industry, if successful, would have positive and negative impacts on Hong Kong's long term economic and social development. The positive impacts include :-

   a. it would widen Hong Kong's economic base and reduce economic fluctuations due to Hong Kong present overdependence on the service type industry;
   b. the application of advance technology and innovation activities would add new driving force to the economy;
   c. high value-added manufacturing could become the new origin of growth, thus bringing Hong Kong back to a faster track of development;
   d. economic transformation could improve Hong Kong's competitiveness;
   e. it would strengthen the role of Hong Kong as Asia's World City;
   f. it would enhance Hong Kong's advantage in the economic co-operation with the Mainland, thus strengthening Hong Kong's role as facilitator, or middle-man of China's external economic relation; and
   g. it would maintain Hong Kong residents' high level of income and further improvement of Hong Kong residents' quality of life.

10. On the other hand, the economic transformation could induce the following negative economic impacts, as below :-

   a. the development of knowledge-based economy would only create more jobs for professionals and specialists. The lower-end business services like clerical and accounting works could be outsourced to lower cost locations. This implies a further decline in job opportunities for lower skilled workers. Also, the economic transformation would encourage more competitions, generate more mergers and acquisitions and could lead to more job cuts; and
   b. the economic transformation could widen the social disparity of Hong Kong. The high value-added service industry require highly skilled workforce who tend to have higher salaries. While the poor may not get poorer, the rich certainly could become richer. Unless the lower skilled workers upgrade their skill levels, income inequality and social disparity could be widened.

**Government Action and Support on the Development of Innovation and Technology**

11. As Hong Kong's economy is undergoing a third structural transformation from a service-based economy to a knowledge-based economy, innovation and technology is essential in adding value, increasing productivity and enhancing the overall competitiveness of Hong Kong. In order for Hong Kong to achieve success in the field of innovation and technology, apart from increasing our investment and commitment in this field, Government requires as CE has mentioned in his 1998 Policy Address, "a focused approach in this field, together with our sophisticated capital-raising markets, our rich market experience and our well-established international business links, will provide us with the potential to turn innovative ideas into commercial products on a far greater scale than at present. We need now to strengthen our support for technological development, build up a critical mass of fine scientists, engineers, skilled technicians and venture capitalists and encourage the development cluster of technology-based businesses".

**Re-organisation of the Trade and Industry Bureau and other supporting departments**

12. The Financial Secretary announced in his 2000-01 Budget Speech on 8 March 2000 the re-organisation of the trade-and-industry-related departments. The objective of the re-organisation was to strengthen the institutional framework to promote innovation and technology, attract external direct investment and support industry and commerce. The Innovation and Technology Commission (ITC) was established within the Commerce and Industry Bureau (formerly the Trade and Industry Bureau before the re-organisation) on 1 July 2000. The ITC has taken over the innovation and technology related functions of the Industry Department, which was disestablished on 1 July 2000.

13. The mission of the ITC is to spearhead Hong Kong's drive to become a world-class, knowledge-based economy. To this end, the ITC will :-
a. promote and support applied research and development, and technology transfer and application;
b. foster an innovation and technology culture in the community, and promote technological entrepreneurship;
c. facilitate the provision of infrastructure and development of human resources to support innovation and technology;
d. formulate, develop and implement the Government's policies, programmes and measures to promote innovation and technology;
e. promote internationally accepted standards and conformity assessment services to underpin technological development and international trade; and
f. develop high caliber and motivated staff to contribute to Hong Kong's technological advancement.

**Technological Infrastructure**

14. One of the ITC's key commitments is to make available and to enhance Hong Kong's technological infrastructure to facilitate development of innovation and technology activities. In order to provide more comprehensive and flexible services to clients and to maximise synergy, the Government is now taking steps to merge the Provisional Hong Kong Science Park Company Limited, Hong Kong Industrial Technology Centre Corporation and Hong Kong Industrial Estate Corporation. The merger will be effected by enactment of relevant legislation.

15. The Science Park project first proposed in the mid-1990s, under construction on a 22 ha site at Pak Shek Kok near the Chinese University of Hong Kong. It aims to act as a catalyst in stimulating innovation and promoting the growth of technology-based industries in Hong Kong. It will create a community of world class companies in information technology and telecommunications, biotechnology, electronics and precision engineering which will base their research and development operations in the Science Park. The Science Park will foster or nurture these Hong Kong-based world class clusters of technology enterprises to compete and succeed in the present knowledge-based global economy. The phase 1a and 1b of the Science Park will be ready for acceptation in late 2001 and second half of 2002 respectively.

**Technology Areas**

16. The Government is committed to promoting applied research and development and facilitating the provision of the right infrastructure to support innovation and technology. Government's aims and visions on some specific technology areas are as follows:

   a. Biotechnology - to position Hong Kong as a hub for the region for biotechnology products and services.
   b. Traditional Chinese Medicine - to make Hong Kong a centre for the development of health food and pharmaceuticals based on Chinese medicine.
   c. Electronics Industry - to assist manufacturers to upgrade their technologies to produce high-end electronics products.
   d. Environmental Technology - to identify and stimulate development of environmentally friendly technologies and processes.
   e. Foundation Industries - to enhance the technology profile of the foundation industries by research and development activities.
   f. Information Technology - to make Hong Kong a leading city in the world for the development and application of information technology.
   g. Textiles and Clothing - to promote the use of technology to develop textile products, improve quality and enhance productivity.

17. Through the Innovation and Technology Fund and Applied Research Fund, funding support has been provided to technology entrepreneurs, academics and other industrialists to assist them to realise their innovative ideas and develop business technology in the above technology areas amongst others.

**Strategic Planning Implications**

**Manpower Projection**

18. With the third economic transformation, Hong Kong's economic structure will shift towards high value-added industry, the share of manufacturing jobs in Hong Kong's total employment structure will continue to drop. On the other hand, in future there could likely be more jobs for professionals and manager and relatively less jobs for those unskilled workers. This could result in a higher unemployment rates for those unskilled workers and those engaged in manufacturing industries. In this connection, Commissioner for Census and Statistics had compiled a 1999-based Manpower
Requirement Projection by Economic Sector and a Manpower Projection to 2005. The projections show that those industry groups with a relatively high knowledge content, such as computing equipment, telecommunications and Internet services, are expected to show the most rapid growth in manpower requirement. Manpower requirement in the local manufacturing sector is projected to continue to shrink, by an annual average of 3.8% over the period. Concurrent with the continuing shift in economic structure towards knowledge-based activities, there is likely to be a further shift in the composition of manpower requirement in favour of higher-skill, better educated and more experienced workers in short to medium term. Analysed by occupation category, manpower requirement of managers, administrators, professionals and associate professionals is projected to grow at an average annual rate of 5.6% over 1999-2005, distinctly faster than that of 0.6% projected for workers of lower skill.

**Distribution of Employment Centers**

19. Knowledge-based activities tend to stay together. They interact with and support each other. So, if Hong Kong is aiming to develop a high value-added service type industry, the employment will still likely to be concentrated in the traditional Central Business District (CBD) and its adjacent areas. If Hong Kong also strive to develop high value-added manufacturing industries, then there are opportunities to develop science park type of employment nodes outside the CBD, say in new strategic growth areas in the New Territories.

**Co-operation of High-tech Development with Mainland**

20. The rich technological resources in the Mainland potentially are an important source of input to industry for innovation and technology upgrading. The human talents and research capability of the Mainland supplement the research and development capability of Hong Kong. The Mainland’s scientific research results offer potential opportunities for commercialisation by Hong Kong entrepreneurs. Hong Kong therefore could co-operate with the Mainland in the area of technological support infrastructure. This may include joint research and development, assisting Hong Kong firms in the Pearl River Delta area to upgrade their technologies, partnership between the future Hong Kong Science Park and its Mainland counterparts, and technological exchanges between universities to foster ideas. Easing cross-boundary visits of research scientists and engineers, and employment of Mainland technological experts is an area advocated by many in the community.

Planning Department
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**Reference**

In preparing this paper, material had been drawn from the following sources:


8. Lui, Francis T. M. (2000), "Hong Kong Economic Restructuring", in Lau Sai Kai (eds), Blue Print for the 21th Century Hong Kong, Hong Kong : Chinese University Press, pp.65-76 (translated from Chinese)

