Recent Developments in the ICT Industry and Implications for Singapore's Economy

POH-KAM WONG

Over the last three decades, Singapore has sought to leverage the rapid growth of the global ICT industry in several ways. Firstly, Singapore has positioned itself as a major regional hub for the production of ICT goods and services by attracting leading ICT companies from around the globe to use Singapore as a manufacturing base and as a regional centre for R&D, marketing, technical support, and logistics. Secondly, the Singapore government has also been promoting the diffusion and adoption of ICT in general and the Internet technologies in particular across key sectors of the economy. Thirdly, the government has also been actively encouraging the development of indigenous high tech firms. In the earlier years the emphasis was on promoting the entry and growth of indigenous firms in high tech manufacturing industries such as semiconductor wafer fabrication and precision engineering. More recently the focus has shifted to knowledge-intensive high tech start-ups in software, Internet, biotechnology, and wireless communications through the Technopreneurship 21 Initiative.

ICT Production by Global MNCs in Singapore

The success of the strategy of leveraging foreign direct investment (DFI) by global electronics firms has contributed significantly to the rapid economic growth and technological upgrading of Singapore. However, it has also resulted the economy having a high dependence on electronics and ICT manufacturing. Direct electronics manufacturing value added accounts for close to 50% of total manufacturing value added, while electronics exports typically account for over 60% of Singapore's total manufactured exports. Moreover, Singapore's ICT exports depend highly on markets in North America.

The drastic slowdown in ICT investments in the US in recent months therefore has a significant negative effect on Singapore's economic growth. Retrenchments have increased as some global MNCs have cut back production or shifted it to lower cost locations. Despite this, however, the government is continuing to pursue the strategy of attracting manufacturing DFI, focusing on more technologically advanced manufacturing activities and also R&D. It is interesting to note that, despite the short-term adverse environment, over the last nine months Singapore has continued to attract significant longer-term oriented DFI into ICT-related manufacturing and R&D. For example, UMC, the second largest semiconductor foundry company the world, has invested in a new wafer fabrication plant in Singapore. A new LCD manufacturing investment has also been announced. Singapore will be well positioned to benefit from the next upswing in global ICT demand.

ICT Diffusion and Adoption

In the year 2000, Singapore had Asia's highest adoption rates on most indicators of ICT usage, thanks to the government's recent acceleration of liberalization of the telecoms sector, after a hesitant start in the first half of the 1990s. Despite the NASDAQ meltdown and the bursting of the Internet bubble, the government of Singapore is continuing to promote the deployment of the Internet, e-commerce, broadband, and wireless technologies through innovative development assistance schemes involving the use of new technologies and applications, new wireless application test-bed grants, manpower training grants. The public sector itself is also continuing aggressive investment in e-government initiatives. Continuing liberalization of the telecoms and media industry is needed to boost ICT diffusion and innovation.

'Technopreneurship' Development

Mirroring the start-up fever in Silicon Valley in 1999 and the first quarter of 2000, Singapore registered a record-high growth rate of new high tech start-ups from 1998 to 1999 and 2000. The launching of the US$1 billion Technopreneurship Fund in 1999, which attracted several major US venture-capital firms to start operations in Singapore, probably contributed to the spate of start-ups. There has been some cooling off in start-ups, particularly Internet ventures, over the last nine months, due partly to increasing conservatism by the venture capital community.

Nevertheless, the medium term prospects for technology-based start-ups are good in view of the rapidly growing base of R&D activities in Singapore which are leading to an increasing volume of indigenous intellectual property seeking commercialization. The infrastructure to support high tech start-ups that has been put in place in recent years—including a venture capital industry, relaxation of rules on start-ups and IPOs, and emergence of a 'business angel' investment community—will help accelerate the pace of high tech entrepreneurship in Singapore over the next few years.