IT in Korea: Current Situation and Policy Direction

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The Korean government and people were quick to recognize the importance of the global IT revolution and to formulate a strategy to ensure that the country moves ahead to gain all possible benefits from the IT revolution. Aided by government policy initiatives and support, Korea has performed impressively in many IT-related areas, such as information infrastructure, Internet access, and mobile telecommunications.

Last year, 144 major cities in Korea were connected with fiber optic cable, one of the most advanced information infrastructures in the world. Today, half of the Korean population has access to the web and about 28 percent of households have access to high-speed Internet connections. Over 60 percent of the population is using mobile phones.

Korea's IT industry grew rapidly throughout the 1990s even during the economic crisis, with an average annual growth rate of over 20 percent from 1995 to 2000. This was possible because of the rapid growth in mobile telecommunication services and the number of Internet users in Korea. Personal computers, mobile telephones, and information and communications services also played a major role in the growth of the IT industry in recent years.

In addition, the IT industry has contributed positively to the economy in terms of price stabilization, investment, trade balance, and so on. For example, the steady decline in the producer's price index for the IT industry was a big factor in overall price stabilization. Machinery equipment investment in the IT industry has been a major portion of total investment. In 2000, the industry contributed about 30 percent of total export revenues and almost 95 percent, of the total balance of payments which that most of Korea's trade surplus for the year 2000 came from the IT industry.

Korea exports almost 50 percent of its IT industry output, and these exports are concentrated in a few countries—30 percent to the United States, 10 percent to Japan, and 40 percent to China and Southeast Asian countries. Since most exports to Asian countries are reprocessed and re-exported, Korea's actual dependence on the U.S. could be considerably higher.

Current Situation and the Impact of the US Slowdown

The IT industry was the main engine of growth for the Korean economy after the economic crisis of 1997. The Korean economy eventually found its way back onto a high-growth track, with stock prices rising and foreign exchange reserves growing steadily. The situation changed suddenly late last year, however, and this time, the impact came partly from the downturn of the IT industry in the United States and Japan.

IT investment in the U.S. slowed sharply, followed by announcements of large-scale layoffs and lowered sales forecasts by huge IT companies. In March 2001, the NASDAQ index sank below the 2000 level. This had an immediate impact on the Korean economy because the U.S. and Japan have been the main importers of Korean IT products.

Korea's exports dropped suddenly in April 2001, recording negative 9.3 percent growth, mainly due to declining exports of IT-related industries.[1] Many economists predicted the stagnation in exports would continue at least for the second and third quarters of this year, as world demand for Korea's major export products, such as semiconductors, is likely to remain depressed due to the global economic downturn.

The domestic IT industry has been slowing down as well. Following on the continuing negative growth in PCs since last October, peripheral equipment such as monitors has also been losing

[1] For example, export of semiconductors decreased from US$1.8 billion in January to US$1.28 billion in April.

competitiveness, challenged by producers in China and Taiwan. The growth rate of mobile phone exports, which had been 40 to 50 percent per year, has recently slowed to under 20 percent per year.

Future Prospects and Obstacles to IT Sector Growth

The IT industry undoubtedly will be the main engine of economic growth for Korea's economy and for the transition to a fully knowledge-based economy in the future. Nevertheless, the industry faces a number of challenges in addition to the unfavorable situation in late 2000 and early 2001 due to decreased demand for IT products in the U.S. and Japan.

The domestic IT industry faces limits to growth its due to the saturated distribution of major products, including mobile phones and PCs. It might not be possible to maintain the industry's previous explosive rate of growth unless a next-generation product is introduced.[2]

Korean companies now lead in many segments of hardware and telecommunications equipment markets and they possess strong competencies in these areas. In fact, the hardware side, especially mobile telecommunications contributed significantly to the rapid growth in the IT sector.

Looking to the future, however, the challenges and opportunities in the future lie in the service side. IT services and IT-enabled services are expected to become the growth engines of the global IT and knowledge economy. Relative to its performance in the hardware sector and to competitors such as Singapore and Ireland, Korea has not been as successful in the service side of the IT sector.[3]

Korea has advanced technologies in some fields, such as TFT-LCD and CDMA (Code Division Multiple Access), but its overall technology level is about 2 to 3 years behind advanced countries.[4]

Insufficient professional manpower is another obstacle that Korea has to overcome. Although the IT labor market had a slight over supply in 1998, most workers in the industry are high school or vocational school graduates, and there is serious excess demand for workers with higher degrees.

Policy Recommendations to Promote the IT Industry

In the near and mid-term it is critical first and foremost for Korea to diversify its export items and export destinations. At present only about 12 percent of Korea's IT exports go to the European countries. Diversification to this market could be effective considering the low volume of trade in IT products between the United States and European countries.

Second, promoting informatization of traditional industries could improve industrial competitiveness and contribute to macroeconomic stabilization. Third, provision of IT infrastructure would promote electronic commerce and contribute to promoting private investment. Other policy tools that the government is adopting include training and education provision of institutional infrastructure such as consumer protection and standardization, and

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[2] Kim, Jung-ho. "Current Instability of Korea's Macroeconomy and Industries" in *Korea Economic Trends* No. 174. Samsung Research Institute.
The next generation product, called IA (Internet appliance or information appliance) is regarded as a breakthrough for Korea's IT industry, which is now suffering because of the slowdown in growth, intensive competition, and decline in profitability.

[3] On the other hand, the subscriber network market in Korea has performed impressively in recent years. Currently, there are four main types of subscriber networks—dial-up and ISDN; CATV networks; ADSL; and leased-line and other services. The number of subscribers to high-speed Internet services has grown at a remarkable rate, reaching over 4 million by late last, and the number I still growing fast. Subscribers to high-speed access represent 8.5 percent of Korea's population, a surprisingly large share considering that that the corresponding figure is 0.4 percent in Japan and 1.0 percent in the U.S..

[4] The government plans to foster CDMA mobile phone industry as a key export sector by 2005 along with the semiconductor industry. China is fast emerging as a giant CDMA market. The plan is regarded to be feasible with Samsung Electronics' recent acquisition of the right to build 83 million CDMA lines in China over the next 5 years.

informatization of public enterprises.

Finally let me briefly discuss long-term policy considerations for promoting the IT industry in Korea.

First, in promoting IT as in promoting other industries, it is important to limit the role of the government to providing public goods and infrastructure, because these are areas characterized by market failure and high risk.[5] The recent problem in Korea's venture policy clearly taught that conventional industrial policy in the form of direct financial or tax supports is no longer effective and that it is best to leave evaluation and screening to the private sector.

Second, informatization of the public sector is an efficient policy to promote the IT industry and yields numerous positive effects. Demand from the public sector comprises a substantial portion of industry demand in the early stage of informatization, and the public sector can serve as a 'test bed' for technologies newly acquired by the private sector. Informatization of the public sector also has a demonstration effect, in e-commerce in particular, in the sense that it is an effective means to spread and accelerate economy-wide informatization. Informatization of the public sector also enhances the productivity, transparency, and quality of service delivered to the public.

Third, another important role for the government is to work to narrow the digital divide. The first aspect of tackling the digital divide problem is to improve welfare and to balance regional development and the second aspect is to form a basis for informatizing the population and thus promoting IT in the long run.

Fourth, the government must target improving marketability and efficiency of the current labor force and labor market flexibility to address the current excess demand for workers in the IT industry which is expected to continue for the time being. Domestic education and training systems are focused on low-skilled hardware workers, while excess demand for high-skilled software workers is more serious. Education programs at the college level do not meet the industry's needs.

Finally, it is crucial when planning investment to take into consideration the strategies of other countries and expected direction of future technology development. Development of new technologies usually follows an evolutionary process, and forecasts of domestic and foreign experts must be incorporated in the plans. Also, great emphasis must be given to the development strategies of other countries, particularly the Asian countries. For instance, Singapore plans to become an IT manufacturing and finance hub based on its well-quipped communication infrastructure and to-end IT manufacturing, while Hong Kong also has a plan to be a finance, IT, and distribution hub in East Asia. Many experts in Korea recommend that Korea adopt a strategy to become a manufacturing and sales headquarters, located in the middle of the global supply chain between high-tech R&D that takes place in the United States and local sales that take place largely in China.

[5] Five forms of public goods and infrastructure in the IT sector are: communication networks; knowledge databases accumulated in the public sector; institutional infrastructure such as laws, rules, and regulations; R&D investments in basic and fundamental technologies; and standardization infrastructure which facilitates transactions among economic agents.