CHAPTER 16

Pitfalls and Prospects for IT Cooperation Between the Republic of Korea and Japan

Hyun-Chul Chung and Alexandre Y. Mansourov

Introduction

The IT revolution leads the way for a historic transformation that is comparable in its scope and significance to the radical changes that occurred during the industrial revolution. The industrial revolution transformed agricultural societies around the world into industrial societies. In much the same vein, the revolution in information gathering, processing, and dissemination through fixed and mobile telecommunications services and local area, wide area, and global networking will dramatically reduce the costs and time for information distribution, as well as will make large information exchanges more cost efficient and easier. This is likely to lead to profound changes in socioeconomic foundations of advancing societies on a global scale. These changes will accelerate the shift from industrial societies into advanced information and telecommunications-networked societies where information exchange, accumulation, and

distribution of knowledge become the major sources of added value and social dynamism.

Japan is aimed at "becoming the world's most advanced IT nation by 2005." This is a very ambitious goal; not easy to achieve. Besides Japan, there are many worthy competitors, including the United States, Germany, the Republic of Korea, Australia, Scandinavian countries, and others vying for the leadership title. The technologies and markets that fuel the IT revolution are the ones that change rapidly, so the government and the private sector in Japan will have to apply all their energy to stay on the top of the competition in the long run. Needless to say, the promotion of the IT revolution is a global practice which will change the very concepts from their foundations of how socio-economic systems will be arranged, and Japan's success or failure in the IT revolution will determine Japan's position within the international society in the 21st century.[151]

This chapter will analyze the current status of IT industry in Japan, identify a number of opportunities and limitations facing the private sector of the two countries in the area of IT cooperation, and will highlight some major developments in the history of Korean-Japanese intergovernmental cooperation in the IT sector.

Current Status of IT Industry and IT Policy in Japan

In January 2001, the Japanese government unveiled the "e-Japan Strategy," which set forth the ambitious goal of Japan's becoming "the world's most advanced IT nation by 2005." Since then, the Office of the Prime Minister has established the Strategic Headquarters for the Promotion of

[151] See *"e-Japan Priority Policy Program-2003,"* IT Strategic Headquarters, Office of the Prime Minister, Tokyo, Japan, June 2003, p.5

an Advanced Information and Telecommunications Network Society, also known as the IT Strategic Headquarters, while the private sector has made an all-out effort to work together with the public sector to make Japan's IT revolution a reality. Although Japan was a latecomer in the global IT race, in the past four years, the government set forth and refined the direction of the IT revolution in Japan through the implementation of the following policy initiatives: "e-Japan Priority Policy Program" (March 2001),[152] "e-Japan 2002 Program" (June 2001),[153] "Acceleration and Advancement of e-Japan Priority Policy Program and e-Japan 2002 Program" (November 2001),[154] "e-Japan Priority Policy Program-2002" (June 2002).[155]

As a result of the burgeoning public-private partnership in the implementation of the government IT policy, the country was able to achieve quickly the targets laid out in the program on "The Establishment of the Environment for Ultra and High-Speed Internet Access Utilization." As the Internet connection fees dropped significantly due to industry deregulation and greater competition among service providers, the Internet penetration rate grew to more than 50% from 21.4% at the end of December 1999 to

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[152] *"e-Japan Priority Policy Program,"* IT Strategic Headquarters, Office of the Prime Minister, Tokyo, Japan, March 2001, http://www.kantei.go.jp/.

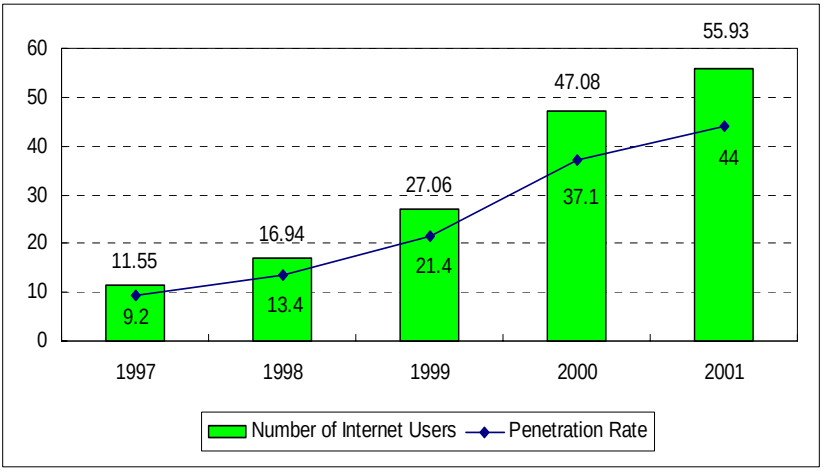
[153] *"e-Japan 2002 Program,"* IT Strategic Headquarters, Office of the Prime Minister, Tokyo, Japan, June 2001, http://www.kantei.go.jp/.

[154] *"Acceleration and Advancement of e-Japan Priority Policy Program and e-Japan 2002 Program,"* IT Strategic Headquarters, Office of the Prime Minister, Tokyo, Japan, November 2001, http://www.kantei.go.jp/.

[155] *"e-Japan Priority Policy Program-2002,"* IT Strategic Headquarters, Office of the Prime Minister, Tokyo, Japan, June 2002, http://www.kantei.go.jp/.

54.5% at the end of December 2002, accounting for Internet use by almost 69 million people, or more than half of the total population in Japan (see Figure 16.1 for historical details).

Figure 16.1 Internet Penetration Trend in Japan (1997-2001), M/%



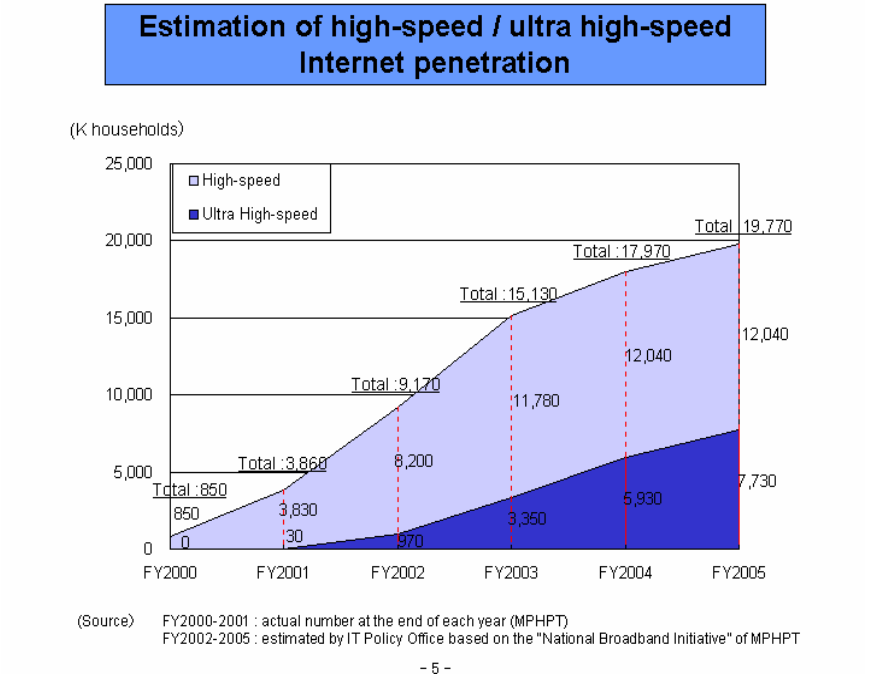
As Figure 16.2 illustrates, in the past three years, broadband usage also experienced dramatic growth, especially in metropolitan areas. Having watched Korea vault past Japan as a "broadband paradise," Japanese policy makers also assembled a national broadband strategy with initial targets that now look far too conservative. As of March 2002, there were 3.87 million broadband subscribers in Japan, which is a 4.5 times increase over 2001; in May 2003, the number reached 10 million. It is projected to

exceed 20 million by 2005 and reach about half of all homes by 2007, according to forecasts by Gartner Japan.[156]

At present, as in Korea, digital subscriber lines, or DSLs, are the predominant vehicles for going online. That is because in Japan's crowded cities, like those in South Korea, most residents live close to local phone switching stations, where needed equipment is stored. But, fiber optic lines, which run at speeds 10 times faster than DSL, are expected to gain market share as the price falls. Unlike in Korea, though, most Japanese Internet service providers have piggybacked on NTT's optical fiber network rather than build their own. That was made possible because of industry pressure on NTT to lower its fees for others to use its equipment. Once that happened in early 2001, prices to consumers fell by half and the number of subscribers to DSL service soared, reaching 2.38 million in March 2002, which is a 34-fold increase over 2001.

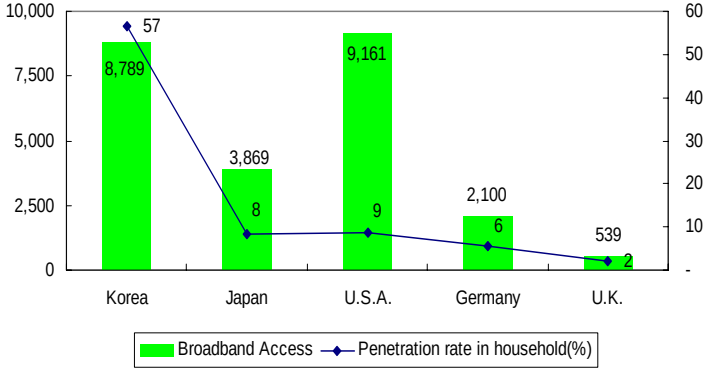
[156] Ken Belson, "Japan Goes High Speed: A Tenfold Increase In Connections," *The New York Times*, Tokyo, May 5, 2003

Figure 16.2. Broadband Access Penetration in Japan (thousands)



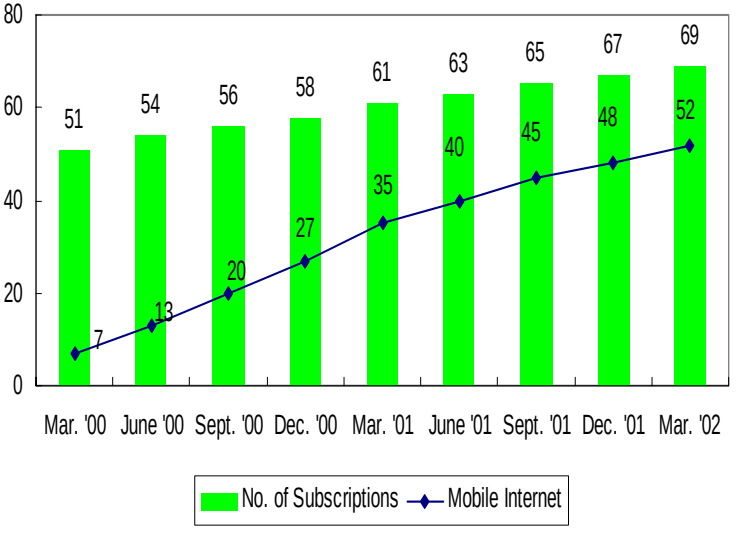
As of March 2002, Japan became the number three nation in the world in terms of the broadband penetration rate in households, following only the Republic of Korea (57 percent) and the United States (nine percent) (see Figure 16.3 for details).

Figure 16.3. International Comparison of Broadband Penetration Rate (millions/percent)



In just two years, Japan has become the largest provider of Internet service via mobile phones, with 51.93 million cell phone users subscribing to the mobile Internet services as of March 2002, which account for 75.1% of the total number of subscribers to the cellular phone service (see Figure 16.4 for details).

Figure 16.4. Subscriptions to Cell Phones and Mobile Internet in Japan (%)



In order to facilitate rapid growth in the B2B (B2C) e-commerce market, in addition to the improvements in the information and telecommunications infrastructure, the Japanese government revised the system related to e-commerce through the development of ministerial and cabinet ordinances, as well as the promulgation and implementation of laws which enabled the administrative procedures of the private corporations, central government, and local public agencies to be processed online. As a result, the B2B market size increased from ¥8.62 trillion in 1998 to ¥34.03 trillion in 2001 at the growth rate of 58.0% per annum and to ¥70 trillion in 2003, and is projected to grow to 125.43 trillion in 2006. The B2C market size increased from ¥64.5 billion in 1998 to ¥1,484 billion in 2001 at the growth rate of 84.0% per annum, and to ¥3

trillion in 2003, and is projected to grow to 16.3 trillion in 2006.[157]

Finally, in order to increase the effectiveness of IT utilization, to enhance Japan's industrial revival and strengthen its international competitiveness, and to utilize Japan's competitive edge in information appliances, beginning in the fall of 2002, the IT Strategic Headquarters has been engaged in serious deliberations regarding Japan's future IT strategy, and, on July 2, 2003, officially decided to adopt phase two of the national IT strategy, "e-Japan Strategy II." Subsequently, the IT Strategic Headquarters under the Cabinet's leadership re-examined "e-Japan Priority Policy Program-2002," which was formulated in June 2002 on the basis of on Article 35 of the "Basic Law on the Formation of an Advanced Information and Telecommunications Network Society (IT Basic Law)," and adopted a new "e-Japan Priority Policy Program-2003,"[158] aimed at attaining the main objective of the Japanese government in the IT Revolution, namely "to become the world's most advanced IT nation by 2005." Accordingly, the government introduced a number of institutional improvements, including the promulgation and enforcement of new IT-related laws, as well as the improvement of cabinet and ministry ordinances concerning the Law to Amend the Commercial Law, the Law Concerning the Limitation of Damages to Specific Telecommunications Service Providers and Disclosure of Sender Information; and the Law Concerning the Use of Information and Telecommunications Technology on Administrative Procedures (Online Administrative Procedures Law), etc.

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[157] *"e-Japan Priority Policy Program – 2003,"* IT Strategic Headquarters, Office of the Prime Minister, Tokyo, Japan, July 2003, at http://www.kantei.go.jp/.

[158] *Ibid.*

Opportunities and Limitations in IT Cooperation in the Private Sector

Since the late 1990s, the IT revolution has fueled domestic economic growth in Korea and Japan and contributed mightily to the regional economic development in East Asia. As Table 16.1 indicates, Korea and Japan developed huge IT markets, and their demand for IT goods, products, and services continue to grow explosively.

Table 16.1 Comparison of IT Market Size in Korea and Japan

	Broadband Penetration Rate In Dec 2002	*Internet Penetration Rate In Dec 2002*	*Production Market in 2000*	*Consumption Market in 2000*
World	-	-	US$ 1.19T	US$ 1.16T
Korea	84%	68%	4.5% (5^{th})	2.2% (9^{th})
Japan	54.4 %	52 %	17.1% (2^{nd})	12.8% (2^{nd})

Improving overall bilateral relations between Korea and Japan plays an important role in their growing IT cooperation. Especially important factors in this regard are generally cooperative atmosphere in the bilateral political dialogue, financial cooperation after the Asian financial crisis, the FTA discussions between Korea and Japan, and their successful co-hosting of the 2002 World Soccer Cup. As a reflection of growing private sector interest in bilateral cooperation, Table 16.2 shows recent preferences of 224 Japanese IT firms with respect to their most desirable

foreign partners, as stated in their foreign expansion business plans in 2003.

Table 16.2. Foreign Partnership Preferences of Japanese IT Firms

Ideal Partner	*Ideal Korean Sector*
Korea – 66.5%	Web solutions – 53.8%
China – 65.9%	Telecom/Internet service – 32.5%
USA - 26.9%	System integration - 26.5%
	e-Commerce - 24.6%
	Information handsets - 24.1%

Source: Survey by Korea Trade-Investment Promotion Agency (KOTRA)'s Tokyo office

The IT industry representatives from Korea and Japan tend to emphasize the synergy effect that their companies may achieve if they combine their efforts together in the IT sector. The synergy may come from their different comparative advantages (see Table 16.3). In general, Japan is believed to have the lead in basic technology, internationally patented standards, and large-scale capital investment, whereas Korea has excellent management, runs ahead in intermediate technology and is more experienced in applying IT to wider telecommunication services, including broadband Internet and mobile telecommunications, and other sectors of national economy and public life, especially the e-government.

Table 16.3. Comparison of Technology Development Level between Korea and Japan

	Korea	*Japan*
Consumer Electronics	Inferior to Japan, except digital TV	World best, including DVD
Computer equipment	Good in production technology and peripheral equipment, but not in design	Very good in production technology, DVD-ROM & HDD, and in design
Software	Comparatively low in S/W development	Superior to Korea
Telecom equipment	Very competitive in terminal equipment	Initiatives in IMT2000; standards setting

Source: Survey by KOTRA's Tokyo office

But, despite considerable potential for the industry-wide cooperation in the IT sector, competition rather than cooperation prevails at present. In particular, in the IT equipment manufacturing sector, Korean and Japanese IT manufacturers often rely on similar technologies and standards; produce competing products; and set similar targets; and compete for market share in the same markets in the United States, Europe, China, and Southeast Asia. As a result, Korean and Japanese competitors tend to avoid technology transfers and usually mistrust each other's intentions. For instance, Table 16.4 demonstrates how intense Korean-Japanese competition in the IT parts industry is.

Table 16.4. Korean-Japanese Competition in the IT Parts Industry

IT Item	*World Market (mln, 1999)*	*First place (market share, percent)*	*Second place (market share, percent)*
DRAM	21,050	Korea (38.0)	Japan (33.3)
TFT LCD	11,600	Japan (65.3)	Korea (31.9)
CRT	14,635	Korea (19.6)	Japan (12.9)
Monitor	33,391	Korea (10.2)	Japan (7.5)
CD ROM	4,800	Japan (20.0)	Korea (17.3)

Further, there is little standardization and no mutual authentication system in the IT parts industry. Therefore, Korean and Japanese manufacturers cannot derive any mutual benefits from the common use of IT parts.

The shortage of IT personnel, which is hovering around 18,000 to 20,000 people in Korea, is also expected to slow Korea-Japan bilateral cooperation efforts in the IT area. Especially tight is the labor supply situation in the software development sector, where the deficit of the qualified personnel is projected to grow to 13,286 people by 2005. Bearing in mind the fact that Korean software companies lag behind their Japanese counterparts anyway, there is little hope for them to catch up or launch substantial cooperative ventures any time soon.

In order to facilitate IT cooperation, the two countries also have to remove many existing barriers to IT trade, especially in the e-commerce and m-commerce areas where they still need to improve their respective domestic laws

and institutions, as well as upgrade the related hardware and software.

Finally, the language barrier still serves as a major hurdle for lively exchange of information and opinions in the IT sector. More work is needed to introduce machine translation between Korean and Japanese languages in order to facilitate Korean-Japanese e-commerce, joint software development, and bilateral telecommunications services.

Korea-Japan Inter-Governmental Cooperation in the IT Field

Korea and Japan launched their cooperation in the IT area in October 1998 when the two governments reached the first IT-related agreement as part of their Action Plan and "Joint Declaration of New Partnership for the 21st Century." It was mainly related to the promotion of e-commerce between the two nations.

On September 23, 2000, President Kim Dae Jung and Prime Minister Mori signed the Japan-ROK/ROK-Japan Information Technology Cooperation Initiative[159] at their summit meeting in Tokyo. Both heads of state reconfirmed the importance of bilateral cooperation in the field of IT and agreed to promote further the cooperative relationship between the two countries in the IT area.

Specifically, in the e-commerce field, they agreed to start an e-commerce policy dialogue; to support the Japan-ROK E-Commerce Developing Conference to discuss the

[159] *Japan-R.O.K. / R.O.K.-Japan Information Technology (IT) Cooperation Initiative*, Office of the Prime Minister, Tokyo, Japan, September 23, 2000

development of the project for the cooperation and promotion of e-commerce in specific sectors; to support the interconnection between both countries' EDI (Electronic Data Interchange) system for trade to develop paperless trade; to promote international interconnecting experiments of e-commerce (INGECEP: Integrated Next Generation Electronic Commerce Environment Project); and to cooperate in the preparation of conditions for the establishment of a safe and credible e-commerce infrastructure. Both governments also welcomed and expressed their support for the commencement of the cooperation between industries of both countries to take initiative in realizing borderless e-commerce.

In the R&D area, Korea and Japan agreed to promote the cooperation in the field of the research and development of the next-generation IT, e.g. the development of the technology to actualize the next-generation super-speed Internet, such as photonic network technology, as well as high-speed satellite telecommunication experiment and related software.

Both governments also agreed to promote the human resource interaction in the IT field through training for IT engineers in both countries, as well as cooperation in the IT engineer qualifying test. They also committed themselves to strengthening the exchange of the research in the field of IT through the exchange of researchers at the level of policy making and engineering.

In addition, Korea and Japan agreed to develop an IT network connecting local areas in both countries. Accordingly, both governments pledged to support interaction and cooperation activities in the field of IT through the activities of the Kyushu (Japan)-Korea Economic Interaction Council, the Hokuriku (Japan)-

Korea Economic Interaction Council, and the IT Corridor Plan between Fukuoka and Busan.

In order to co-organize the World Cup Soccer Games in Japan and the ROK in June 2002, both governments decided to cooperate to develop the system to supply various multimedia information (games, geography, traffic, tourism, regional information, etc.) in plural languages through various media, such as cable and radio Internet and ITS (Intelligent Transport System) in the host cities.

Finally, in the framework of the ASEM, Korea and Japan agreed to promote cooperation in the field of IT, such as the Trans-Eurasia Information Network Project and the Initiative to Address the Digital Divide. In the Asia-Pacific region, they will further deepen cooperation in the issues, which were already agreed in APEC and the Asia-Pacific telecommunity framework. Moreover, both governments expressed their willingness to cooperate with each other and positively participate in the e-commerce related activities of the WTO and the International Telecommunication Union.

Since September 2000, as part of the implementation of the Joint Action plan, Korean and Japanese governments have been engaged in a substantive policy dialogue on IT-related issues at the ministerial, director-general, and departmental director levels. For instance, on June 2003, Korea, Japan and China held the third round of director-level talks on IT at the Shilla Hotel on Jeju Island. Discussion centered on the three countries' broadband policies, along with ways to improve IT policies in compliance with WTO standards. Under the theme of "Next-Generation IT Standardizations and Technology Development," the conference further discussed various projects to set up next-generation Internet phone systems, next-generation consolidation networks,

fourth-generation mobile telecommunications, and standardization procedures for new technologies. [160]

In September 2003, the three countries held another minister-level conference and an IT-related "business forum." Both conferences touched on measures to prevent cyberspace crimes and Internet-related infringements, as well as ways to expand cooperation (for research and standardization) into the civilian research sector.

On May 3, 2004, a director general-level conference for cooperation among Korea, China and Japan in the open-source software field took place in Beijing. The meeting followed the Korea-China-Japan IT ministers' meeting held in September 2003 on Jeju-do Island where the agreement for cooperation in the field among the three countries was reached. About 30 government officials from the three countries who attended the conference concluded a number of agreements concerning a cooperative system to promote joint open-source software development and basic principles on three-nation cooperation. Following these intergovernmental negotiations, a private-public joint conference was held in Beijing. At this business forum, industry representatives and figures with IT-related associations discussed the issues related standardization and joint research and technology/personnel exchanges in open-source software.[161]

On July 27, 2004, a director general-level conference for cooperation among Korea, China and Japan in the open-source software field took place in Sapporo, Japan. At the

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[160] *Information Bulletin*, Ministry of Information and Communication, Seoul, ROK, June 30, 2003

[161] *Information Bulletin*, Ministry of Information and Communication, Seoul, ROK, April 19, 2004

conference, 18 government officials and related figures from the three countries discussed concrete ways for cooperation in the ten-point items that were agreed upon at the first meeting held in April 2004 in Beijing, China. Specifically, the meeting focused on reaffirming cooperative systems among the three countries in order to create a favorable environment for open-source software development and application. Participants also discussed ways to establish subdivisions for standardization and technology development at the open-source software forum in an effort to launch a full-fledged cooperation in the field among the three countries.[162]

Conclusion

Both Korea and Japan accelerate the IT revolution at home and across East Asia. They work together to establish a high-speed Internet environment of the next generation in order to facilitate international e-commerce along the Asian broadband information highway, digitize the administration and application of IT in all sectors of regional economy and public areas, promote education and development of human resources, and to narrow the digital divide across Asia.

Korean and Japanese private IT industries still face considerable hurdles in their cooperative projects. These include direct competition in some IT parts industries, lack of IT parts standardization, shortage of IT personnel, lack of advanced infrastructure for e-commerce, institutional barriers for IT trade, and language barrier. This notwithstanding, there are plenty of opportunities for their mutually beneficial cooperation which stem from the huge

[162] *Information Bulletin*, Ministry of Information and Communication, Seoul, ROK, July 27, 2004

IT market size, explosive demand for IT goods, products and services, favorable political climate in bilateral relations and conducive international economic environment, as well as the synergy effects from their complementary competitive advantages. The future IT cooperation between Korea and Japan is likely to concentrate mainly in the areas of joint R&D, IT personnel exchange, promotion of international e-commerce, and regional IT standardization.