e-KOREA VISION 2006

The Third Master Plan for Informatization Promotion (2002~2006)

April 2002

Ministry of Information and Communication
Republic of Korea

Preface

The developments in information technology and the internet are helping to transform our world today into the information society of tomorrow. We are witnessing revolutionary changes that are occurring in all aspects of our society which will have an indelible impact on our daily lives. We find that our existing ways of working have changed with the emergence of distance learning, cyber banking, and e-commerce. Also, information technology now permits us to log onto the internet to utilize civil services in the convenience of our homes. In the future, information technology is expected to bring about even greater changes with innovative technological developments such as biotechnology and nano technology.

In the past 4 years, informatization has been the main agenda for the government to build a leading national management system. So far, we have been successful in our efforts with the completion of a world-class information infrastructure and the widespread usage of the internet for more than half the population of Korea. As our informatization efforts have garnered the interest from the rest of the world as a successful case for national informatization, we can confidently work towards the realization of an advanced nation of the 21st century.

However, despite our achievements, we cannot rest or be content with the results attained at this point. In the era of global competition, the role of informatization will only become greater in determining the efficiency and transparency of the overall society for the competitiveness of that nation. Based on the results of our informatization efforts up to now, all social systems have undergone positive changes and improvements in such areas as public administration, education, social welfare and business.

The third Master Plan for Informatization Promotion through e-KOREA VISION 2006 provides the blueprints for building the information society of the future. Necessary changes in the current social systems and practices will be implemented for the information society. The impact of informatization

will be felt at all levels of society including the government, business and the individual. However, advances in the world-class information infrastructure must continue to create an appropriate environment for the Next Generation Internet. In addition, with the IT industry becoming a vital part of our future competitiveness, we must ensure that future generations will be able to enjoy the fruits of our efforts. For this purpose, Korea needs to firmly establish itself as an advanced nation of the global information society by utilizing North-east Asia as a launching point.

Already, we have taken a new step towards our future. In fulfilling e-Korea Vision 2006, I firmly believe that Korea will become a global leader of the information age in the 21st century. To this end, we need to unite our strengths in order for Korea to move forward into a bright and prosperous future.

Han-Dong Lee
Prime Minister of the Republic of Korea

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I. Background

Since the middle of the 1990s, the Korean government has established two master plans for the development of the information society, the first Master Plan for Informatization Promotion in 1996 and the CYBER KOREA 21 plan in 1999. Through these plans, the government has brought Korea one step closer to the realization of the information society with the construction of an advanced information infrastructure.

Having garnered the interest of various leading countries, the success of the informatization policies is now paving the way for Korea to become a leading country of informatization in the 21st century.

However, to firmly position itself as a truly advanced nation, Korea must first successfully cope with the oncoming challenges and various issues as follows:

·To reform legal and institutional systems and increase the capacity to utilize information technologies in all areas of society including the government, private companies and individuals in order to increase the positive effects of informatization

·To strengthen the ability to respond rapidly to changes in the social environment caused by the rapid developments of information technologies

·To stimulate national development through informatization efforts in order to resolve the national agenda such as strengthening our competitiveness in the global economy

In order to complete these tasks, the Korean government established e-KOREA VISION 2006 as the blueprint for the direction Korea will take in the next five years in becoming a global leader in the 21st century.

1. Informatization Promotion in Korea

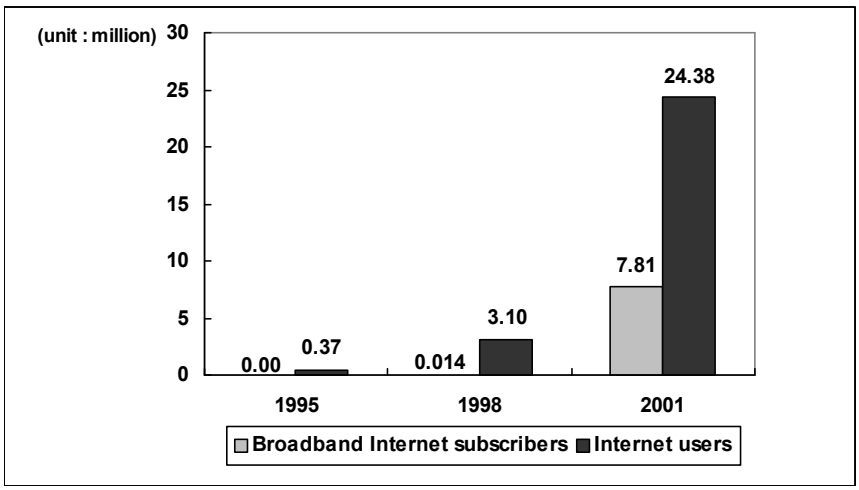
The Korean government enacted the Framework Act on Informatization Promotion in August, 1995, established the first Master Plan for Informatization Promotion in June, 1996 and established a national organization for planning and implementation of the goals outlined in the Master Plan. The plan presented 10 key projects for the realization of an advanced information society by the year 2010.

In March, 1999, the government established Cyber Korea 21 as the blueprint for the new information society of the 21st century in order to overcome the Asian Economic Crisis and to transform the Korean economy into a knowledge-based one.

Evaluation of Accomplishments

Construction of an advanced information infrastructure

High-speed telecommunications networks were constructed to enable the citizens of Korea to have high-speed access to the broadband internet services throughout the nation. As of the end of 2001, the number of internet users totaled 24.38 million, where 7.81 million households had high-speed access to broadband Internet services.



<Comparison of Penetration Rates of Broadband Internet per Household>

Country	Korea	U.K.	U.S.A.	Japan
Penetration rate(%)	54.3	0.8	13.1	6.3

Now, mobile telephony in addition to fixed line telephony has become a basic telecommunication device for the general public. As of March, 2002, the number of mobile subscribers has reached 30.31 million, surpassing the 22.95 million fixed line subscribers.

Increased levels of Informatization

Informatization of the overall administrative processes in the government has increased not only administrative efficiency but has also established a solid foundation for the e-Government.

Informatization of customs services has shortened the processing time (for exports, from more than a day to less than 2 minutes; for imports, from more than 2 days to less than 2 and half hours), and has reduced logistic costs by at least 500 billion won a year.

The establishment of the electronic employment information system has helped 1.9 million people obtain jobs between 1999 and 2001 by providing comprehensive employment information regarding job openings, vocational training programs, etc.

Informatization of government procurement services through the introduction of online services enhanced the productivity and transparency of these services by reducing the time to process documents (from more than 2 days to less than 30 minutes).

The application of information technologies has spread to major manufacturing industries such as steel, electronics, ship-building, automobile and textiles in order to reduce costs and to enhance national performance. For example, POSCO (70% share of the domestic steel market) has reduced costs as much as 230 billion won a year by utilizing information technology such as the implementation of e-commerce system.

Information and communications technologies are extensively being utilized in economic or social activities including financial transactions and health administration.

Financial institutions have utilized information and communications technologies to provide 24 hour electronic banking services. Currently, with 11.31 million customers subscribed to Internet-based banking services, the popularity of online financial transactions has risen dramatically. For example, 66.6% of the total monetary value of stock trades are handled on the Internet as of December 2001.

As of December 2001, approximately 40,400 health care facilities have introduced EDI to health insurance to improve the efficiency in the health insurance administrative process.

To bridge the digital divide and to enhance the quality of life for the citizens of Korea, the government has wired all elementary, middle and high schools in Korea to high-speed Internet services and has also provided e-literacy programs for the general public.

<Growth of Disadvantaged Internet Users> (unit : percentage)

	1998	1999	2000	2001
Over the age of 50	1.2	1.0	4.9	20.7
Non college educated	1.7	2.8	11.9	48.9
Income of 1 million won a month or less	5.0	8.3	24.5	36.0

source: Information Culture Center of Korea 1998~2001

The IT industry has become an industry which increases the competitiveness of other industries and leads the growth of the Korean economy.

With an annual average growth rate of 18.8% since 1997, the IT industry has played a pivotal role in overcoming the Asian Financial Crisis in the late 1997's and in revitalizing the national economy.

** Production in the IT industry amounted to 150 trillion won with a 12.9% of GDP in 2001.*

During the last 4 years, the share of IT products has increased to 26.8% of the overall exports. Among the leading products are the world-class CDMA technologies, semiconductors, and TFT-LCD.

The establishment of numerous IT ventures helped to create numerous professional jobs in the past few years. In addition, the industrialized sectors have benefited with an increase in productivity from the employment of the IT experts and specialists. As of December, 2001, the number of IT ventures reached 5,073 companies (44.5% of the total ventures). The number of IT workers increased from 1.01 million in 1997 to 1.16 million in 2001.

<Comparison of Information Society Indices>

	Pre 1st Plan	Pre CK 21	After CK 21
	end of 1995	end of 1998	end of 2001
Proportion of e-approvals in the government (%)	-	21.2	80.6
Proportion of e-procurement of the government (%)	-	19.3	87.5
Proportion of e-trade (%)	-	3.7	66.6
Internet banking users (million)	-	-	11.31
Amount of exports of IT products (billion USD)	31.7	30.5[1)]	38.4
IT industry production (trillion won)	51.4	88.1	150.3
Number of households with access to high-speed internet (thousands)	-	14	7810
Number of internet users (millions)	0.37	3.10	24.38
Number of personal computers (millions)	5.35	8.27	20.70
Number of mobile phone subscribers (millions)	1.64	26.82	29.04
Size of e-commerce market (trillion won)	-	0.05	88.5[2)]

1) The increase in the foreign exchange rate in 1998 reduced the export amount.
2) This refers to the period from January to September 2001.

Key success factors

Establishment of a comprehensive informatization promotion framework and system

·The Framework Act on Informatization Promotion was enacted in 1995
·Informatization Planning Office and Informatization Promotion Fund were established in 1996
·Informatization Promotion Committee was established in 1996 and IT Strategy Meeting was organized in 1998

Establishment of a vision for the information society in response to the changes in the environment

The government presented the visions and strategies for the information society, the 1st Master Plan for Informatization Promotion and CYBER KOREA 21, grounded on the direction by the head of the nation. In order to implement these action plans, the Korean government has formed a close partnership with the private sector.

Upgraded information infrastructure

The government has implemented continuous upgrading of existing information networks. More specifically, the nationwide PSTN constructed in 1980's and the information systems built as a part of National Computerization Project were upgraded and integrated into the information infrastructure.

Strategic investments in key sectors and promotion of market competition

The government made initial investments in CDMA technology and promoted market competition in broadband and mobile telecommunication services in order to stimulate private sector investments.

Cultural compatibility with information technology

The rapid rise of the Internet population is partly a result of the compatibility between the Korean culture and the Internet. In addition, it is also attributable to the success of the e-literacy training programs as well as to the partnership between the government and the private sector.

Current Issues

The effects of informatization such as increasing productivity levels and transparency have fallen short of expectations. This is attributable to the incomplete overhaul of social systems, outdated practices and incomplete implementation of business process re-engineering.

Slow spread of informatization in the public sector

Informatization in the public sector has not been fully realized as a result of the lack of information sharing and system networking between governmental departments, organizations and agencies. In addition, government officials have been slow to open information regarding the administration to the general public.

Low IT investment in the SME sector

With many of the companies in Korea being SMEs (Small and Medium sized Enterprises), the utilization and application of information technologies have been low. This is attributable to a weak infrastructure for e-business, which includes standardization, logistic support and legal structure. Also, low transparency in accounting systems and unrecorded transactions are additional obstacles to the widespread usage of information and communication technologies in the SME sector.

Handling the adverse effects of information and communication technologies

Among the obstacles that hinder the spread of information technologies are harmful activities which includes hacking, spreading computer viruses, privacy infringement and distributing indecent information. The government has established a legal framework to deal with and respond to these adverse effects, however, the shortage of specialists and experts to handle the problem and the lack of public awareness regarding these activities make the diffusion of information technologies difficult.

Insufficient investment in the research and development of advanced information and communication technologies

Although Korea has constructed a world-class information infrastructure, engineers have not taken full advantage of it by developing advanced applications and useful technologies that would provide added social and/or economic value. At present, there is a skill shortage of high-level engineers and a lack of core technologies in the IT industry. What Korea needs is an innovative education system for training IT experts and promoting interdisciplinary programs that would meet the international demand and standard for information technologies.

2. New Challenges Emerging from the Changing Environment

As global competition becomes intensified in the world economy, Korea must actively respond to the changing environment with efforts to restructure the national economy. The survival of numerous domestic companies will be dependent on the ability to compete at a global level.

Globalization and restructuring the world economy

With the rapid spread of globalization throughout the world economy, a possible threat to the entry of Korea into the world economy is the emergence of new economic superpowers such as China and EU. In order for the Korean economy to compete successfully in the global market, the application and usage of information and communication technologies in all industries should be fully maximized to create greater added value. For the

Korean economy to maintain its growth in the future, the government needs to foster new knowledge-intensive industries such as BT (Biotechnology), NT (Nano Technology), CT (Culture Technology), ET (Environmental Technology) and ST (Space Technology), on a solid background of IT.

Globalization requires the social system of each nation to be compatible with the global standard. Transparency of a society is an important factor which influences the international position of a country. For example, national credit ratings announced by international financial institutions help determine a country's position in the world. In addition, national informatization efforts can enhance transparency in order to elevate Korea's position in the global society.

Changes of employment methods and job structure

The widespread usage of information technologies throughout society has led to changes in the labor market. IT professionals and experts have emerged representing the new knowledge worker. In addition, new jobs have been created pertaining to cyberspace, such as computer mappers.

**A computer mapper is a type of software developer who programs geographical or locational information for automatic navigation systems.*

**According to the Korea Information Society Development Institute (KISDI), the annual growth rate of IT workers between 2000 and 2005 is expected to be 4.8% while the average annual growth rate for overall national employment is expected to be 1.96%.*

The increase in outsourcing and the creation of new types of jobs have led to a rapid increase in the number of part-time workers. Also, labor mobility is on the rise as changes are occurring in the concept of lifetime employment in Korean companies.

In response to the changes in the labor market, the government should establish an education system appropriate for the demands of the information society, and also promote lifelong learning to improve e-literacy of all citizens.

Growing demand for culture

As more people want to enjoy their personal lives, the demand for cultural activities rises with higher levels of income and greater time for leisure. The increase in leisure time is attributable to the rising trend of the five-day work week. As a result, the quality of life will depend more on the enjoyment and experience of cultural activities. A new cultural space has emerged in cyberspace from the widespread usage of the Internet thereby enhancing the quality of life through the distribution of high quality cultural contents.

Greater importance on the competitiveness of the public sector

In the information society, innovation in the public sector is a prerequisite to the enhancement of competitiveness and creativity of the private sector and economic development. The U.S., U.K. and other major countries are carrying out e-government projects along with deregulation measures to create a more competitive government system. For Korea, the government is also carrying out 11 key projects towards the realization of the e-government. Additional projects for the e-government will be developed for implementation through inter-ministerial cooperation. The enhanced efficiency, convenience and transparency of civil services as a result of the utilization of information and communication technologies will be important in helping the private sector strengthen its competitiveness in the global economy.

The digital divide as a new social problem

The emergence of a new social conflict in the information society is attributable to the rapid changes in the industry structure and the demands of the labor market, leaving behind those who could not adapt to the changes. As the usage of information and communication technologies, in particular the Internet, has become a routine part of our lives, the digital divide may widen the gap between socio-economic levels and in terms of culture.

The widening of the digital divide among countries poses as a serious

international issue.

Increase of adverse effects from the widespread usage of information and communication technologies

The government should take necessary measures to strengthen its role in effectively dealing with the adverse effects arising from the widespread usage of information and communication technologies such as hacking, distribution of computer viruses and circulation of indecent information, as well as to strengthen the ties of international cooperation to help resolve this issue. Increased usage of electronic transactions and databases have only elevated the importance of the protection and security of personal information.

Increased importance of international cooperation

There is an increased need to develop strong ties of international cooperation in response to the regionalism that is occurring in the global economy and the increasing awareness of the importance of information technology in the economic development of a country. Korea has the potential of becoming a leader for international cooperation among northeast Asian countries based upon the construction of a world-class information infrastructure and the experiences gathered from its national informatization efforts. The government needs to build Korea into an IT hub of Northeast Asia in order for Korea to emerge as a main business center of this region.

New Agenda for the Information Society

Evaluation of Accomplishments

- ▶ Construction of an advanced information infrastructure
- ▶ Increased levels of informatization
- ▶ IT industry leading the economic growth

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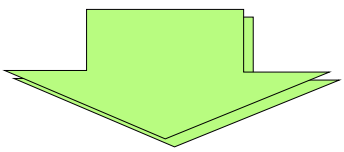
- ▶ Effects of informatization falling short of expectations
- ▶ Pervasive adverse effects of IT
- ▶ Insufficient investment in the R&D of advanced IT

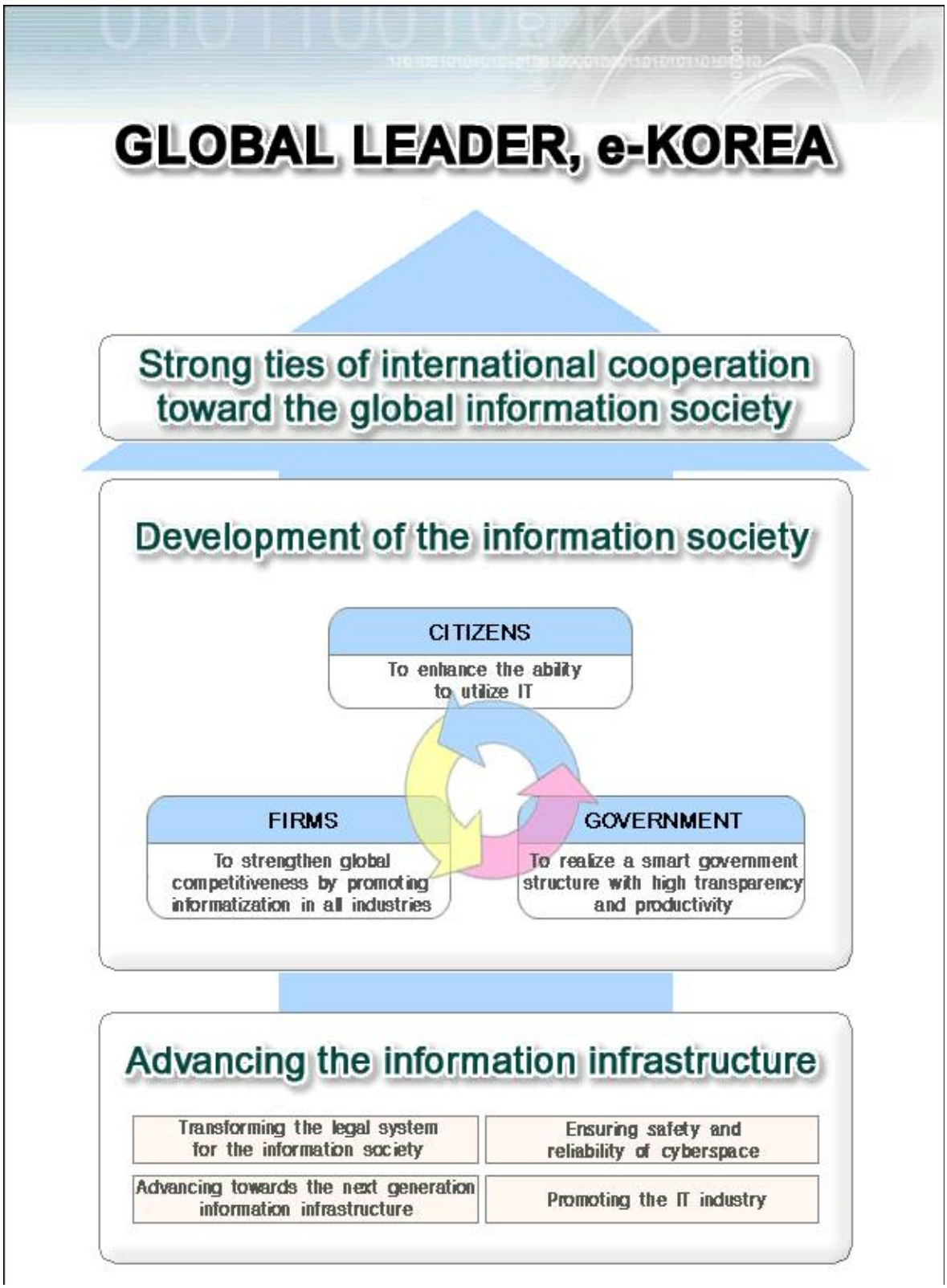
Changing Environment

- ·Globalization and restructuring the world economy
- ·Changes of employment methods and job structure
- ·Digital divide as a new social problem
- ·Increased importance of international cooperation



- ▶ Strengthening global competitiveness by promoting informatization in all industries
- ▶ Innovation of the public sector by promoting informatization
- ▶ Advancing the information infrastructure
- ▶ Strong ties of international cooperation toward the global information society

Ⅱ. Vision : the Global Leader, e-KOREA



1. Objectives

To maximize the ability of all citizens to utilize information and communication technologies in order to actively participate in the information society

By providing the opportunity for all citizens to have access to Internet service and establishing a lifelong education system through online learning, all citizens will be able to nurture their creativity and to improve their ability to use information and communication technologies. As a result, all citizens will be able to participate in the information society as "prosumers" of information. Their ability to utilize IT will lead to the creation of added value in all aspects of society and to the enhancement of our quality of life.

**The prosumer of information is one who is both a producer and consumer of information.*

To strengthen global competitiveness of the economy by promoting informatization in all industries

The government plans to strengthen the global competitiveness of existing manufacturing and service industries and to build a foundation for fostering new high-tech industries based on our world class information infrastructure. As the IT industry is becoming an industry which strengthens the competitiveness of other industries, the productivity of existing manufacturing and service industries is expected to be further enhanced.

To realize a smart government structure with high transparency and productivity through informatization efforts

The government plans to enhance the transparency and productivity of all public administration processes as well as to provide prompt and reliable civil services through the use of information and communication technologies. More online public services in the areas of education, culture and social welfare will be offered in order to enhance quality of life.

To facilitate continued economic growth by promoting the IT industry and advancing the information infrastructure

The government will construct the next generation network with fixed and wireless access which will provide high quality broadband multimedia services at reasonable cost to anyone, anywhere in Korea. The government will provide the necessary support for new strategic IT products, develop core technologies, establish new creative industries and provide support for market entry overseas in order to become a global leader in information technology.

To become a leader in the global information society by taking a major role in international cooperation

International cooperation between Korea, China and Japan in the area of information technology provides an opportunity for Korea to take a leading role in the world market. Korea plans to lead regional cooperation in IT among Asian countries by establishing a promotion system for the information culture in the Asia-Pacific region.

2. Basic Direction

Quantitative Expansion ⇒ Qualitative Accomplishments

The promotion of informatization will focus on qualitative accomplishments such as the increase in productivity through legal and institutional reforms and innovations in business processes throughout society rather than quantitative expansion of the Internet. Efficiency will be enhanced in all socio-economic activities by informatization and the ability to adapt to new environmental changes will be improved through greater usage and application of information and communication technologies.

Creation of new industries led by the government ⇒ Foundation for new industries

The government plans to focus on upgrading the information infrastructure, supporting venture startups, R&D, human resource development as well as legal and institutional reforms in order to provide a foundation on which new industries can be created. The private sector will be leading the development of new independent and creative industries based on the foundation provided by the government.

Catch-up Strategy ⇒ Leading Strategy

Based on a leading information infrastructure, the government plans to create an environment in which the creativity of every citizen can be fully utilized in order to produce the best goods and services in the world. To strengthen competitiveness in IT, the government will increase leading investments in core technologies and strategic services which have the potential to produce significant added value in the future.

3. The Future of the Information Society in Korea

The promotion of informatization in all aspects of society will led to an increased effectiveness of all socio-economic activities, higher national performance, and higher quality of life.

Higher quality of Life

Cyberspace will become another space where people enjoy high quality of life.

By the year of 2005, the government plans for every household to be equipped with universal access to the broadband Internet with minimum transmission speeds of 1 Mbps irrespective of income, age or region. Lifelong learning programs will be built on the expanding opportunities in distance

learning. Participation of lifelong learning programs is expected to reach the level of OECD member countries. Every citizen will be able to enjoy a culturally enriched life as a result of high quality digital contents delivered by digital television and the Internet.

The usage and application of information and communication technologies will create a comfortable and convenient environment

The usage and application of information technologies in agriculture and fisheries have allowed direct and reliable transactions of fresh agricultural products and goods between producers and consumers. In addition, the usage and application of information and communication technologies enable improvements in the ecological system and ensure the conservation of a clean and natural environment by strengthening environmental policy functions. The application of information and communication technologies in transportation system by ITS (Intelligent Transportation System) and GIS (Geographic Information System) will relieve traffic problems and reduce logistics costs.

A Vital Economy

The IT industry is becoming an industry on which new industries are created and developed to sustain economic growth and to contribute significant added value to the national economy.

The successful development of core technologies will raise the status of the IT industry and will have a positive impact on increasing the exports of IT products. Total IT exports from 2002 to 2006 is expected to reach 350 billion dollars. The establishment of new knowledge-intensive industries such as BT, NT, CT, ET, ST, etc., will help to sustain economic growth.

Enhanced productivity of all industries through the utilization of information and communication technologies will enhance their global competitiveness.

Informatization of all industries will raise the level of productivity to the level of G7 countries, which will lead many Korean companies to become major players in the global market. Approximately 30% of total transactions in major industries are expected to be online and 25% for other industries by the year of 2006.

The creation of new jobs through informatization and the development of IT specialists and experts will provide a solid foundation for continued growth of new industries.

One-stop electronic services for employment searches, employment insurance and job training will provide direct employment opportunities for all citizens. Additionally, the highly trained human resource pool of IT experts and specialists will be developed to lead the next generation of industries.

Smart Government

Informatization of the government will not only enhance the productivity of the public sector but will result in prompt and accurate civil services.

Continuous improvements of public administrative processes and greater public usage of available civil service information through information and communication technologies will raise the efficiency of the public administration system and provide government officials with advanced support systems for decision making. Transparent public administration and prompt and accurate civil services for individuals and companies will contribute to strengthening our national competitiveness.

The Internet allows for the realization of greater transparency in the decision making and implementation process within the government through customized online civil services and policy making processes open to the public.

Online services will be expanded to encompass all civil services and

customized digital civil services will be offered by 2006. Also, civil services will be delivered at any location with the establishment of a mobile government information infrastructure. E-civic forums that enable citizens to participate in the policy-making processes of the government through the Internet will be made formal within the public administration system.

Ⅲ. Promoting National Informatization

1. Enhancing the Capacity of Utilizing Information and Communication Technologies

Objectives

Expanding opportunities brought by information and communication technologies

·To expand Internet usage to 90% of the overall population
·To connect schools to a world-class information infrastructure
·To raise the participation rate of the life-long learning system to the level of OECD member nations

Evaluation of Accomplishments

Despite the rapid growth of the internet, a substantial number of information have-nots remain due to their social, geographical, physical circumstances. Not having easy access to the internet, those information have-nots do not have the opportunities for utilizing information necessary for their daily lives and work.

Korea has accomplished impressive achievements in constructing a physical infrastructure. For example, Korea has become the first nation in the world to completely connect all schools to high-speed internet. However, the courses in regular education are lacking the application of digital methods such as distance learning and high quality digital contents for educational purposes. Also, the systematic linkage between regular school education and job-training has not been fully developed. Moreover, the participation rate of adults to the lifelong education system is lower than that of advanced nations.

Lack of expertise in IT programs has led to lower employment rates among those who have completed these courses. Young unemployed workers with high educational backgrounds do not have enough opportunities to enter IT fields. In addition, women and the elderly have more difficulties in finding jobs. Despite the advancement of IT, the spread of various new modes of working such as **telework** has been slow.

Policy Directions

Ensuring universal access to the internet and enhancing the ability to utilize information technologies by all citizens

All citizens will become main actors of the information society as information "prosumers", in other words, information producers as well as information consumers. To this end, the Korean government will help to develop IT education programs for the public, tailored to different learning abilities and groups. Also the Korean government will extend the concept of "universal service" to broadband internet services to give more opportunities to the information have-nots.

Enhancing the ability of all citizens to cope with the rapid changes in technology and society

The government will develop a lifelong learning system in order to increase the nation's knowledge base. To this end, the government will build an infrastructure for a nationwide e-learning system through the development and spread of multimedia methods and digital contents for educational purposes. Furthermore, the government plans to expand online lifelong education systems and institutions, such as cyber universities and local lifelong education centers, and to make them more effective. By doing so, the government hopes that the participation rate of the overall population to the lifelong learning system will be raised to the level of OECD member nations.

The Korean government will make efforts to fully utilize the national human resources, thereby enhancing economic and social efficiency. For this purpose, the government plans to develop more effective IT education programs geared towards the unemployed with high educational backgrounds, women, and the elderly. Also, a favorable social environment will be built to encourage various innovative working methods such as telework.

Policy Plans

1.1 Enhancing the ability of utilizing information and communication technologies by all citizens

1.1.1 Strengthening IT education

Improving the ability to use and apply information technology at an advanced level with the goal of attaining a 90% penetration rate of the entire population for Internet usage by 2006

The government will continue basic computer literacy programs for the information have-nots including the handicapped, farmers, fishermen, the elderly, and the unemployed. From 2002, those who have completed the basic programs will have opportunity to enter into more advanced programs. The advanced programs will differentiate the trainees by their abilities, taking into consideration the application of the program to their work and daily lives. In particular, military servicemen will take special education courses in IT to obtain at least one certificate during their service.

Expanding specialized online education programs to the elderly and the handicapped

In particular, the government will revise and expand the current distance IT education system (www.estudy.or.kr) so that it may become the nation's leading IT education portal, and will provide IT education for finding employment, starting a business, counselling, and various other types of

information. As a further step to diversify the channels of education to the public, the Korean government plans to provide online education through digital home appliances such as digital TV.

Introducing an evaluation system to measure the ability of utilizing information and communication technologies to enhance the level of informatization and the effectiveness of IT education

The government will also implement measures to increase the effectiveness of the current certification system for IT.

1.1.2 Creating a more accessible information environment

Providing an environment in which everyone can use high quality broadband internet services throughout the country by 2005

Due to high costs and low returns, telecommunications service providers are not willing to expand broadband networks to rural areas. To resolve this problem, the government will provide an incentive to service providers so that remote areas such as rural areas, islands, and mountainous regions will have comparable information accessibility as larger cities.

Increasing internet access for the information have-nots by opening approximately 10,000 schools across the nation as IT centers to the community at after-school hours if circumstances of each school permit

The government is now supporting the establishment of free internet facilities at community centers for low income areas and remote regions such as islands. At the end of 2002, all towns and villages will have at least one center offering free internet access.

Supporting the supply of personal computers to information have-nots and social welfare facilities in a step by step process

The government is also providing support to the development of the telecommunications services and terminals specially for the handicapped. In particular, the government is developing ways to provide information access services at low cost for children of low income families as well as orphans.

1.1.3 Creating an "Information Welfare" system

Helping the information have-nots become more self reliant by expanding employment information services and linking various social welfare systems together

In addition, to strengthen the network between job training centers, the government will construct a comprehensive employment information system, which will be linked to various IT education portal sites.

Supporting the development and distribution of digital contents for the information have-nots such as the handicapped, the elderly, and workers in the agricultural and fisheries fields

By constructing portal sites with digital contents for the handicapped and the elderly, the government will provide useful information for application in their daily lives. Also, through the information networks on agriculture and fishing, the government will also provide useful and timely information to workers in these fields.

Adopting various policies to bridge the digital divide and improving the public awareness of the problem

To enhance the effectiveness of the policies, the government will study demographics of the information have-nots for classification and conduct surveys on the current status of informatization specific to each classified group. Also, the government will publicize success stories of information have-nots and promote a national campaign for bridging the digital divide.

1.2 Establishing a lifelong learning system

1.2.1 Creating an environment for online learning

Establishing an online learning system, which will be accessible anytime, anywhere, and by anyone

By introducing real time classes linking various schools online, the government will try to improve the quality of public education. Through the various methods of PCs and digital TVs, the government plans to stimulate "online learning at home" which will enable the sharing of digital learning materials between schools and homes.

Diversifying education methods by utilizing multimedia to enhance the quality of public education

For this purpose, **the government will build a world-class information infrastructure for all schools in Korea.** By 2006, the average number of the students to one PC will fall below 5, and the average transmission speed of internet access will be upgraded to a minimum of 2Mbps. Additionally, schools will utilize information and communication technology extensively in the classroom, improving the quality of teaching and learning methods.

Developing digital contents especially for educational purposes to improve the online learning environment

Also, the government will create a multimedia environment to facilitate learning by developing software for educational purposes and digitalizing textbooks. Furthermore, the government will establish a system for sharing various educational materials such as digital movies and photos from broadcasting companies, museums, universities, and lifelong education centers.

1.2.2 Expanding opportunities for online lifelong learning

Increasing the participation rate among adults to the lifelong learning system by expanding opportunities for online learning, in order to attain the level of other OECD member nations

Through various methods such as the internet and digital TV, the government will expand and make more effective the system of cyber universities which will be able to authorize credits without any constraints limited by time or space. The government will make the system of credit pooling more effective by conferring official credits to distance learning and job training programs.

Transforming the education system to a more practical or applied approach to expand lifelong learning opportunities for workers at all levels

The government will provide an "everyday learning system" for government officials through online education programs. Also, a "social learning net" will be constructed to extend learning opportunities for the information have-nots. To promote and support lifelong learning opportunities for all citizens, the government will construct a nationwide learning network, which will include primary and secondary schools, private institutions, local lifelong education centers, and the employment information system.

1.3 Establishing the e-work system

1.3.1 Promoting online and mobile working

Providing online job opportunities from public informatization projects for those who are qualified for some level of IT

In particular, the handicapped and the elderly will be provided with more online job opportunities derived from the public sector.

Actively promoting telework so that people can work without any restrictions on time and physical space

The government will introduce a mobile working system to field work such as social welfare work. To promote telework, the government will revise the current laws and regulations. First of all, the government will revise the law to protect the rights and interests of workers who utilize telework. In addition, to promote telework for civil servants, the government is planning to prepare details of the appropriate regulations regarding this matter.

**Mobile working is a type of telework, in which workers can move freely and keep in touch with his/her office, giving and taking relevant information, regardless of location.*

1.3.2 Strengthening IT job training for the unemployed

Taking measures to reduce the level of unemployment among youths through job training and job transition programs in the IT field

For this purpose, the government will develop various multi-level IT training courses. For those unemployed with high level academic backgrounds, training programs in IT will be provided that reflect the demands from hiring companies. By expanding field training programs with the cooperation between companies and schools, the government will increase job opportunities and improve job qualifications for the unemployed.

Taking measures to raise the participation rate of women in economic activities to meet the average level of OECD member nations

**A survey from the OECD has found that the current participation rate of female college graduates in economic activities in Korea totals only 55%, while the average rate for OECD member nations is 82%.*

The government will provide support for employment and small business startups in the IT field, and complete the online IT education system for women by 2006 by developing programs which can be readily applied to the

IT industry. To promote the start-up of small businesses by women, the government will develop new training programs and search for new industries and knowledge-intensive fields.

Supporting the participation of the aging generation in economic activities in preparation for the aging society

To increase the employment opportunities for the elderly, the government will develop programs for job retraining in the IT field.

2. Promoting Industrial Informatization

Objectives

Leading economic growth through the realization of a digital economy

·To enhance productivity and competitiveness of the existing manufacturing and service industries through informatization
·To develop and upgrade B2B e-commerce
·To create a reliable online business environment

Evaluation of Accomplishments

IT spending by domestic firms is rapidly increasing, but still remains behind the levels of other advanced nations. In 2000, the ratio of IT spending by domestic firms to GDP was 2.3%, lower than the ratio of 5.2% of the U.S., and 3% of Japan. However, the expected annual growth rate of IT spending by domestic firms from 1999 to 2003 is projected to be 20.4%, almost doubling Japan's 11.4% and Western Europe's 11.7%.

The annual growth rate of IT spending by domestic firms from 1990 to 1998 was 42.6%, however, the rates differ quite dramatically across industries. For example, the average growth rate of the 5 main industries in Korea: textiles, electronics, ship building, automobile and steel industries is merely 14.8%.

In regards to e-commerce in Korea, the market grew rapidly reaching 50 trillion won at the first half of 2001. According to an OECD survey in 2001, 15% of Korean consumers are online buyers, comparing to 10% in Sweden, 18% in England and 7% in France. Yet, the level of IT usage of SMEs in Korea, which are 99.2% of the companies in Korea, is considered to be quite low.

** According to a report from NCA (National Computerization Agency) of Korea in 2001, the ratio of e-commerce to the total transactions of SMEs is approximately 10% and the level of SMEs' informatization is also comparatively very low.*

In addition, informatization efforts in the existing manufacturing and service industries is hindered by outdated practices of non-transparent transactions and negative attitudes towards information sharing.

Policy Directions

Strengthening the overall competitiveness of all industries through informatization

The government plans to enhance the level of competitiveness and the added value of informatization to all industries including the textile, electronics, construction, financial, health care, and distribution industries. Moreover, small businesses will be encouraged to actively participate in the digital economy. As well, standards will be set to increase the efficiency in the informatization process of industries.

Advancing B2B e-commerce

The government will encourage companies to adopt information and communication technologies throughout the value chain with the primary aim of enhancing the efficiency of business activities. Also, the government will provide support for B2B e-commerce in each industry in order to

improve transparency of transactions and productivity. To stimulate activity in B2B e-commerce, the government has recognized the need for improving the logistics and online payment systems. Furthermore, to enhance the efficiency of international trade, the government will develop a paperless e-trade system.

Creating a safe and reliable online business environment

With the development of the authentication system for e-commerce and the availability of quality information online, the government provide the necessary aid to construct reliable cyber markets. Taking this one step further, the government will ensure the protection of e-consumers by strengthening measures in consumer education and systematizing dispute resolution. In addressing privacy issues in cyberspace, the government will promote public awareness of privacy protection and strengthen relevant regulations and laws.

Policy Plans

2.1 Expanding the reach of information and communication technology to all industries

2.1.1 Promoting informatization across industries

Textile Industry

Helping construct the SCM (Supply Chain Management) system, suitable for the trade and distribution structure of the industry

The system will be linked to the procurement systems of advanced countries. Textile exporters, raw yarn suppliers, textile manufacturers, and textile processors will be encouraged to construct a collaboration system in which they share business information through the SCM network. The government also plans to promote the collaboration between businesses and

academia in cyberspace for the development of the fashion industry.

**SCM is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer.*

Electronics Industry

Promoting global e-business of the industry

The government will provide a conducive environment in which domestic firms can quickly adjust to international standards, and support standardization activities associated with RosettaNet, a leading international standard in this industry.

** RosettaNet is an e-business framework in the electronics industry. At present, approximately 400 firms in IT, electronics, and semiconductors around the world are participating in RosettaNet.*

Construction Industry

Strongly encouraging the industry to fully implement CITIS (Contractor Integrated Technical Information Service) in 2003

CITIS is an information service to exchange and share all documents, papers, and blueprints electronically among participants in the construction process, including orderers, designers, constructors and supervisors. By constructing an integrated database of EC/CALS for the construction industry by 2005, the government will promote information sharing in the overall process of construction beginning with planning to maintenance. Construction companies, subcontractors and material dealers will be preparing a classification system concerning construction materials, code standards, and e-catalogues in order to build B2B e-commerce networks for the industry.

**CITIS is a process by which contractually specified technical data is "delivered in place" with the contractors integrated data management system, rather than through physical delivery. This contractor-provided service allows government data users to access the contractor data system and to view, comment, and download data or perform a variety of other functions.*

**CALS (Commerce At Light Speed) is a business strategy for a standards-based inter-enterprise integration first pioneered in the military, and has now extended rapidly into civilian industrial activities.*

Financial Industry

Encouraging the industry to expand customer interfaces for greater accessibility through various channels, such as mobile banking and trading, TV banking, and e-mail banking

The industry will expand financial services to online insurance, internet banking, and online foreign exchange, while maintaining current services such as online transfer and online trade. The government will promote expansion in the infrastructure to establish a 24 hour e-banking system.

Health Care Industry

Encouraging the industry to construct a knowledge sharing system by linking all databases relevant to medical supplies

The industry will construct an integrated distribution information system of medical supplies which will link health care institutions, suppliers and distributors. The government will introduce and expand the services of tele-medicine for the handicapped, the elderly, and residents in remote areas.

Distribution Industry

Encouraging the introduction of standard bar codes and electronic documents for the distribution industry

The government will promote the deployment of the three core technologies of the industry, EDI, POS system and e-catalogues based on international standards. As well, the government is promoting the cooperative relationships between manufacturers and distributors through SCM projects.

Agricultural and Fishing Industry

Supporting the construction of online wholesale markets to handle orders directly between producers and consumers

The government will also provide real time information regarding prices and trade volumes.

2.1.2 Promoting informatization of SMEs

Networking all companies in Korea to the internet, expanding the bases of e-business throughout the country

To this end, the government will provide the necessary support for internet access of SMEs. Networking SMEs will promote the formation of independent markets for SMEs and productive e-businesses. In addition, the government will provide aid to SMEs without sufficient funding and technologies to adopt IT through the integrated services by ASPs (Application Service Providers), as well as fulfil the informatization needs of 30,000 SMEs. The government will construct a network for a comprehensive e-business support system and provide services in concentrated industrial complexes.

Constructing an industrial information distribution system to help SMEs enhance their competitiveness and reduce the cost of obtaining information

The government will encourage major industries such as machinery and electronics to develop information databases of the industries and integrated search systems of industrial information. The government will also encourage SMEs to organize associations for community-type B2B e-commerce on a small scale to stimulate e-commerce in SMEs and to build the infrastructure necessary for the informatization of SMEs.

2.1.3 Setting standards for efficient informatization of industries

Promoting the establishment of standards regarding networking between industries, IT-related industries, banking, distribution, transportation, and manufacturing industries

The government will lead the development and the standard-setting of the next generation core technologies for 5 e-business strategic services, SCM, CRM, ASP, EBPP, e-Marketplace. While reflecting the trends of the international standards in the development of these technologies, the government will promote outstanding domestic technology as an international standard.

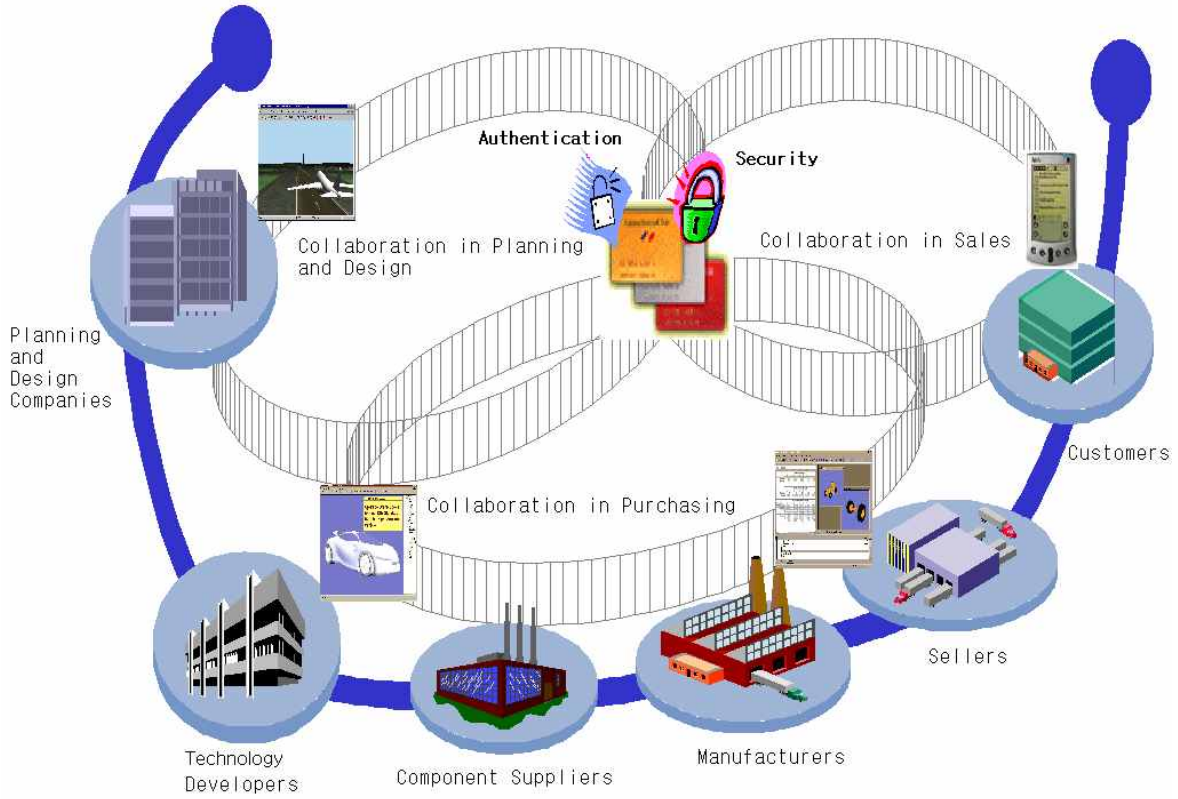
**CRM (Customer Relationship Management) is the enterprise-wide software application that allows companies to manage every aspect of their relationship with a customer. The aim of these systems is to assist in building lasting customer relationships to turn customer satisfaction into customer loyalty.*

**EBPP (Electronic Bill Presentment & Payment) is a process that enables bills to be created, delivered, and paid over the internet. The service has applications for many industries, from financial service providers to telecommunications companies and utilities.*

2.2 Advancing B2B e-commerce

2.2.1 Enhancing productivity and transparency through informatization of all business activities

Promoting information sharing and cooperation among firms located in a single value chain to stimulate c-commerce (collaborative commerce), and to enhance both productivity and transparency



The government will develop and deploy systems supporting c-commerce and the optimal algorithms for efficient inter-firm cooperation. The government will promote pilot projects for c-commerce with prospective SMEs as targets for these projects.

**C-commerce (collaborative commerce) is a business model where a company integrates its systems with those of its suppliers and partners across the internet. It is supported by a growing number of B2B applications that automate key business processes in a supply chain extending beyond the enterprise boundaries, from raw materials to finished products.*

**The Gartner Group predicts 80% of the 1,000 multinational firms in the world will adopt the c-commerce systems.*

While improving the currently closed and non-transparent corporate culture, the government will promote information sharing among firms as well, through transaction authentication and strong information security. To ensure smooth B2B e-commerce and information sharing, it is necessary to develop efficient interfaces and promote the standardization of data and protocols.

2.2.2 Expanding B2B networks

Promoting e-businesses in the existing manufacturing and service industries to enhance the competitiveness of these industries

The government is expecting that by 2006, the ratio of e-commerce to total transactions will reach 30% in six core industries, such as the electronics, automobile, ship building, steel, machinery, and textile industries, and 25% of the remaining industries. The government will support the construction of B2B e-commerce infrastructure, such as standardization and e-catalog of each industry. By 2005, more than 50 industries will have constructed their B2B networks.

Expanding supplementary investments to increase the effectiveness of e-business in existing manufacturing and service industries

The recommendations concerning the "best" directions for e-business will be derived from the evaluation of informatization of firms and free consulting. Also, the government will reform outdated business practices which pose an obstacle to informatization, while at the same time strengthening user education.

2.2.3 Improving logistics and payments systems for promoting B2B e-commerce

Supporting the construction and establishment of a joint logistic system to promote B2B e-commerce in each industry

The logistic system will be linked to relevant systems such as the financial information system. The government plans to construct advanced logistic systems based on ITS and GIS, and also establish real time logistic systems through the linkage with wireless telecommunications networks. To do this, the government will construct in stages a new infrastructure such as wireless telecommunications networks utilizing UHF as well as taking full advantage

of the existing infrastructure including current mobile telecommunication networks, satellites, broadcasting networks.

Expanding the infrastructure for e-payment to facilitate the growth in B2B e-commerce

In order to secure the safety of e-money, a personal identification system and a security management system will be introduced. The government will revise and improve laws and regulations related to e-payment to ensure a reliable and safe environment for e-commerce.

2.2.4 Establishing an infrastructure for international e-trade

Providing detailed information regarding foreign e-marketplaces

The government is planning to provide information concerning document and catalogue standards, commodity standards of each e-marketplace. In addition, the government will also provide specialized services that can help resolve possible disputes from international trades.

Providing an environment for paperless international trade through the establishment of an integrated system of international trade automation suitable for the internet

The government will distribute EDI systems to all exporters, and remove possible obstacles to international trade automation. The government will implement a global e-trade network project to handle all processes associated to international trades, including intermediation, contracts, payment, and logistics. The network will be linked to the international trade automation systems of other Asian and European countries. As a result, a trade environment will be provided in which any international trader can utilize e-trade.

2.3 Providing a safe and reliable online business environment

2.3.1 Establishing an online trust management system

Enhancing the level of reliability of companies in cyberspace

To this end, the government will promote the implementation of a certification system as well as encourage self-regulation of the private sector. The certification system will be strictly managed to secure and maintain its credibility.

Online trade usually involves consumer risk since the quality of the commodity can not be verified before purchase. To minimize these risks, the government will provide online quality information concerning trade products. For commodities for which online trades are delayed due to the uncertainty in quality, the government will establish a certification system. In addition, the government will encourage self-regulation and self-monitoring measures within the private sector as well. By providing information on the quality level of agricultural and fishery goods, the government will encourage the production and distribution of high-quality and safe products.

2.3.2 Protecting e-consumers

Promoting greater consumer awareness by providing sufficient information and expanding education so that consumers can protect themselves from possible damage or harm

The government will encourage monitoring activities by consumer coalition groups. The government will also promote an online ADR (Alternative Dispute Resolution) system, through which the concerned parties can directly settle disputes on the internet.

**ADR is a procedure for settling disputes by means other than litigation such as arbitration, mediation, mini-trials.*

Establishing a dispute resolution mechanism regarding e-commerce issues

which will systemize all processes for consumers to utilize with ease as an alternative means of dispute resolution

The government will develop an effective damage relief system for online international trades. For this purpose, the government will establish a system responsible for consumer education, and counselling for those who incurred damages in online international trades. The government will also encourage the efforts of private organizations for the establishment of a certification system for international authentication.

2.3.3 Protecting personal information involved in e-commerce

Promoting the utilization of cryptography technology to protect the confidentiality of documents and personal information involved in e-commerce

The government will develop core technologies in cryptography, **focusing** on key management technologies which are essential for the prevention of unauthorized use of cryptographs, and technologies for evaluating reliability of cryptographic systems.

Expanding education programs to create greater public awareness to protect personal information, and monitoring websites and conducting field surveys to ensure that e-businesses observe relevant laws

To protect from spam mails, the government will strengthen regulations against spamming as well as encourage the self-regulation of the private sector.

Supporting activities for relieving damages from the infringement of personal information and revising laws and regulations concerning this issue

Activities of the dispute resolution committee of personal information are

responsible to promptly handle and relieve damages from the infringement of personal information. For the effective protection of personal information, the government will continue to improve relevant laws and regulations and prepare detailed criteria for the protection of personal information.

Encouraging self-regulation of the private sector for the protection of personal information

To this end, the government will construct a network in which civic organizations, businesses and user groups can discuss possible methods for the effective protection of personal information and self-regulation. To promote these activities in the private sector, the government will introduce a certification system for the protection of personal information.

Promoting international cooperation for the protection of personal information

The cooperation with the OECD and EU is important in creating a conducive environment for the protection of personal information in accordance to international standards.

3. Promoting Informatization in the Public Sector

Objectives

Realizing a productive and transparent smart government

·To expand online services to all the civil affairs
·To enhance the speed and transparency of the public administration on a "mobile government" infrastructure
·To upgrade digital public services

Evaluation of Accomplishments

On the whole, the government has been successful in providing the necessary infrastructure for online civil services, as a result of the Public Informatization Projects, 11 main projects for e-government. However, online services are not full-fledged; only a part of the administrative services were introduced through the internet.

**As of February, 2002, only 54 out of total 4,000 civil services can be delivered online by the "single-window" service.*

The government has been consistently promoting informatization measures in all government activities thereby increasing almost all indicators of informatization, such as electronic approval ratio and e-procurement ratio. However, the effect of informatization has not yet been fully realized. Due to outdated conducts and practices, informatization has yet to improve the productivity levels, efficiency in work processes or budget reduction.

To promote economic growth and improve the quality of life, the government has been making efforts to improve the quality of public services and promoting various informatization projects. But, in the area of public finance and industry promotion, the informatization is in a stage of system construction or in an early stage of utilization. Regarding the area of welfare, environment, education and culture, current service provisions are inconclusive and not citizen-oriented.

Policy Directions

Providing speedy and transparent online civil services to meet the needs of citizens

All civil services will take full advantage of IT, and online civil services will be customized to the needs of the applicant. The government is also

planning to provide civil services through mobile terminals, such as mobile phones, PDAs. In addition, an electronic authentication system will be established, which is essential for online, fixed or wireless services.

Realizing an "open" administration through the application of information and communication technologies

The government will establish a government renovation plan to continuously improve work processes and enhance transparency in the public sector through the application of information and communication technologies. By expanding information provisions and systemizing online civic forums, a citizen-oriented policy making system will be realized. In addition, the government will implement measures to increase its productivity through the integrated management of its IT resources and joint utilization of information regarding public affairs.

Promoting informatization in the area of public finance and industry-related services for more effective management of public finance and greater competitiveness of domestic firms

The government will construct an integrated national tax service system and expand NGIS to upgrade public finance and industry-related services, and implement "e-customs" to provide portal services for customs.

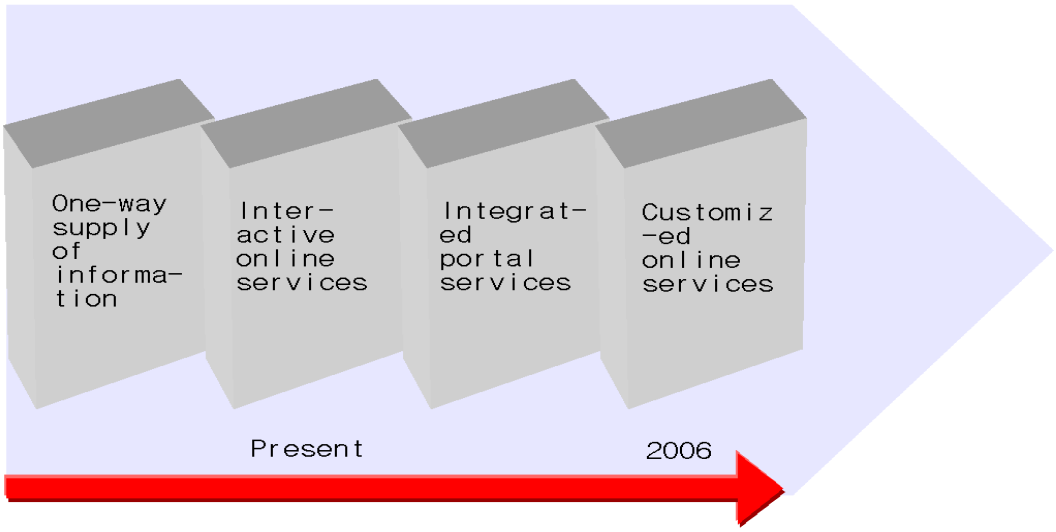
Enhancing the quality of life through improvements in civil services for public welfare and the environment and providing advanced information in the area of education and culture

The government will implement the expansion of the information infrastructure of these areas and upgrade the networks between them.

Policy Plans

3.1 Expanding and upgrading online civil services

3.1.1 Expanding online civil services



Constructing an online portal that will offer an one-stop or non-stop services covering all government institutions

The government will expand online services to include all civil services, so that citizens do not need to visit public offices in person in order to handle various civil affairs. The government will expand the "single-window" services in phases by linking and integrating online civil services, currently provided by each ministry. Under the single-window services, citizens can deal with civil affairs through a single channel. The government will expand online civil services to private areas where public interests are important, as well as public corporations.

The government will also make available selected information databases to the public in order for citizens to confirm their personal data through the government portal.

3.1.2 Introducing customized digital civil services

Building a customized service system to provide different types of civil services tailored to meet the needs of the general public and private

companies

The government will prepare a customer relationship management system (e-CRM), under which citizens and private companies can manage and analyze their personal data in government databses or their personal interests on registered government portals. For example, the National Tax Service will provide personalized information regarding taxation. Based on the e-CRM system, the government will automate various services such as welfare provisions and government subsidies. The government will provide special employment services to the handicapped, tailored to their personal data. In addition, the court will help citizens raise lawsuits for themselves by providing customized legal advices and services. In addition, the government will complete e-government projects for 232 local governments by 2006, enhancing the competitiveness of local areas and expanding customized civil services to local residents

Enhancing the convenience and security of online civil services by introducing and expanding smart cards

Due to their safety and multi-functionality, smart cards will also be useful in civil service as well as security, banking and transportation. After analyzing and predicting the utilization and distribution potential of the smart cards, the government will set a "civil service upgrade plan" utilizing these cards.

3.1.3 Constructing a mobile government infrastructure

Enhancing work efficiency by establishing an infrastructure for providing mobile public services

The government will supply personal mobile terminals such as PDAs to public servants in charge of civil affairs or policy implementation, creating a mobile working environment. By introducing a wireless electronic approval system, the government will establish a system where public servants are able to directly work on location.

Constructing civil service channels that will be open at any time, anywhere

The government will send official notices such as bills, information letters through e-mail as well as through conventional mail. Message services will be provided by personal mobile terminals such as PDAs.

Promoting a pilot project of mobile public services introducing wireless communications technologies to various government services

Focusing on the fields requiring mobility and presence such as regulating parking violations, pollution monitoring, and fire fighting, the government will begin implementing mobile public services to enhance the efficiency and transparency of these public services. To increase industry efficiency, the government will provide public information and services related to logistics, transportation, and distribution. In addition, the government will provide mobile civil services, linked to existing online civil services in regards to citizenship, vehicle registration and real estate purchase.

3.1.4 Establishing an electronic authentication system

Establishing an electronic authentication system to ensure safe and reliable information services

To this end, the government will operate an electronic official seals system, which is also essential for the realization of the e-government. Standardization among authentication institutions will be promoted such that a registration on a single authentication institution can be enough for all trades. The government will also establish a digital signature authentication system which will be accessible via wireless telecommunications networks as well as fixed lines.

Improving digital signature authentication policies and systems in accordance to current international standards

Preparing for greater activity in domestic and global e-commerce, the government will revise and improve relevant laws and regulations to meet the needs of more sophisticated and diverse digital signature authentication services. The government will promote technical abilities for accurate

evaluations of the safety and reliability of new digital signature technologies. The government will pursue interoperability of international digital signature authentication systems and prepare a plan for resolving disputes regarding digital signature authentication.

3.2 Continuing innovation in the public administration through informatization

3.2.1 Strengthening the linkage between informatization and public administration reforms

Re-engineering all public administration processes and promoting informatization simultaneously as a national project

The government will establish an action plan to remove all unnecessary and redundant areas of the public sector and to enhance transparency by utilizing information and communication technologies.

**Through the in-depth examination of the level of efficiency in main work processes of the public administration from 1979 to 1997, the British government underwent the discontinuation, reduction or outsourcing of 34% of public administration services.*

Preparing a systematic mechanism in which informatization efforts lead to innovations in the public sector

To this end, the government will revise and improve the relevant laws and regulations to establish a comprehensive management system for various informatization projects. And prior to these public informatization projects, the government will implement business process re-engineering to improve the work processes and to increase the effectiveness of the projects. Further, the government will clarify all details regarding cooperation and coordination among the ministries, such as standardization and linking relevant systems.

3.2.2 Encouraging greater electronic participation by the general public

Strengthening citizens' rights by expanding the availability of government information

For this purpose, the government will improve the methods and increase the availability of government information open to the public. The government will also include an item concerning the "qualities of information provided" in the evaluation of informatization projects. Additionally, the government will open administrative information, available previously to national assembly members, to all citizens on the internet.

**The State of California of the U.S. provides the general public with all information given to the Congressmen by the Bowen Act.*

Preparing a detailed system to promote the electronic participation of citizens in the policy making process by systemizing online public forums

To prevent these public forums from becoming a means of public relations by the relevant ministries, the forums will establish operation committees, with some members selected from the private sector. The government will make it a duty to notify all government decisions on matters discussed in these forums. The government will also introduce and expand the electronic voting system for various public elections as a more accurate and efficient means of collecting public opinion.

3.2.3 Promoting joint utilization of public information

Improving the information infrastructure of the government to enhance the efficiency in the public administration system

To promote high-speed and large scale distribution and joint utilization of information, the government will upgrade the distribution capacity of the information infrastructure of the government and public institutions and increase the interconnections between them. The government will also strengthen network security systems of the government and public institutions to provide an environment for the safe production and distribution of information.

Preparing an efficient management system for the government resources in IT and promoting joint utilization of administrative information

The government will implement restructuring measures to improve civil services for its citizens and efficiently manage existing information systems. The government will pursue an integrated management and networking of information systems among ministries for joint utilization.

The government will provide a safe integrated computing environment which enables real time backup and automatic recovery by placing critical information infrastructure facilities at remote multiple locations. The government will construct backup centers for four key information systems, such as of taxes, residents registration, exports, imports and customs, and local government administration. Construction of such backup centers will be extended in stages.

3.3 Expanding informatization efforts in the administration of public finance, and science and technology

3.3.1 Promoting informatization in the public finance field

Enhancing administrial efficiency in public finance through upgrading information systems related to public finance

The government will construct and upgrade an information system for public finance, based on the accounting principle of the double entry system and accrual basis. The government will link all information systems related to public finance, such as budgets, liquidations, auditing, and accounting.

Tax services will be improved by constructing an integrated national tax service system. The government will provide online integrated tax services through the internet, such as online payments and online notifications.

The government will provide online portal services of customs to help strengthen the competitiveness of firms and to improve the quality of civil services. The government will construct an electronic civil service system of customs administration, which will be able to electronically manage all civil affairs related to customs. The government will also construct an

internet-based customs clearance system to promote e-trades and the logistics business.

The government will diversify the channels of information concerning government procurements to promote e-commerce. In addition, the government will construct an online bidding system through wireless internet to provide accurate and prompt bidding information.

3.3.2 Promoting informatization in the industry, energy, science and technology fields

Promoting informatization in the area of industry and energy to enhance the international competitiveness of domestic industries

To protect intellectual property rights and promote technology innovations, the government will improve the quality of "the Patent Net" and provide relevant information regarding patents. Also, the government will manage information on the demand and supply of energy on a real time basis, and will also promote informatization efforts for the effective collection and distribution of the information regarding energy resources.

To enhance the competitiveness of the agricultural and fishery industries, the government will strengthen information services in those areas. The government will expand information services on quality management of agricultural products and livestock, product inspections, and agricultural research. The government will establish a management system of fishery information, integrating all information from the production to the distribution of fishery products.

Expanding the information infrastructure of science and technology to strengthen the national competitiveness in this area

To enhance efficient research and development, the government will construct a management and distribution system for national information regarding science and technology and one for R&D projects. Furthermore, to promote popularization of science and technology, the government will construct cyber science museums, cyber education centers for advanced

machines and tools, and a cyber education system for applied science. The government also plans to improve the quality of weather services through the operation and management of supercomputers for weather forecasts and the development of a system for meteorological analysis.

3.3.3 Promoting informatization of social overhead capital

Expanding the National Geographic Information System

The NGIS project will be expanded by updating and revising the existing numerical base maps, and enriching basic geographic information such as measurement datum points, administrative districts, transportations, facilities, and satellite images. The government will develop various utilization systems of GIS regarding real estate, underground resources, environments, and agriculture and forestry. The government will establish advanced systems of distribution of the existing spacial information. The government will also encourage the private sector to utilize GIS, such as g-CRM and LBS (Location Based Services) that combine wireless internet with the "4S" technologies. Further, the government will expand the marine geographic information infrastructure to enhance the value of the territorial waters of Korea.

**LBS are services that exploit knowledge about where an information device user is located. For example, the user of a wireless-connected smart-phone could be shown ads specific to the region the user is traveling in.*

**The 4S technologies are GIS, ITS, GNSS (Global Navigation Satellite System) and SIIS (Satellite Imagery Information System).*

Upgrading the information infrastructure for transportations

The government will build a nationwide intelligent transportation system by constructing transportation management and information systems alongside highways, main routes, and in large cities. Currently, the government is developing various transportation services in seven areas, including transportation managements, e-payments, and the distribution of transportation information by constructing ITS. For the effective management of various transportation facilities, such as roads, railroads, sea and air

routes, the government will construct a national database for transportation and link other relevant databases to realize a data warehouse for transportation information. Aiming to provide a world-class logistics environment, the government will connect the domestic marine logistic information system to the world's leading harbours. As well, the government will promote the informatization of airports and inland freight bases.

Expanding the information infrastructure for water resources

For the effective management of limited water resources and prevention of flood disasters, the government will construct an integrated information system for water resource management. The system is expected to support the management of water resource maps, the flux of water, underground water, water resource facilities, rivers, and water quality levels.

3.4 Promoting informatization of public services for social welfare and the environment

3.4.1 Establishing an e-medical system

Digitalizing information regarding medical examinations, inspections and equipment

To promote cooperation among medical institutions, the government will promote the distribution of OCS (Order Communication System), PACS (Picture Archiving & Communication System) and EMR (Electronic Medical Record) system as well as standardization of medical information and the reinforcement of medical information security.

Building a medical information system to improve health care services

Information systems for medical emergencies will strengthen the ability to respond quickly when necessary. For example, wireless data communication is useful for instant reports on the condition of patients moving from ambulances to hospitals. To prevent the spread of diseases and improve the quality of health care services in rural areas, the government will expand medical information systems for disease control and local health care

services.

3.4.2 Diversifying information services on social welfare

Constructing an integrated social welfare information system to improve social welfare services

The government will construct a single window system for providing various social welfare information to improve the welfare of the elderly and the handicapped by expanding digital contents and information.

The information infrastructure for social welfare will be expanded. The government will introduce a system that can provide integrated services by sharing information about beneficiaries of all social welfare institutions. The government is trying to enhance the quality of social welfare services by developing a case management program, which provides new beneficiaries with adequate services by analyzing existing cases.

3.4.3 Improving employment information services in response to the flexible labor market

Expanding employment information systems to increase the level of efficiency in providing employment information and to strengthen the networks among these systems

The government will provide one-stop services regarding employment by constructing a portal system for employment stability. The government will meet the diverse needs of the applicants by integrating relevant information databases and through the efficient management of counsellors. The government will provide citizens with customized services tailored to individual needs.

Expanding the opportunities for developing employment skills

First of all, the government will establish and promote an information system to support the lifetime development of job skills, providing comprehensive information about job training and the labor market. The

government will strengthen the ties between employment, job training, and qualification levels by promoting the distance job training programs and providing an user-oriented information system for qualifying examinations.

3.4.4 Expanding information services for a clean and healthy environment

Diversifying information services regarding the environment

For preservation of the natural ecosystem and prevention against soil pollution, the government will construct an integrated support system for pollution assessment and an integrated management system for national parks, utilizing geographic information. To obtain and maintain clean air levels, the government will take the necessary steps against possible air pollutants. To this end, the government plans to construct a management system against air pollution, which will include the function of prevention and warning.

The same efforts will be made against water pollution. For the scientific management of water quality, the government will construct a system for obtaining and analyzing information by improving the network for the quantitative and qualitative measurement of water. It will also construct water management systems in each part of the country, which will include the function of prevention and warning against unsafe levels of water pollution. To ensure safe drinking water, the government will construct an integrated management system to measure the quality levels of drinking water, water supply and sewage facilities, water purifying facilities and so on. For the efficient management of wastes, the government will construct an information management system, covering all the processes on waste disposal. The government will also actively participate in the global efforts to preserve the world environments and raise the understanding of international agreements on environmental protection. To this end, the government will prepare an information management system regarding the status of the local environment, environmental policies, and international projects on the environment.

Expanding information services on marine environments

To ensure a clean and safe marine environment, the government will provide scientific information about marine environments promptly through an information service, and construct a portal site on marine environmental science to create greater public awareness. By developing a knowledge management system of marine environmental science, the government will minimize possible damages from sea pollution and will provide information about relevant predictions to support fishing activities.

3.5 Upgrading information services in education and culture

3.5.1 Improving administrative services in education

Enhancing the productivity of educational administration through informatization

By expanding the information infrastructure, the workloads of teachers will be reduced in terms of administrative affairs, at the same time, various information will be provided regarding teaching, learning and counselling, and information sharing among education institutions will be promoted. In addition, the utilization of the infrastructure will increase the exchange and distribution of electronic documents all over the country.

Expanding administrative services will enhance the convenience for prospective students and interested parties. The government will upgrade online civil services on education and will continue to open educational policy materials to the public through the internet.

3.5.2 Expanding cultural information services to enhance quality of life

Expanding and upgrading information services on the arts and culture to improve quality of life and also to expand the opportunities for education in the arts

The government will promote activities of specialized art and culture communities as well as cultural services for the handicapped. Informatization

of cultural heritages will be promoted to meet the demands by citizens for culture and to globalize Korean culture. The government will digitalize cultural items and property of high value to the heritage of the Korean culture. Further, the government will expand the construction of cyber museums and also construct and upgrade an integrated management system to preserve our cultural heritage. The system will manage the survey, research, preservation and exhibitions of our cultural heritage.

The government will construct a portal site designed to inform the netizens of the world of Korea, Korean culture and Korean government policies on culture.

3.5.3 Strengthening national competitiveness through continuous expansion of knowledge and information resources

Establishing an electronic delivery and information sharing system for important information resources

The government will digitalize and promote the distribution of knowledge and information of the government, companies and citizens, and will systematically manage the production, storage, distribution, and utilization of various information contents.

The government will promote the digitalization of knowledge and information of the nation through the knowledge and information resource management project. That will include personal expertise, covering all fields. By 2004, digitalization is expected to reach 40% of the set target. The government will establish an operating system that examines the demands from the private sector, and selects the information to be digitalized and distributed.

Revising the national management system of knowledge and information resources

The government will stimulate activities of the committee of knowledge and information resource management and the information center in each field. The government will expand the linkage of the existing public databases,

and develop various user-oriented additional services, supplementing the existing national integrated search system.

3.6 Enhancing efficiency in the administration of foreign affairs, justice and social security through informatization

3.6.1 Raising efficiency of foreign affairs and trade administration through informatization

Expanding the information networks of foreign affairs and trade administration and promoting the joint utilization of information regarding foreign affairs and trade

To create an infrastructure for information sharing of foreign affairs and trade within the government and to strengthen the competitiveness in this area, the government will construct an integrated information network on foreign affairs and trade and strengthen the security of the network. The government will upgrade civil services and enhance the work efficiency between the government and embassies abroad. To this end, the government will prepare an integrated management system of foreign affairs and trade, as well as including civil services for Korean residents abroad.

3.6.2 Raising efficiency in the legal and criminal justice system

Promoting informatization efforts in enhancing the efficiency of the legal system and improving relevant civil services

These include upgrading the standardization of documents and the search system for integrated legal information, and also promoting the efficient sharing and linkage of legal information among the national assembly, courts and administrative institutions.

The government will construct electronic courts by 2006 to enhance the efficiency of the administration of justice and to improve the quality of civil services. Under the electronic court system, one can file a complaint online and all the records for litigation will be digitalized. The electronic court system is expected to upgrade the administration of judicial affairs and the

quality of judicial services.

Digitalizing the criminal justice system will raise the efficiency of criminal investigation and judicial affairs and will upgrade civil services. The government will promote information sharing for criminal investigation between the Ministry of Justice and relevant institutions through the information network of criminal justice system. To this end, the government will select 28 main tasks, promoting continuous expansion of information sharing among relevant institutions and digitalization of records for investigations and criminal litigations.

3.6.3 Building and managing an integrated information system for public safety

Constructing a portal system for the safety of citizens and an integrated support system for improved civil services and joint utilization of information concerning domestic and foreign disasters and calamities

The government will expand the emergency rescue information system of the fire department and the integrated information network of the police department across the country, and will also construct a marine safety network for the integrated management of all relevant information. To prevent nuclear accidents, the government will integrate all safety systems relevant to nuclear energy and will construct a nationwide public safety system against nuclear accidents.

The government will tighten the network among relevant institutions to promote systematization, standardization and joint utilization of information concerning possible disasters, and also construct an integrated search and communication system for relevant information.

The disaster prevention system will be upgraded to minimize possible damages through accurate forecasts of disasters such as earthquakes. To this end, the government will develop models for statistical analyses for each type of disaster and will upgrade forecast technologies against earthquakes. Also, the government will expand the information system for predicting the

weather and natural disasters, and improve the weather information system.

Ⅳ. Advancing the Information Infrastructure

1. Transforming the Legal System for the Information Society

Objectives

Establishment of the legal framework for the information society

·To create the legal foundation which reflects the characteristics of the information society
·To redesign institutional mechanisms in accordance with technological progress

Evaluation of Accomplishments

Approximately 180 laws relating to e-government, e-commerce and distance learning, have been either enacted or amended by the year 2001. The purpose of these measures was to provide a boost for the rapid transformation of the legal system in preparation for the information society. Improvements were implemented in the laws and regulations that hindered the development of the information society. However, there is a currently a lack of in-depth legal research on the basic principles governing the information society.

Policy Directions

Establishing a legal system appropriate for the information society

The government will examine the necessity of amending general laws, which include Constitutional Law, Civil Law, Commercial Law and Criminal Law for the purpose of establishing general rules which govern the information society. The government will implement legal and institutional reforms in

each of social areas associated with the government, the business sector, and individuals.

Redesigning institutional mechanisms

On the basis of extensive interdisciplinary studies of the information society, the government plans to redesign institutional mechanisms in order to ensure the stable functioning of the information society. The government plans to adapt to the rapidly changing international legal environment, and participate actively in the formation of international norms and standards governing the information society.

Policy Plans

1.1 Adjusting basic laws and institutional mechanisms to the information society

Establishing a legal foundation to reflect the society-wide changes

First, the government plans to amend the Framework Act on Informatization Promotion to incorporate fundamental principles of the information society. In consideration of the significant role of technology in the information society, the government plans to encourage academic interactions between natural science and social science fields. In addition, the government should lead the necessary changes not only in formal systems, but also in informal systems including cultural customs, tradition, ethics, and so on.

Examining the necessity of revising the general laws

For the information society, amendments may be required in the general laws including Constitutional Law, Civil Law, Commercial Law, Criminal Law, and Procedural Laws. The government plans to incorporate into the constitutional law basic information rights regarding the right of access to information, the right to control personal data, and corresponding obligations

of the State to ensure those rights. The current civil law based on ownership and transaction of tangible goods needs to be transformed into a civil law for the information society which is applicable to the usage of intangible goods. The government is examining the possibility of electronic forms of checks and bills, and the procedures and effects of electronic insurance contracts. Also, the government recognizes the impact of IT and cyberspace on the doctrines of Criminal Law and the possible revisions thereafter. Amendment of Procedural Laws is under consideration in order to cope with new systems such as remote investigations and electronic courts.

1.2 Revising laws for the information society

The legal system will undergo some changes to reflect the needs of the information society in each of the social areas associated with the government, the business sector, and individuals. The government will refine relevant laws for e-democracy such as the Political Party Act, the Election Act and the National Assembly Act in order to facilitate the formation of cyber political parties, stimulate internet voting, and communication between political leaders and citizens.

The government will amend relevant laws to enhance the utility of public information resources, and promote the joint usage of administrative information, and online civil services, while retraining human resources, and improving existing administrative systems and procedures. The government will refine the education system and laws for the cultivation of human resources and is considering giving a tax break for retraining. Furthermore, legal support is needed for telemedicine, digitization of medical records and online provisions of medical information as well as for an efficient social security system utilizing IT, and for securing the right of access to IT equipment.

Institutional mechanisms will be redesigned in accordance with new technological developments. In addition, changes will also be made in the media regulation system as a result of the technological convergence of broadcasting and telecommunications. There is also convergence of information technologies that is occurring with other fields. The convergence

of information technology and biotechnology calls for both a legal and ethical response to the growing problems of personal data protection, artificial internal organs, human clones, and so on. The convergence of information technology and environmental technology calls for a legal response to such problems of DNA altered agricultural products and electro-magnetic wave hazards. Thus, the government is looking ahead by promoting interdisciplinary studies for the convergence of science, technology, and art. As such, in order to cope with the rapidly changing international legal environment of information technology, Korea will actively participate in the decision-making process at the international level through international organizations such as WIPO, OECD and ITU.

2. Ensuring Safety and Reliability of Cyberspace

Objectives

Strengthening the security of the information infrastructure with private and public sector cooperation

·To establish a partnership between the private and public sectors against acts of cyber terrorism
·To ensure the systematic protection of the national information infrastructure

Evaluation of Accomplishments

Legal and institutional foundation for the information security was set with the enactment of the Digital Signature Act and the Information Infrastructure Protection Act and the revision of the Act on Promotion of Utilization of Information and Communications Network. However, threats from cyber terrorism acts still exist owing to weak public awareness regarding information protection, and the shortage of budget allocation and specialists

in information security to deal with this issue.

There has been a rapid spread of indecent materials concerning pornography and violence which is contaminating cyberspace. The collective damages as a result of online acts of fraud, illegal pornography sites, spamming, hacking and computer viruses, are becoming more severe. Efforts by internet businesses and civic organizations to control and monitor these adverse acts are still not enough to resolve this pervasive problem.
As major social functions depend heavily upon information systems and telecommunication networks, the probability that major information and telecommunication facilities will become attacked by acts of cyber terrorism will become higher. At the same time, as more countries around the world are making efforts to obtain information and intelligence with information and communication technologies, there is a greater need to establish a foundation for utilizing cryptographic technologies.

Policy Directions

Ensuring a safe and sound society through the systematic management of the national information infrastructure

The government will establish an information security system against acts of cyber terrorism such as hacking and the spread of computer viruses to ensure the safety and reliability of major information and communication facilities in the nation. In addition, the early warning systems to effectively deal with these acts will be strengthened. As well, efforts will be increased to strengthen domestic and international cooperation between information security institutions and organizations.

Developing core information security technologies and training new information security experts

The government will promote the development of leading-edge information security technologies such as next generation intelligent network security

systems in response to the rapid changes in information and communication technologies. The government plans to increase public awareness and to educate the public on information security and to support the training of new experts and specialists in the information security field.

Strengthening cooperation between the government and the private sector for a sound and healthy cyberspace

The spread of information regarding the seriousness of the distribution of indecent information on the Internet will help raise public awareness on this matter. In order to secure the soundness of cyberspace, the government will encourage education in ethics regarding the Internet and cyberspace and strengthen monitoring activities by non-governmental organizations and private businesses.

Policy Plans

2.1 Implementing preventative measures and establishing a response system against acts of cyber terrorism

2.1.1 Establishing a cooperative partnership to prevent acts of cyber terrorism

Strengthening efforts to prevent and effectively respond to cyber terrorism

With the designation of major information and communication facilities critical to the national defense and the economy, the government will implement a systematic analyses of their weaknesses and strong security measures to protect these facilities. In addition, government efforts will include strengthening the partnership with the private sector to prevent and effectively respond to cyber terrorism.

The government will strengthen the early warning systems for possible computer emergencies such as hacking and dispersion of computer viruses.

Also, the government will establish and operate an information sharing system and analysis center for each area of the government, finance, telecommunications, and so on.

Establishing domestic and international cooperative partnership systems as a means to promptly respond to adverse acts

The CERT (Computer Emergency Response Team), internet service providers and vaccine software developers will be encouraged to share information regarding these adverse acts. Moreover, the government plans to create greater public awareness concerning information security and to promote prevention methods and activities to improve the level of information protection. Korea will play an active role in FIRST (Forum of Incident Response and Security Teams).

**FIRST is the international coalition to foster cooperation and coordination in incident prevention, to prompt rapid reaction to incidents, and to promote information sharing among members and the community at large.*

The government will establish a regular monitoring system and train new special investigators as well as develop new investigative methods to fight against computer crime.

2.1.2 Protecting critical government information

Introducing a safe management system for encryption keys which are used for protecting critical government information

Instead of the manual management of sensitive documents, automatic management systems will be introduced by way of extensive application of information security systems with encryption devices which encrypt and decrypt secret documents and self-generate management numbers and store management records. In addition, the security of information systems will be tightened through monitoring in order to prevent unauthorized access to these systems and secure the integrity of electronic documents of the

government.

Taking strong measures to prevent tapping electromagnetic pulse emanations

Technical requirements for shielding electromagnetic pulse emanations will be established and the development of TEMPEST (Transient Electro Magnetic Pulse Emanations STandard) will be promoted. Devices shielding electromagnetic pulse emanations will be developed and distributed to institutions handling critical and sensitive information.

**TEMPEST is a U.S. government code word that identifies a classified set of standards for limiting electric or electromagnetic radiation emanations from electronic equipment.*

2.2 Developing information security technology and training new information security experts

2.2.1 Developing information security technology in response to new technological trends

Developing cryptographic algorithms with a high level of secrecy

Cryptographic algorithms with a high level of secrecy will be developed and distributed to government organizations as the next generation of cryptographic standards. In order to provide cryptography services for government organizations, high-speed cryptographic algorithms with high security will be developed. As well, security modules based on the PKI (Public Key Infrastructure) and the system management technology will be developed.

**PKI is a system of public key encryption using digital certificates from Certificate Authorities and other registration authorities that verify and authenticate the validity of each party involved in an electronic transaction.*

Developing technologies to fight against cyber terrorism

The government will promote the intensive development of technologies to fight against cyber terrorism as follows:

·Technologies which can automatically distribute information regarding detected types of computer viruses and worms and implement immunization measures upon detection

·Intrusion detection control system which detects network intruders and keeps them under surveillance, and then distributes the information regarding the intruders promptly to intrusion detection systems

·Technologies which detect and resist electromagnetic pulse attacks such as HERF (High Energy Radio Frequency) Gun and EMP (Electro-Magnetic Pulse) Bomb

**HERF Gun is a device that can disrupt the normal operation of digital equipment such as computers and navigational equipment by directing HERF emissions at them.*

**EMP Bomb is a bomb to destroy electronic networks that is similar to a HERF Gun but many times more powerful.*

Developing technologies for intelligent network security systems

The government will promote the development of technologies for next generation intelligent network security systems as follows:

· High-speed information security technologies processing giga bits per second
· Information security technologies supporting GoS (Grade of Service)

**GoS technology enables security systems to meet with the level of information security that each user needs*

·Basic dynamic restoration technologies which can minimize the damage from the acts of cyber terror; restore systems quickly through immediate detection of cyber terror acts; cut off and chase intruders; and exercise

counterattacks

Developing standards in information security technologies and an evaluation methodology for information security systems

The government will promote the systematic and selective development of standards in information security technologies by establishing a road map for information security technologies and enhance reliability of information security products by providing facilities for testing interoperability and compatibility with standards. The government will promote authentication technologies which identify each individual with his/her distinctive feature of some specific part of the human body such as fingerprints, iris, and so on. The government will promote the development of an evaluation methodology for information security systems and protection profile technologies which are necessary for the introduction of the common criteria for IT security evaluation.

2.2.2 Promoting public awareness of information security and training new experts in information security technologies

Implementing information security education for all citizens

Information security programs will be included in the computer literacy education for all citizens as well as in the official curricula of primary and secondary schools so that everyone will be able to utilize information and communication technologies safely.

Fostering experts and specialists in information security technologies

The government will train more experts and specialists in information security technologies through the support of the information security research center and expand advanced programs for information security in universities. The government will also raise the technical workforce for the information security industry by introducing an official certification system

for information security technicians and retraining workers from other industries.

2.3 Creating a sound cyberspace

Creating a sound "cyber culture" with the establishment of an ethics system for cyberspace

The government will promote the development and distribution of educational programs and public relations films for establishing ethics and standards in cyberspace. In addition, the education in cyber culture ethics will extend to students, teachers and parents. The government will facilitate easier access to relevant information especially for youths through the construction of a special portal and the active distribution of the "white list."

Encouraging self-regulation measures regarding the security and access to information

For the private sector, self-regulation measures are being encouraged by the government regarding the security and access to information. The government will distribute the "selective access software" for internet users for select access to the wide variety of information available on the internet. In addition, the government plans to support activities of civic organizations and information provider organizations which monitor and review indecent information and materials in cyberspace.

Taking strong measures against the infringement of human rights in cyberspace

The government is taking strong measures against the infringement of human rights in cyberspace such as defamation, sexual violence with the establishment of the Support Center for Cyber Human Rights. The center will maintain a close partnership with other civic organizations. Additionally, a Cyber Dispute Settlement Committee will be organized to effectively

handle and quickly settle disputes concerning human rights infringement.

Supporting the prevention and the remedy of computer or online game addiction

The government will develop and distribute diagnostic methodology for computer addiction based on the cultural characteristics of cyberspace in Korea. The Cyber Addiction Information Center and the Center for Internet Addiction Prevention & Counselling will provide counselling services, develop prevention and counselling programs, and raise professional counsellors for internet addicts.

3. Advancing towards the Next Generation Telecommunications Infrastructure

Objectives

Construction of a world-class next generation telecommunications infrastructure

- To expand the broadband telecommunications networks for the realization of universal access to the broadband internet with a minimum transmission speed of 1 Mbps by 2005.
- To distribute digital televisions to more than 50% of the total households in Korea until 2006

Evaluation of Accomplishments

Korea has constructed a world-class telecommunications infrastructure in partnership with the government and the private sector which was formed by leading investments and the financial support of the government for the

realization of a national high-speed telecommunications network. However, the telecommunications networks need be upgraded to meet the expected rapid increase in demand for broadband data communications as a result of the emergence of HDTV (High Definition Television) class internet services, e-government projects and the diffusion of e-commerce. At this point in time, the telecommunications infrastructure is far from ready in guaranteeing a high level of QoS (Quality of Service) of the internet such as providing high quality multimedia communication services for households with minimal technical difficulties.

**QoS is the ability to define a level of performance in a data communications system. For example, ATM networks specify modes of service that ensure optimum performance for traffic such as realtime voice and video. QoS has become a major issue on the Internet as well as in enterprise networks, because voice and video are increasingly travelling over IP-based data networks that were not designed for continuous speech or video.*

In order to prepare for the convergence of fixed line and wireless telecommunications, efforts should be made to provide a telecommunications infrastructure for the next generation fixed line and wireless internet as follows: reallocating radio frequencies, commercializing IMT-2000 and introducing IPv6 (Internet Protocol version 6). Since we are expected to run out of IP addresses in 5 years, we need to introduce next generation IP addresses generated by IPv6 early. R&D for the commercialization of IMT-2000 is now in progress, but it has not yet fully guaranteed the data transmission speed and the quality of service for stable multimedia communications.

**IPv6 is the "next generation" protocol designed by the IETF to replace the current version Internet Protocol, IP Version 4 ("IPv4").*

Policy Directions

Advancing the broadband telecommunications infrastructure in order to support world-class internet services in the future

To upgrade the high-speed telecommunications network for public institutions, the government will introduce state-of-the-art technologies such as DWDM (Dense Wavelength Division Multiplexing), and will expand the deployment of ATM (Asynchronous Transfer Mode) switches and related equipment which will extend across the nation to remote rural areas. In addition, the government aims to upgrade the local loops so that multimedia services can be provided without technical difficulties for every household. By the year of 2005, universal access to the broadband internet with a minimum transmission speed of 1 Mbps will be guaranteed.

**WDM is a technique by which two or more optical signals having different wavelengths may be simultaneously transmitted in the same direction over one fiber, and then be separated by wavelength at the distant end. Modern WDM systems can handle up to 128 signals and can expand a basic 9.6 Gbps system to a capacity of over 1000 Gbps. These systems are sometimes called DWDM systems.*

**ATM is a high-speed multiplexing and switching method utilizing fixed-length cells of 53 octects to support multiple types of traffic.*

Building the first high-speed convergence network of fixed line and wireless telecommunications in the world for the realization of easy access to the broadband internet anytime, anywhere.

The government is promoting the early introduction of the Next Generation Internet including IPv6 which supports the convergence of fixed line and wireless telecommunications and the development of next generation applications. The mobile telecommunications infrastructure will be upgraded to facilitate access to broadband internet anywhere in Korea with the appropriate mobile telecommunications devices. To promote the convergence of fixed line and wireless telecommunications, the government is in the process of reforming related rules and regulations and promoting the development of wireless telecommunications technologies for IMT-2000 and Bluetooth, etc.

**Bluetooth is a global de facto standard for wireless connectivity. When two Bluetooth equipped devices come within 10 meters range of each other, they can establish a connection together. And*

because Bluetooth utilizes a radio-based link, it doesn't require a line-of-sight connection in order to communicate.

Providing the opportunity for all Koreans to enjoy high quality broadcasting services and supporting the role of related industries in exportation.

The government plans to support the digitalization of broadcasting systems and expects the penetration rate for Digital TVs to be at least 50% by 2006.

Policy Plans

3.1 Upgrading high-speed telecommunications networks

3.1.1 Backbone networks

Upgrading backbone networks so that real-time picture quality, comparable to digital TV or HDTV, can be provided through broadband internet by 2005

Long distance transmission networks will be upgraded so that transmission speeds between major cities may be tens to hundreds of Tbps, up to several Tbps between major cities and mid-size cities, and tens to hundreds of Gbps between mid-size cities and small cities. Intra-city transmission networks will be upgraded such that transmission speeds within major cities may be several to tens of Tbps, and those within mid-size or small cities may be several to hundreds of Gbps.

Introducing state-of-the-art technologies such as DWDM and expanding the deployment of ATM switches to cover the entire nation extending to remote rural areas

For the high-speed telecommunications network for public institutions, the government will introduce state-of-the-art technologies such as DWDM to

increase the transmission speeds to double digit Gbps between major points and will expand the deployment of ATM switches and related equipment to cover the entire nation extending to remote rural areas. The maximum speed of telecommunications services for a single institution is expected to reach 622Mbps in 2005. The government is planning to apply the MPLS (Multi Protocol Label Switching) technology to ATM switches deployed in the high-speed telecommunications network for public institutions to support the QoS of internet services that is provided though the network. Thereafter, the MPLS technology will be extensively applied to commercial broadband internet.

**In an MPLS network, incoming packets are assigned a "label" by a "label edge router (LER)". Packets are forwarded along a "label switch path (LSP)" where each "label switch router (LSR)" makes forwarding decisions based solely on the contents of the label. At each hop, the LSR strips off the existing label and applies a new label which tells the next hop how to forward the packet. Label Switch Paths (LSPs) are established by network operators for a variety of purposes, such as to guarantee a certain level of performance, to route around network congestion, or to create IP tunnels for network-based virtual private networks. In many ways, LSPs are no different than circuit-switched paths in ATM or Frame Relay networks, except that they are not dependent on a particular Layer 2 technology.*

3.1.2 Broadband subscriber networks

Upgrading subscriber networks in order for all citizens to enjoy broadband multimedia services at home

Broadband networks will be expanded for the realization of universal access to broadband internet with a minimum transmission speed of 1 Mbps by 2005. For the long-term, all fiber optic access networks will be constructed so that people will be able to comfortably utilize services as e-commerce, distance learning and multimedia information services. The government is planning to provide next generation high-speed telecommunications services at transmission speeds reaching 20 Mbps on average for 84% of the total households or approximately 13.5 million households in Korea by 2005.

Providing high-speed telecommunications services for enterprises

For commercial users, high-speed telecommunications services with transmission speeds reaching several Gbps will be available by 2005 with the support of recent technological advances in ATM-PON (Passive Optical Network) and gigabit ethernet, which are more economical than traditional leased lines.

**PON is a passive, point-to-multipoint access network based on ATM. Using optical fiber, it connects several hundred homes and/or offices into an optical line termination (OLT) device at a telco office or ISP. The OLT attaches to as many as 32 optical network units (ONUs), which can be on the street or in buildings.*

Promoting home networking for the realization of a smart home

New fixed line or wireless technologies such as HomePNA (Phoneline Networking Alliance) and PLC (Power Line Carrier), are pushing transmission speeds of home networks to tens to hundreds of Mbps. As a result, there will be a need for the government to revise the certification system of broadband networking for buildings to reflect the technological advances. The government is promoting R&D and standardization for "digital convergence" for the home and the development and spread of value-added services for the public sector as well as the private sector including distance learning, telemedicine, telework and so on.

**HomePNA is a non-profit association of more than 100 technology companies working together to ensure adoption of a phone line networking standard which should provide high-speed, affordable home networking.*

**PLC is a technology of transmitting data signals through the existing power line.*

3.1.3 KOREN

Upgrading KOREN and expanding the international research networks

KOREN (KOrea advanced REsearch Network), signaling the evolution of telecommunications networks in the future will be upgraded by optical

networking equipment such as DWDM which effectively supports the availability of bandwidth and broadband network services.

KOREN is now open to those who need a high-speed telecommunication test-bed for various research on next generation telecommunications technologies. It will provide an excellent test-bed for developing next generation internet applications and carrying out international joint research in the public sector as well as for supporting various R&D activities in the business sector. The government is planning to expand the international research networks, APII (Asian-Pacific Information Infrastructure) Test-bed and TEIN (Trans Eurasia Information Network) and to reinforce the partnership with research institutes in the Asia-Pacific region and Europe.

**APII is a cooperation system for building an information infrastructure to connect the entire APEC member economies to one giant network and for narrowing the gap between developed and developing economies within the Asia Pacific region.*

**TEIN is a new initiative endorsed by ASEM III to connect research networks between Asia and Europe by linking EU's GEANT, the pan-European gigabit research network, with Asia's research networks such as APII Testbeds in order to promote information exchanges in research and development, and education.*

3.1.4 Introducing QoS to broadband internet services

Providing internet services with QoS so that broadband internet will guarantee reliable and high-quality services

New internet services such as VoIP (Voice over IP), VPN (Virtual Private Network), VOD (Video On Demand) guaranteeing QoS are expected to be introduced in the near future. The government will promote the delivery of high-quality internet services and efficient network operations based on the traffic engineering technology of MPLS.

**VPN is a private network that is configured within a public network. For years, common carriers have built VPNs that appear as private national or international networks to the customer, but physically share backbone trunks with other customers. VPNs enjoy the security of a private network via access control and encryption, while taking advantage of the economies of scale and built-in*

management facilities of large public networks.

Encouraging voluntary quality control by ISPs

The government is encouraging voluntary quality control by ISPs to improve the quality of broadband services, which will be evaluated on a regular basis. In addition, the government is recommending the introduction of SLA (Service Level Agreement) to ISPs for voluntary quality control.

3.2 Advancing the construction of the Next Generation Internet

3.2.1 Promoting the Next Generation Internet and its applications

Introducing the Next Generation Internet based on IPv6

The government is planning to introduce the Next Generation Internet based on IPv6 to achieve the interoperability of fixed line and wireless internet services.

·Phase I : Introducing IPv6 to non-commercial networks such as KREONET (Korea Research Enviroment Open NETwork), PUBNET (PUBlic sector network for interNET)

·Phase II : Introducing IPv6 to IMT-2000, home appliances and commercial networks and deploying conversion systems between IPv4 and IPv6

In addition to the promotion of projects for next generation internet applications, the government will provide support to R&D for next generation internet applications in major fields and pilot projects that encourage the widespread usage of these applications.

Promoting R&D and standardization for IPv6 and new businesses based on IPv6

As well, the government will encourage the standardization of common

interfaces supporting interoperability of telecommunications networks connecting various terminals including mobile phones, home appliances, etc. The introduction of IPv6 will create the new communication equipment industry based on IPv6 and promote the creation of new and promising business models to which technologies pertaining to QoS, multicasting, security or the convergence of fixed line and wireless telecommunications are applied.

3.2.2 Improving user environment for wireless internet

Improving the mobile communications infrastructure for mobile telecommunications subscribers to accommodate broadband internet access speeds reaching a maximum of 2 Mbps for various mobile devices including PDA

Wireless LAN equipment will be deployed around major public facilities such as university campuses, subway stations, and airports. In addition, telecommunications service providers are implementing wireless LAN services in densely populated areas and large buildings.

<Expansion Plan for Wireless Broadband Networks>

Period	Coverage
2002 ~ 2003	·Seoul, 6 major cities, Host cities of the FIFA World Cup Games ·All subways & turnpikes, 49 main routes
2004 ~ 2005	·Small cities, towns & villages with 384kbps ·10 or more storied buildings with 2Mbps
2006 ~	·All railways, local routes & coastal routes ·Across the nation including coastal regions & islands

The expansion of IMT-2000 services will provide a nationwide wireless broadband infrastructure for various data transmission and multimedia communication. The government will promote the expansion of IMT-2000 services, which will be provided for subscribers first in the greater Seoul area and 6 major cities and then in towns and villages all across the nation

by 2006. Various applications and contents deliverable through portable post PC devices such as PDAs will stimulate the demand for such devices.

Improving frequency spectrum management and securing additional frequency resources

Responding to the increasing demand for high-quality multimedia services in mobile telecommunications, the government will improve frequency spectrum management for the efficient allocation of radio frequency, and secure additional frequency resources. Long-term spectrum management is necessary for continued support of wireless broadband internet services. The government is designing projects for the development of radio frequency and technologies for the fourth generation of mobile telecommunications. To solve the problem of international radio interference, the government is expanding the international registration of radio frequencies.

Promoting the widespread usage of Digital TVs with a goal of having 50% of the total households owning digital TVs by 2006

The early start on promoting digital TVs will help raise digital TV products as a leading IT product comparable to semiconductors, CDMA systems, etc.

3.2.3 Developing a next generation management system for IP addresses

Preparing a user environment of URIs (Uniform Resource Identifiers) for the systematic management of information resources

Constructing multiple language domain systems and developing speech and image cognition systems will improve the user environment of the internet. Also, the integrated management of various user environments such as keyword services and IP addresses for the wireless internet will enhance the level of convenience to internet users.

**URIs are defined as sequences of characters chosen from a limited subset of the repertoire of ASCII characters both for transmission in network protocols and representation in spoken and written*

human communication.

Promoting R&D associated with various information access systems and taking a leading role for the standardization of information access technologies in the global society

Support will be provided to URI experts in the private sector who participate in international standardization activities associated with URI technologies. Active participation in various international standardization activities and rigorous R&D activities in this field will be strongly encouraged to lead the international standardization.

3.2.4 Preparing for the convergence of fixed line and wireless telecommunications

Implementing legal and institutional reforms for promoting the convergence of fixed line and wireless telecommunications

A flexible classification system of telecommunications services is necessary to facilitate the convergence of fixed line and wireless telecommunications. The government will revise rules and regulations to speed up the development of wireless internet technologies and services and to promote fair competition of telecommunications services. Also, the government will exercise transparent and objective rules and procedures in the management of radio waves such as the allocation of frequency spectrum and will establish policies promoting competition.

Promoting R&D of next generation transmission technologies

The government will promote R&D of various transmission technologies for the air interfaces of IMT-2000, Bluetooth, wireless LAN, satellite communications and of emerging technologies associated with the evolution of the Internet such as mobile IP, IPv6, and will support the standardization of these technologies. Developments in new standardizations will follow the

technological progress of wireless internet protocols, XML (eXtensible Markup Language) and so on.

**XML is a markup language for documents containing structured information. Structured information contains both content (words, pictures, etc.) and some indication of what role that content plays. A markup language is a mechanism to identify structures in a document. The XML specification defines a standard way to add markup to documents*

Discovering a new prospect in wireless telecommunication technologies

The competitive environment of Korea's mobile communications market and the solid technological background of CDMA will continue to promote the development of wireless telecommunication technologies in the future. The government is focusing on next generation wireless telecommunication technologies such as SDR (Software Defined Radio) and OFDM (Orthogonal Frequency Division Multiplexing).

**SDR is used to describe radios that provide software control of a variety of modulation techniques, wide-band or narrow-band operation, communications security functions (such as hopping), and waveform requirements of current and evolving standards over a broad frequency range.*

**OFDM is a method of digital modulation in which a signal is split into several narrowband channels at different frequencies. OFDM spread spectrum technique distributes the data over a large number of carriers that are spaced apart at precise frequencies. This spacing provides the "orthogonality" in this technique which prevents the demodulators from seeing frequencies other than their own.*

4. Strategic Promotion of the IT Industry

Objectives

Advancing the IT industry as a source of economic growth

·To develop core information technologies which enhance the competency of the Korean IT industry and become a source for job opportunities and

future economic growth
·To foster advanced IT experts and specialists with global competitiveness
·To promote technology-intensive ventures as a driving force for all industries

Evaluation of Accomplishments

The government has led the direction and promoted the technological progress of information and communication technologies. As a result, national competitiveness of the IT industry has been strengthened and the IT industry has emerged as a core driving force of economic growth. Strategic R&D investment in some technologies has brought great success. For example, technologies for TDX, optical transmission systems, the CDMA system and DRAM created a market amounting to 168 trillion won, which is 220 times of the 760 billion won of R&D spending for these technologies.

Successful R&D and commercialization of major technologies such as CDMA created numerous job opportunities, and fostered advanced IT experts and professionals. Instead of large enterprises, IT related ventures tend to be central to the national economic growth of Korea.

**As of the end of 2001, 41.7% of KOSDAQ-listed companies (292 companies) belonged to the IT industry.*

The development of core technologies and fostering of advanced experts and professionals for continued economic growth and job creation are emerging as a part of the national agenda. To improve the current structure of IT exports which is concentrated on a few major products such as PCs and mobile phones, the range of products for exports should be expanded by developing promising new items and products. Also, new businesses should be created in the area of software and digital contents.

The demand and the supply of the IT workforce in each area and in each skill level should be balanced. As well, an educational system should be

established to train new experts and specialists in the IT field.

Policy Directions

Strategic R&D for securing competitiveness of next generation information technologies

R&D will focus on fundamental information technologies which involve not only high risk but also high return. The government will provide a technological foundation on which IT can be applied to other areas such as the manufacturing industry, national defense, health care and education, and will actively respond to the trend of technological progress. To maximize the outcome of R&D spending, the process of R&D planning will be made more systematic, and will reinforce the comprehensive evaluation system of R&D projects.

Fostering IT experts with global competitiveness

The government will implement substantial improvements in the current IT curricula and interdisciplinary studies to provide an educational foundation to foster the global competitiveness of experts and specialists. Responding actively to the change of the industry structure, the government will expand the educational capacity for experts in new fields created by the convergence of IT and NT or BT.

Fostering ventures as a driving force of IT-related industries

The government will improve the business environment of ventures by training experts, reforming the education system and upgrading the information infrastructure. To encourage growth in the venture related market, a solid foundation should be established to increase the survival rate of new ventures and enhance the efficiency of the market mechanism.

Institutional reforms for fostering software and contents industries

The software certification system will be adopted widely to improve the quality of software developed in Korea. In addition, institutional reforms will be implemented to promote system integration businesses. Moreover, the digital contents industry will be systematically supported and the distribution system of digital contents will be reformed to foster the industry.

Policy Plans

4.1 Strengthening the core competency of the IT industry by developing strategic products

Promoting the development of fundamental technologies in strategic areas

Among strategic IT products, non-memory semiconductors, mobile multimedia DAB (Digital Audio Broadcasting) terminals and intelligent information terminals are recognized as prospective new items. The government will promote international partnerships to develop strategic IT products.

The government will promote strategic R&D to create new technologies and new industries. In order to apply information and communication technologies to all areas of society and to create new technologies and industries, the government will promote the development of fundamental technologies in seven strategic areas as follows: networking, wireless communications, digital broadcasting, computers, software, common components, basic materials. The strategic R&D together with the superb information infrastructure will facilitate the development of application technologies and services.

4.2 R&D for next generation IT

4.2.1 Research and development for a new leap

Pursuing the development of core information technologies which involve high risk but guarantee high returns in case of success

The government will identify R&D targets and strategies based on market forecasts and analyses of technological gaps. Korea has a competitive edge in the areas of the fourth generation mobile communications, digital TV, optical subscriber networking. The successful development of next generation core technologies in these areas will not only sustain the level of competitiveness but also maximize the added value from these areas. Component software, virtual reality and IT fusion technologies may influence a variety of other technologies. Information security technology and cryptology are fundamental fields directly related to the protection of national security.

**Virtual reality is a kind of computer simulations that use 3D graphics and devices such as the data glove to allow the user to interact with the simulation.*

Establishing R&D projects which are to focus on long-term R&D efforts

The projects will be designed and managed in a way that will link on-going R&D projects in industrial technologies to commercialize technologies developed in each step of the R&D process. In order to secure long-term R&D for core information technologies and to accumulate research skills and knowledge, the government will provide multi-year contracts with national institutes on which R&D resources are being concentrated. National R&D projects on fourth generation mobile communications technologies, optical subscriber networking technologies, and next generation technologies for an intelligent network security system will be launched so that intelligent high-speed multimedia telecommunications services can be provided at a stable level and at less cost by 2006.

Supporting R&D activities in the areas of embedded software and spoken language processing technology which can promote the utilization of IT in other industries and enhance the level of industrial competitiveness

Embedded software technologies are emerging in all industries including telecommunications, home appliances, national defense and financial industries. The government will support R&D activities and human resource development in this area. The spoken language technology is one of the ten promising technologies selected by the World Economic Forum at Davos and MIT.

Developing core software technologies in operating systems and virtual reality, which require enormous long-term R&D investments

The government encourages open source projects to expand the technological foundation of software. Open source projects were strategically launched by foreign software developers to save R&D and maintenance costs. And, a successful case of the project is the widespread usage of Linux software.

Promoting the development of core technologies involved in digital contents such as the management and protection technologies of digital contents and distribution technologies related to DRM (Digital Rights Management)

The government will also support the R&D of pre-commercial technologies such as DRM on CD or DVD and mobile 3D graphics library. Since the production technologies of world leading companies in digital contents need to be transferred to domestic companies, the government plans to invite leading producers of digital contents who will share their knowledge with domestic producers and will act as consultants for domestic companies.

**DRM is a set of technologies content owners can use to protect their copyrights and stay in closer contact with their customers. In most instances, DRM is a system that encrypts digital media content and limits access to only those people who have acquired a proper license to play the content.*

4.2.2 Upgrading the information infrastructure for R&D of next generation strategic technologies

Promoting the National Grid Project to provide a R&D environment where researchers can utilize geometrically distributed R&D facilities such as super computers and high performance DBs, as if they were in a single system

The Grid network will be operated so that the information infrastructure for R&D can be jointly utilized, and the Grid middle ware and other related technologies will be developed. In addition, efforts in establishing standardization will be pursued.

**Grid is an information and telecommunication service which interconnects various IT resources through high-speed networks and enables users to share resources.*

A high performance super computing environment can be provided efficiently and at lower cost with the construction of a distributed computing environment utilizing PC resources and the world-class information infrastructure in Korea.

4.2.3 Promoting interdisciplinary research in response to the convergence of technologies

Supporting not only interdisciplinary research in new areas such as NT and BT which were created by the convergence of IT and various fields in natural science and engineering but also interdisciplinary research between IT and social science

In the case of projects for developing application technologies, the government will encourage various experts from the business sector to participate in the planning stage of projects as well as later stages. In order to determine the direction of national R&D projects and strengthen cooperation among relevant organizations, the government is organizing the 'Council of IT Research and Development' composed of experts from the government, research institutes, universities, private firms, and telecommunications service providers.

Promoting joint international research

The government is considering a certain proportion of the R&D projects of next generation technologies as international joint projects since high risk is involved in the projects and international standardization of developed technologies is a necessary condition for the success of the projects. Joint international research is recommended and supported for areas in which a considerable technological gap between leading countries and Korea exists. In addition, foreign institutes are being considered as main undertakers for projects involved in the development of core technologies.

4.2.4 Improving the R&D planning and evaluation system

Ensuring strategic policy-making and systematic planning of R&D

Accurate analyses of R&D outcomes and industrial and social demands for IT will ensure systematic planning of R&D. Strategic policy-making should be emphasized so that the government can concentrate on challenging long-term R&D projects following the establishment of a long-term R&D vision.

Giving a strict and accurate evaluation to R&D outcomes in order to reflect the future direction of R&D planning and investment

For an accurate and objective evaluation, the government should develop a methodology which can clearly evaluate the multilateral economic and social effects of R&D outcomes. In 2003, an improved evaluation system will be introduced by overhauling the existing evaluation system, and the organization and operation of the evaluation committee will be reformed, and objective evaluation criteria will be developed.

4.2.5 Promoting standardization of IT for market initiatives

Strengthening ties between R&D and standardization

The development of technology standards should keep pace with the progress of R&D projects. The government will provide support for the organization of forums concerning strategic standardization in the major areas of digital broadcasting, multimedia and internet. In addition, the government also plans to train new experts and professionals in technology standardization who can actively respond to domestic and international technological progress. To facilitate the development of new products, a system of a standard compatibility test and certification for network equipment and software will be established.

Supporting standardization activities for reducing harmful electromagnetic waves and the efficient interconnection and interoperability of heterogeneous networks

As wireless telecommunications devices are becoming widespread, standardization activities for reducing harmful electromagnetic waves are needed. In addition, the construction of various telecommunications networks calls for the need to develop a standard model of interconnection for the efficient interconnection and interoperability of heterogeneous networks. Government support will be provided for these standardization activities.

Taking the initiative in international standardization

The government will establish an international cooperation system for setting international standards in technology, respond more actively to international standardization by ITU, ISO, IEC and IETF, and host and organize various international workshops for standardization. The government will make efforts for domestic technologies to be adopted as international standards in the DRM Forum and the Open eBook Forum, etc.

**IEC (International Electrotechnical Commission) is the international standards and conformity assessment body for all fields of electro technology.*

**IEFT (The Internet Engineering Task Force) is the protocol engineering and development arm of the Internet, which is a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet.*

4.3 Fostering IT experts and professionals

4.3.1 Fostering IT experts

Supporting IT research centers to foster IT researchers

The government is supporting IT research centers in universities to train IT researchers in the process of developing core technologies at the centers. The government plans to transform Science High Schools into Schools for the Gifted in Science in order to discover and educate gifted students in information technology. In addition, support will also be provided to the undergraduate program of the Information and Communications University to invite gifted young students in elementary and high schools to take courses at the university.

To expand the capacity of training new experts at universities, the government is planning to expand the faculties and facilities in IT-related departments and expand the range of distance learning courses in IT such as information security and e-commerce, for which the demand is rapidly growing.

4.3.2 Supporting studying abroad programs and employing foreign experts and specialists

Supporting Korean graduate and post-graduate students majoring in IT at major foreign universities

The government is supporting Korean graduate and post-graduate students majoring in IT at major foreign universities to foster globally competitive IT experts with advanced knowledge of IT and the English language.

Additionally, the government is planning to send college students with high English proficiency to major foreign universities or private IT institutes such as Aptech in India with joint special educational programs in information technology.

Encouraging domestic universities to recruit and employ distinguished foreign IT experts

The government will help domestic universities recruit and employ distinguished foreign scholars and researchers to expand opportunities in technology transfer. Employment information services for foreign IT experts will be enhanced and the employment recommendation system for foreign experts in high-tech industries will be in operation.

4.3.3 Strengthening applied education programs

Supporting universities which employ IT experts in the business or research institutes as visiting professors to provide project-oriented and applied education for students

The government will provide support to IT-related departments which revise their curricula according to demands from the business sector. In particular, support will be provided for the establishment of a department which customizes its curriculum to company needs. Universities are recommended to give credits to students for internships and on-the-job training.

In addition, expanding the option for students to select information technology as a second major will help increase the IT labor force. Furthermore, the government will also provide support to professors working as technical consultants for the business sector. For the development of digital contents, the government will encourage non-IT departments to add IT-related courses to their curricula.

The government is planning to provide an opportunity of retraining 150

thousand IT workers each year. The government will support universities which provide training facilities for this program.

4.3.4 Institutional amendments for fostering IT experts

Systematically forecasting the IT market on a regular basis

The government will conduct a mid and long-term forecast of the IT market on a regular basis in order to obtain precise information regarding the demand and supply of IT workers. Also, the government will organize a network of experts in the IT labor market to obtain recommendations regarding the market forecast and related policies from the network.

Revising the national certification system of technicians

The national certification system of technicians will be extended to emerging IT areas such as multimedia and web design. Military service exemptions are being considered for qualified graduate students in the IT field, provided they work in educational or research institutes or businesses in the IT field.

Establishing a comprehensive system of evaluating programs for fostering IT workers

Efforts to establish quality control in the university education of information technology will be implemented by the government. As a result, the government will provide selective subsidies to universities in accordance to the evaluation of the university, which reflects the degree of specialization in IT by each school. Furthermore, the government is developing a comprehensive system of evaluating programs for fostering IT workers that reflects the level of accomplishments by the students and the degree of satisfaction from hiring companies. A tax benefit is being considered for training and education in information technology, which will enhance private investment in IT training.

4.3.5 Fostering researchers in basic science and interdisciplinary fields

Supporting research in basic science related to information technology to foster researchers

The government will support research in basic science related to information technology and such as cognitive science, linguistics, quantum physics, and physiology to provide a foundation for future innovations in information technology. As well, studies in molecular neurology, system neural science and cognitive neural science will also be supported. Furthermore, the government will continue to foster researchers in cerebral science and cerebral engineering, as well as to strategically promote the development of an intelligent robotic system and an artificial brain to which human intelligence mechanisms can be applied.

Fostering new researchers in inter-disciplinary fields

The government will foster new researchers in inter-disciplinary fields between IT and NT such as quantum computing, quantum telecommunication and quantum cryptography and between IT and BT such as bioinformatics, bioelectronics, and biomechatronics with the establishment of a department of applied biotechnology in universities. This also extends to support of interdisciplinary fields of IT, NT, BT and mechatronics such as robotics and cyborg technology.

Enhancing the ability of scientists in the application and utilization of information technology

The government will promote digitalization in the fields of mechanical engineering, material engineering, electronics, chemistry, and biotechnology. In addition, the government will launch an 'e-R&D' project which will offer one or two year programs for both R&D and IT education. Interdisciplinary studies among IT-related researchers in physics, chemistry, mechanical engineering and material engineering will also be supported.

4.4 Fostering technology intensive ventures

4.4.1 Enhancing the efficiency of venture policies

Taking steps to examine the policies concerning IT ventures and to strengthen the role of the policy advisory group

The government will have a precise understanding of the current market conditions in order to effectively respond to any changes in the market. Instead of supporting an individual venture or venture capital directly, the government will ensure that the market mechanism is in place to evaluate these ventures. For ex-ante efficiency, the government will strengthen the screening ability of the market mechanism to save the cost of policy-making. And, for ex-post efficiency, the government will introduce an effective monitoring system for government supported projects in order to reduce the waste of resources.

Enhancing the level of specialization of venture capital

By fostering venture capitalists with expertise in IT, the government will enhance the level of specialization of venture capital. And regarding the transparency in investment of IT ventures, the government will enhance efforts in monitoring illegal usage of investment funds and illegal trading.

4.4.2 Creating a favorable environment to stimulate growth of IT ventures

Cultivating entrepreneurship for ventures and a favorable business environment to encourage venture entrepreneurs

The government will cultivate entrepreneurship for ventures and a favorable business environment to encourage venture entrepreneurs to create new technology and business ideas. Additionally, the government will continue to help fund the development of high-risk and speculative technologies, which

may have a significant economic and social impact. Continued investments in advancement of the information infrastructure will provide the necessary business foundation on which entrepreneurial creativity and new business opportunities can flourish. The government will support to domestic ventures seeking to enter overseas markets in cooperation with large enterprises and marketing companies.

4.4.3 Providing a favorable business environment for the survival of venture companies

Fostering a business environment to encourage venture start-ups to grow

Regulations on market entry will be eased while regulations for market transparency will be strengthened. The government will provide support to service companies specializing in the incubation of ventures and legal and accounting services. Public awareness regarding starting up ventures as well as promoting cooperation among public and private business incubators will be enhanced.

The government will provide funding in the form of seed money for venture businesses to help survive the learning period. In addition, the government will also provide direct support to ventures in case of a market failure. Merger and acquisitions between ventures will be encouraged in order to facilitate the exit of weak ventures. Also, to promote the marketing activities of IT products and services by ventures, the government will establish a marketing system for the commercialization of new technologies.

Systematically incubating software startups

Venture incubators can provide the know-how and experience to help the survival of new ventures, since the business of software startups involves much risk. For this purpose, the government will designate areas as 'Software Towns', to facilitate the growth of software companies and to promote each Software Town to become a local hub for software companies.

For each Software Town, a local IT institute will be established to effectively develop and implement local IT policies.

4.5 Institutional amendments for the software and digital contents industries

4.5.1 Providing an institutional foundation for the competitiveness of the software industry

Introducing an international criteria for the certification of software products

The government is planning to introduce an international criteria for the certification of software products to enhance the quality of domestic software products and to form strategic alliances with international certification institutions to promote the export of domestic software products.

Evaluating software development processes and establishing "experts preferences"

To improve the ability for process management and the global competitiveness of domestic software developers, a methodology will be introduced for evaluating software development processes and establishing "experts preferences". The government will appoint software developers with leading technical and process management ability and relevant business experience as "experts". Preferences will be given to these experts for awarding competitive government projects. Therefore, a new organization for implementing these systems needs be established as well as a legal foundation.

Promoting the system integration business and securing fair competition in the system integration market

To promote the system integration business, the government is considering a

tax benefit to the investment in system integration. For small scale public system integration projects, the bid for projects will be limited to small and medium size enterprises.

To secure fair competition in the system integration market, the government will establish a standard contract form which stipulates the rights and responsibilities of the concerned parties, and will improve the dispute resolution system. For objectivity and accuracy of the accounting system for system integration projects, the government is developing a reference model which estimates the costs of public informatization projects, and is building a database of the expenditures in public informatization projects. Furthermore, the government will revise the methodology for evaluating proposals for public system integration projects including criteria for contract negotiation and technical capability so that firms with excellent technical capabilities may undertake projects.

4.5.2 Institutional reforms for the development of the digital contents industry

Revising rules and regulations pertaining to digital contents

The government will establish a comprehensive system of promotion policies for the digital contents industry. The distribution system of digital contents needs overhauling. By introducing a system of transaction authentication and identification codes, a transparent distribution system of digital contents can be established. In addition, by constructing an online contents marketplace and carrying out a pilot project for integrating on and off-line distribution, the government can promote the distribution of online contents and create greater business opportunities for small companies.

**The online contents marketplace is a demonstration system which enables online transactions of digital contents such as digital pictures, e-books, digital music, etc., at the same time, which protects intellectual property rights of the digital contents, and settles payments, and manages transaction records.*

The government is also supporting digitization of old contents, the conversion of digital contents for other media and resolution of disputes concerning intellectual property rights.

Ⅴ. Strengthening International Cooperation for the Global Information Society

1. Establishing a Business Hub in the East Asian Region

Objectives

Building an IT Hub in East Asia

·To take a leading role in the world market by facilitating e-business in East Asia
·To promote information culture as a mediator of cultural exchange

Evaluation of Accomplishments

Until now, no formal framework of multilateral cooperation has been established in East Asia. A desirable strategy for such a framework would begin with the establishment of cooperative relationships between East Asian countries in information technology and information culture. Similarities in culture such as the widespread influence of Confucianism and Buddhism on the culture and linguistic similarities using Chinese characters work as favorable conditions to further cooperation in information culture.

Now, East Asian countries have set national agendas for the revitalization of their economies and information technologies are regarded as an effective means to achieve this goal. In addition, geographical closeness and historical commonalities provide favorable conditions for forming cooperative ties in information technologies among East Asian countries. Korea, the originator of commercialized CDMA technologies, is building a CDMA belt in the Asia-Pacific area that is expected to facilitate exchanges in culture and information within the sphere of information culture. These efforts will help contribute to achieving further growth and more stability of the region.

Policy Directions

Promoting the cooperative development of information technology between the three countries in East Asia

Greater cooperation in information technology should be pursued based on the mutual benefits derived from a win-win situation as a result of the relatively dominant position of the IT field in the economy. Through cooperation in the development of new technologies, joint research of strategic industries, and joint investments, East Asia will be able to raise its competitive status in the global markets.

Strengthening the cooperation between mobile service providers and for the development of e-business to establish Korea as a major IT hub.

To become recognized as the originator of commercialized CDMA technologies, Korea is involved in the CDMA Test-bed project in East Asia and entering into overseas telecommunications markets. In addition, Korea will strengthen cooperative ties to strengthen the development of e-commerce between countries in East Asia.

Initiating the formation of cooperative frameworks for information culture in the East Asian region

Cooperative frameworks will be formed in East Asia to facilitate the exchange of information culture between the countries in the region. The government will build the necessary foundation for realizing the information culture in East Asia.

Policy Plans

1.1 Leading the world market through cooperation in East Asia

1.1.1 Establishing a system of economic cooperation in IT

Examining the national strengths of the three countries in East Asia in IT to build a system for cooperative development

The government will implement comprehensive measures for cooperation in technology transfer and human resources in the IT industry, and pursue complementary win-win strategies based on the comparative advantages of each country in the IT industry.

The government will launch cooperative research and joint investment in information technology in order to obtain a competitive edge in the world market. In particular, the government will focus on cost reduction and minimizing risks with investment in the fields of technological innovation and strategic industries.

Promoting joint market opening in information services and the gradual introduction of free trade

The formation of an economic community for information industries is the basis for creating a free trade zone between the three countries in East Asia.

1.1.2 CDMA coalition in East Asia

Advancing into the world market based on the CDMA coalition in East Asia

Relying on experiences from the construction of the CDMA belt in East Asia, the Korean government will not only assist mobile service providers to advance into the world market, but also facilitate cooperation on next generation mobile technologies. The cooperative framework based on the technological cooperation between East Asian countries will be expanded to

APEC economies.

**The government will facilitate international cooperation at the early stage of technological development to lead the establishment of international standards in key information and communication technologies, such as the fourth generation mobile phone and the Next Generation Internet.*

Promoting the CDMA test-bed project

The government plans to facilitate the co-development of basic CDMA technologies and human resources exchange among countries adopting CDMA technology. In addition, the government has opened and encouraged greater participation in the CDMA test-bed project, thereby continuing expansion efforts of the CDMA belt.

Encouraging growth in the domestic production for key CDMA components

The focus of policy implementation will be on producing key CDMA components and developing applied services through these key technologies while obtaining international patents. At the same time, the government will encourage Asian countries to adopt CDMA technology.

1.1.3 Strengthening cooperation to stimulate e-commerce activities in East Asia

Strengthening cooperation in the standardization of e-business related systems

Cooperative ties need to be strengthened to ensure the growth in the e-commerce activities between countries in East Asia. The government plans to strengthen cooperation in the standardization of e-business related systems and electronic transaction activity in the region. For this purpose, the government will not only promote cooperation for electronic payments and electronic filing between financial organizations in each country, but will also try to eliminate various institutional obstacles that hinder the

growth of electronic trade.

**A cooperative framework of document exchange systems for electronic transaction (ebXML) has been established between Korea, Japan, and Taiwan.*

**ebXML is a project that utilizes XML to standardize the secure exchange of business data. Among other purposes, ebXML would encompass and perhaps replace a familiar standard called EDI.*

Supporting corporate activities to advance into the Asian market of information protection by taking advantage of the Asian PKI Forum

For this purpose, it will utilize the forum as a basis for increasing market share in the area of electronic transactions. Moreover, by strengthening cooperation for securing electronic transaction in East Asia, the government will facilitate the interoperability of electronic authentication systems between APEC economies such as the United States, Japan, and Australia.

1.1.4 Strengthening cooperation for facilitating software industries in East Asia

Co-developing basic technologies

The government will strengthen cooperation for co-development of basic technologies in system software such as Linux, application software, and in core technologies for the digital convergence between telecommunications and broadcasting and for multimedia.

Establishing a foundation for cooperation in intellectual property rights in East Asia

By introducing a comprehensive management system for digital rights, the government will establish a foundation for cooperation in intellectual property rights in East Asia. Particularly in the establishment of international and regional standards, it is critical to coordinate the different interests of each country and to introduce more effective institutional frameworks to manage the issues of intellectual property rights.

1.2 Globalizing information culture in East Asia

1.2.1 Building cooperative frameworks for information culture in East Asia

Playing a leading role in promoting information culture of East Asia

Key steps to achieve the ideas will include opening and operating liaison offices for facilitating inter-governmental cooperation, and governmental organizations that have exclusive responsibilities for cooperation of information culture in East Asia.

The government will primarily rely on the cooperation between Korea, China, and Japan in order to take the initiative in the formation of a regional information culture, which will attempt to include the cultures of other Asian countries. The project will pay special attention to enabling all Asian countries to enjoy the benefits from information and communication technologies and thus focus on the implementation of joint projects for bridging the international digital divide in the region. Furthermore, in order to develop action plans for information sharing and human resource exchanges between countries within the East region, the government will take advantage of existing projects such as the APII Test-bed project.

1.2.2 Promoting exchanges in information culture in East Asia

Facilitating cultural exchanges based on the commonalities in history and culture

The government will reorganize or upgrade major websites in Korea by providing at least three foreign languages including English, Chinese, and Japanese. This three foreign language system will begin with websites established by governmental branches and public organizations. The government plans to gradually extend the three language system to include the private sector.

East Asian countries have the ability to facilitate cultural exchanges based on the commonalities in history and Chinese characters. For example, the government will promote cultural exchange and travel through the development of travel programs linking Korea, China, and Japan and the joint development of information systems for transportation, accommodations and sightseeing. In addition, the government will digitalize traditional cultural property of the three countries, and promote mutual understanding regarding East Asian cultures through these digitalized works, leading to the globalization of these cultures.

Sharing our experiences with other East Asian governments in building the multilingual domain name system, setting standards and in internet governance

Exemplary works include standardization of computer processing of Chinese character codes, and promoting cooperation for establishing search engines and international databases for Chinese characters on the internet.

2. Taking the Initiative in International Cooperation

Objectives

Emerging as a leader in global informatization

·To lead global informatization efforts through the expansion of the IT infrastructure at a global level
·To lead the establishment of global governance and standard-setting in the global arena

Evaluation of Accomplishments

Korea, as a leader in informatization, has contributed to the establishment of a global IT infrastructure and cooperative projects for bridging international digital divide. In addition, Korea also has led the establishment of APEC (Asia-Pacific Economic Cooperation)-wide IT infrastructure that connects the United States, Japan, and Singapore via high speed information network by first advocating the establishment of the APII (Asian-Pacific Information Infrastructure) and promoting the APII Test-bed Project. Moreover, Korea has played a significant role in launching the Trans-Eurasia Information Network (TEIN) project, the high-speed pilot networks connecting Asia and Europe, which opened in December 2001.

**APEC is an organization that seeks to promote free trade and economic cooperation throughout the Asia-Pacific region.*

**APII is a cooperative system to build an information infrastructure to connect all APEC member economies to one giant network and narrows the gap in information technology between developed and developing economies within the Asia-Pacific region.*

The active participation in international cooperative projects is gaining greater significance as well as policy leadership in the standardization and decision making process in international organizations. In this context, Korea is actively participating in international organizations to help close the gap in the international digital divide. For example, together with Japan, Australia, and Germany, Korea was elected as a founding member of directorate for the Development Gateway Foundation (DGF) established by the World Bank in January 2001. And, cooperating with major international organizations such as ITU, APT, and ESCAP, Korea has contributed to projects for developing human resources, building the IT infrastructure, and bridging the digital divide in gender in developing countries.

**APT (Asia-Pacific Telecommunication) is an intergovernmental organization that aims to correlate planning, programming and development of telecommunication networks in the Asia-Pacific region.*

**ESCAP (Economic and Social Commission for Asia and the Pacific) is an intergovernmental forum to promote economic and social development through regional and subregional cooperation and integration in all countries of the Asian and Pacific region.*

Policy Directions

Strengthening the status of a leading country in informatization by actively participating in the construction of an international IT infrastructure

The Korean government will take the initiative in the building project for the global IT infrastructure such as TEIN, and encourage the active participation of countries such as ASEM members. The government also plans to actively participate in various international projects for strengthening the foundation on which domestic firms can build strategies to advance into IT markets of developing countries.

**ASEM (Asia Europe Meeting) is a biennial summit meeting of heads of state and the government of 10 Asian countries, 16 EU member states, including the president of the European Commission, to enhance regional ties in various fields.*

Playing an active role in international cooperation to bridge the digital divide in developing countries

The Korean model of informatization will be shared and promoted to developing countries in order to help close the digital divide in these countries in Asia. Also, the government will provide the continued support of IT education for developing human resources in countries to which Korea has a vested interest.

Policy Plans

2.1 Playing a leading role in international organizations

Leading IT cooperation in international organizations such as ITU

In order to expand cooperative projects with major members and ultimately raise

the status of Korea in the global arena, the government needs to contribute to the activities of international organizations by strengthening its role as a member of directorate, to hold international forums, and to encourage the participation of domestic experts in international organizations. In strengthening cooperation with major members, policies will focus on leading the establishment of IT standards and the international management of radio frequencies.

Raising the status of Korea as a global IT leader in the OECD

The government will ensure that Korea's interests in the process of policy making regarding electronic transactions and information protection standards are represented at various IT-related committees in the OECD, such as the ICCP (Committee for Information, Computer and Communications Policy).

**ICCP (Committee for Information, Computer and Communications Policy) is a committee to transmit to governments, via the OECD, the needs and requirements of the private sector with respect to policies affecting communications and information on digital networks. The BIAC ICCP strives to focus the attention of OECD governments to developing and implementing globally compatible policies for information and communication networks.*

Leading discussions in regional organizations for informatization such as the APT (Asia-Pacific Telecommunication)

To strengthen the status of IT leader in Asia, the Korean government will strategically utilize Asia as an outpost to advance into the global arena. In this context, the government is expected to lead reform projects of regional Asian organizations in order to better cope with environmental changes, such as digital convergence in IT, the increasing participation by the private sector, and the acceleration of informatization in the Asian region.

**APT is an inter-governmental organization that aims to correlate the planning and development of telecommunications networks in the Asia-Pacific region.*

Leading the cooperative efforts in the realization of e-Government in APEC economies

It is obvious that critical elements for success are placed on coordinating the interests of APEC economies. Therefore, it is also anticipated for Korea to take a leadership role in arranging the forum to review the priority of each project and to develop key projects for the future. Therefore, the continuous drive for the development of multilateral cooperative projects such as IT distance learning, is important in the realization of the digital economy in the APEC region.

2.2 Bridging the global digital divide

Strengthening various support projects that will help close the gap in the digital divide in developing countries

For example, the "Center for IT Education and Training" will be established in partnership with the World Bank in Korea to train IT personnel from developing countries. The government plans to actively participate in the formation and expansion of "The Fund for Bridging Global Digital Divide," to which other developed countries are jointly participating.

While Korea is taking a greater role in implementing special cooperative projects for bridging digital divide in East Asia, the joint participation by China and Japan is a key for its success and for the long-term development of informatization in East Asia. The efforts by these governments will be linked to ESCAP (Economic and Social Commission for Asia and the Pacific) in providing support for developing countries to establish infrastructure, to distribute PCs, and to begin distance education. In a similar vein, Korea's efforts and experiences in bridging the digital divide will be introduced through the Korean model at international conferences on informatization, such as World Telecommunication Development Conference (WTDC), and World Summit on the Information Society (WSIS).

ESCAP (Economic and Social Commission for Asia and the Pacific) is an intergovernmental forum to promote economic and social development through regional and subregional cooperation and integration in all countries of the Asian and Pacific region.

**WTDC (World Telecommunication Development Conference) is the conference, organized by the International Telecommunication Union (ITU), to establish ICT development priorities, strategies and action plans to direct and guide the work of the BDT (The Telecommunication Development Bureau) of ITU.*

**WSIS (World Summit of Information Society) is the summit, organized by ITU, to address the broad range of questions concerning the Information Society and to move towards a common vision and understanding of this societal transformation.*

The government will dispatch the "Youth Internet Service Corp" to developing countries in order to raise the level of IT skills of the information poor especially in computers and the Internet.

**In the short term, the Corp's volunteer activities will be linked to existing public organizations such as the Korea Foundation but the affiliation will gradually be changed to non-governmental volunteer activities in the long-term.*

The government will invite and train IT-related personnel from developing countries within a broader framework of regional activities by international organizations in Asia. For example, the government will expand academic degree programs for IT specialists from China, Vietnam, Mongolia, and Hungary.

2.3 Expanding the international information infrastructure

Facilitating the TEIN and APII Testbed projects

The government will strengthen active cooperation between Korea, France, and the EU commission to sustain the development of the TEIN project, and will form an efficient administrative system to facilitate international cooperative projects concerning TEIN. These works are expected to contribute to pioneering joint research and bridging the international digital divide.

**An integrated system for research management will support research projects on IPv6 and Grid, in which both Asian and European countries are involved.*

The government will attempt to promote the participation of Asian countries in the TEIN project in order to further strengthen the APII Testbed project. In promoting regional cooperation for a new route for TEIN, it is particularly important to encourage developing Asian countries to participate to TEIN as early as possible.

3. Facilitating the Advance of IT Companies into the World Market

Objectives

Attaining international competitiveness by encouraging IT firms to advance into the world market

·To attain IT export levels of $350 billion, a trade balance of $110 billion in the period beginning in 2002 to 2006
·To promote 30 key IT items as world-class products

Evaluation of Accomplishments

It is regarded that many of Korea's IT firms lack the capability to successfully cope with the rise of a new global environment of competition. In particular, 51.2% of all venture firms have little experience in the world market (Small and Medium Business Administration, 2001).

Policy Directions

Attaining international competitiveness in the information technology industry by continuously promoting key IT products

The government is focusing on the promotion of 50 **key IT items** as

leading-edge products. And, the government is encouraging the R&D activities by domestic IT companies overseas.

Building a cooperative framework for promoting the diversification of IT products and export markets

The government will facilitate marketing and public relations activities in order to pioneer new overseas markets. In particular, by establishing an outpost for the exportation of key IT products, the government will facilitate the advance into the Chinese market by domestic IT companies.

Policy Plans

3.1 Promoting leading sectors for advancing into the world market

3.1.1 Promoting key IT products

Examining the level of technological development and the overall market environment to discover prospective products at an early stage

Relevant policies will focus on encouraging IT companies to develop these products and advance into the world market. However, in the case of non-competitive products, the government will recommend domestic companies to outsource these products.

3.1.2 Advancing the software and contents industries into the overseas markets

Encouraging the co-development of a business model for localizing online contents, and establishing a national website for on-line contents

In particular, in the fields of 3D graphics and animation, the government will make efforts for the production technologies of world leading companies to be transferred to domestic companies. In addition, the Global Publishing

Posts will be established in major foreign markets to facilitate the development of distribution channels for domestic contents.

Supporting IT firms with competitive products and services to advance in the overseas markets

In particular, the government will foster specialized human resources for foreign marketing, and attempt to expand cooperative market channels to advance promising products into local markets. Examples of the support provided for overseas marketing activities include inviting foreign buyer groups, holding impromptu consultation meetings and participating in overseas exhibitions. Other examples are found in establishing and operating portal systems for overseas market information, such as information regarding prospective products, market channels, and sectoral/regional market information.

3.2 Establishing support systems for the advance into overseas markets

3.2.1 Creating a foundation for advancement into the overseas market

Building overseas IT human networks

The government will launch training programs for foreign IT personnel to facilitate the advance of domestic firms into foreign markets and will support the participation of small IT companies in international exhibitions. Indispensible parts of these governmental efforts include building overseas IT human networks and inviting IT-related professionals and experts from foreign countries.

Building cooperative frameworks of support agencies

The government will build cooperative frameworks of support agencies between governmental ministries, KOTRA, and overseas branches in order to further construct a nationwide integrated support system for IT export. As a

part of this project, the government is considering several major projects, such as dispatching international **marketing groups** jointly managed by the government and the private sector, holding road shows for promising products, and promoting the participation of overseas exhibitions.

3.2.2 Financial support for the advance into world markets

Facilitating foreign IT investment by promoting the technological superiority of domestic IT industries and firms

The government expects to raise $30 billion by 2006 by the introduction of leading-edge technologies and advanced management techniques. In this context, the government plans to attract leading IT manufacturers of production equipment and research centers for the purpose of becoming a global center for IT production and research.

Expanding export funding for domestic IT companies to advance into the global market

Governmental concerns are with expanding the IT product range which is supported by the Economic Development and Cooperation Fund (EDCF) in various countries, facilitating small loan projects, and simplifying evaluation procedures. Diversifying channels to attract greater funding for exports, through such organizations as the EXIM bank and the Korea Export Insurance Corporation, are also a critical part of the governmental efforts in this field.

3.2.3 Diversifying IT Export Markets

Diversifying the export channels and pioneering new overseas markets

The government will not only strengthen marketing activities in developing markets but also support large-scale promotional activities for domestic firms and products.

Drawing a global IT industry map is a very useful tool in developing major items in the market as well as for expanding export markets and products. These measures are expected to analyze the prospects of domestic markets and major competitive markets overseas, and to develop the cluster of core products for the respective markets. Based on the analysis of key factors affecting the success in major markets, the government is planning to establish regional and item-specific strategies for advancement into foreign markets.

3.2.4 Building an information system to facilitate IT exports

Strengthening the information system of major world markets

The government will attempt to create an outpost for the export of major IT products and to strengthen the information system of major world markets such as the United States, Europe, and China. In particular, the government will support the advance of domestic IT firms into the Chinese market by organizing a cooperative body composed of domestic and foreign companies operating in China. An example of a project to help these domestic companies advance into China is to provide them with basic business information concerning laws, regulations and practices of the Chinese market.

Ⅵ. Promotion Strategies

The government will establish and implement a yearly operational plan based on the Master Plan, e-Korea Vision 2006 each year. The Master Plan will be revised in response to the rapid environmental changes and technological developments of each year.

The government will develop a detailed action plan in order to evaluate achievements semi-annually and report annually to the Informatization Promotion Committee. The realization of the global leader, e-Korea will be promoted through the systematic management of all issues and outcomes from each area, and cooperation will be strengthened between relevant government ministries and departments for the promotion of related businesses through the coordination of the Informatization Promotion Committee.