Chapter 2

Current Status of Information and Communications

Section 1

Telecommunications Business

1 Telecommunications market

The amount of sales of telecommunication business in Japan reached 14.5769 trillion yen in FY 2004 (a 9.7% decrease over the previous year) **(Figure 2-1-1)**. Since the sales of mobile communications overtook those of fixed communications in 2001, mobile communications accounted for approximately 60% of the total sales of the telecommunications business **(Figure 2-1-2)**.

2 Telecommunications service

The number of subscribers to fixed communications (telephone and ISDN) shows a slight downward trend or has remained at the same level, whereas that of subscribers to IP phone and mobile communications (mobile phone and PHS) is on an upward trend **(Figure 2-1-3)**.

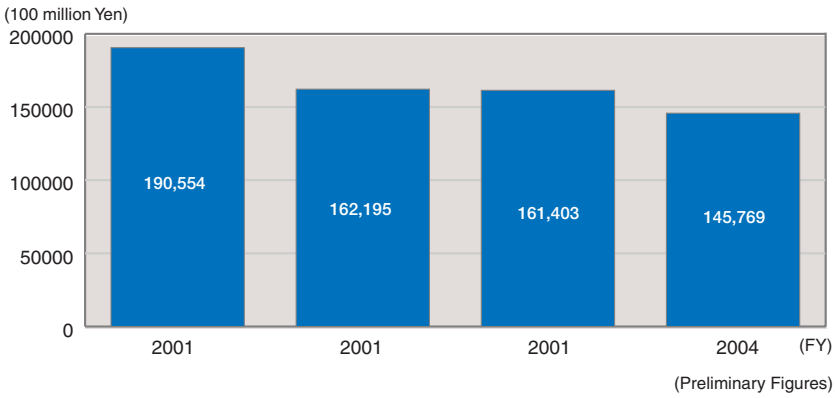
The number of mobile communications subscribers exceeded that of fixed communications in FY 2000, and as of the end of FY 2005, the number of mobile communications subscribers (96.48 million) became 1.6 times more than that of fixed communications subscribers (58.08 million).

As of the end of March 2006, the total number of IP telephone subscribers was 11.457 million which include 10.03 million for 050 type IP telephones and 1.42 million for 0AB-J type IP telephones.

3 Status of use of telecommunications service

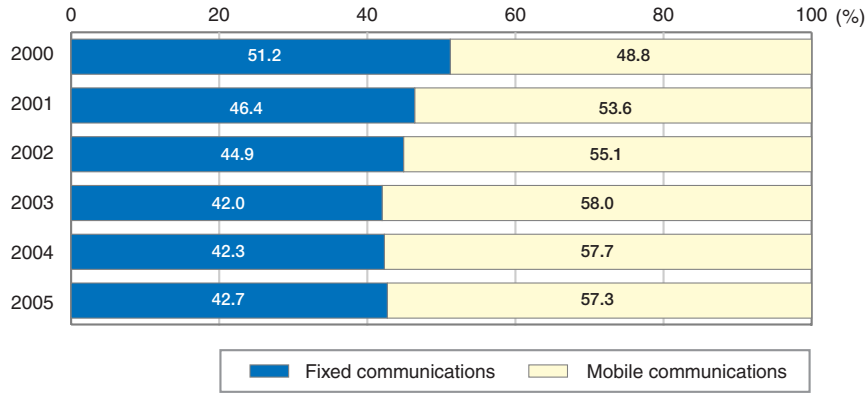
For fixed communications, total call time per day per subscription in FY 2004 was 5 minutes and 34 seconds for subscription telephones (a 1 minute and 18 seconds

Figure 2-1-1 Transition in the sales of telecommunications business



(Preliminary Figures)

Figure 2-1-2 Sales ratio between fixed communications and mobile communications of major telecommunications carriers



Produced from materials collected from each carrier

decrease from the previous fiscal year), 17 minutes and 56 seconds for ISDN (a 2 minute and 29 seconds decrease from the previous year), and 4 minutes and 2 seconds for IP telephone **(Figure 2-1-4)**. For mobile communications, it was 3 minutes and 16 seconds (a 12 seconds decrease from the previous year) and 5 minutes and 15 seconds for PHS (a 1 minute and 42 seconds decrease from the previous year).

4 Telecommunications rate

The standard local call rate was approximately 8 yen per 3 minutes, which lowered about 20%. For long distance calls, the rate lowered by one-fifth compared to that in 1985 (as of the end of March 2006) **(Figure 2-1-5)**. In practice, various fee structures and a wide variety of discount services make the standard even lower.

5 Telecommunications network

Installation of the optical fiber network nationwide had reached 86% (a 0 point increase over the previous fiscal year), including 95% of cities designated by cabinet ordinance and prefectural capitals (98% coverage in business areas – 50% or more of subscribers are businesses), and 89% of cities with populations of 100,000 or more (90% in business areas). Installation of the optical fiber network increases at a steady pace, and has reached 69% in cities with populations of less than 100,000, but there still remains a gap in the level of installations between major cities and other cities.

Figure 2-1-3 Transition in the number of subscribers to fixed communications and mobile communications

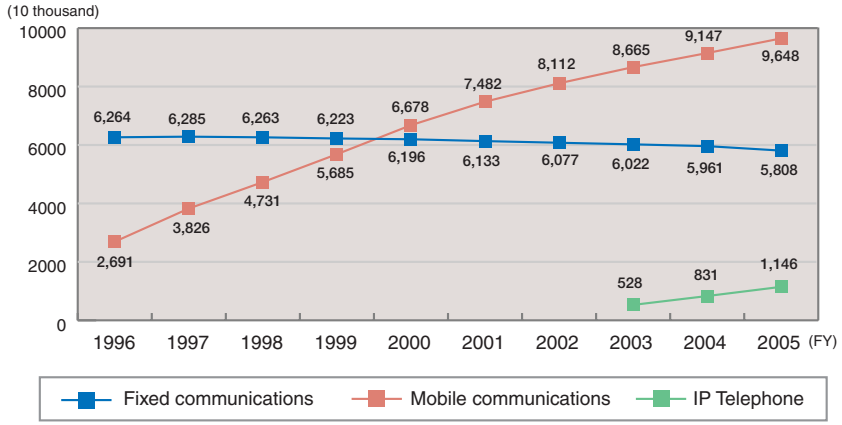
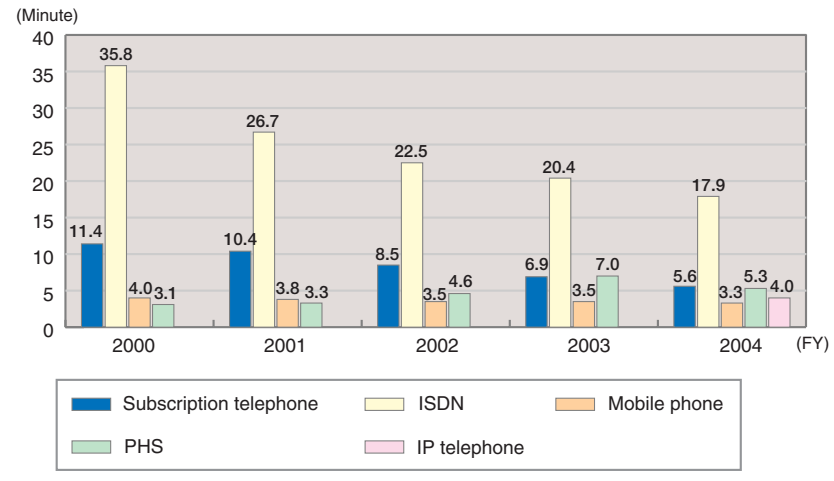
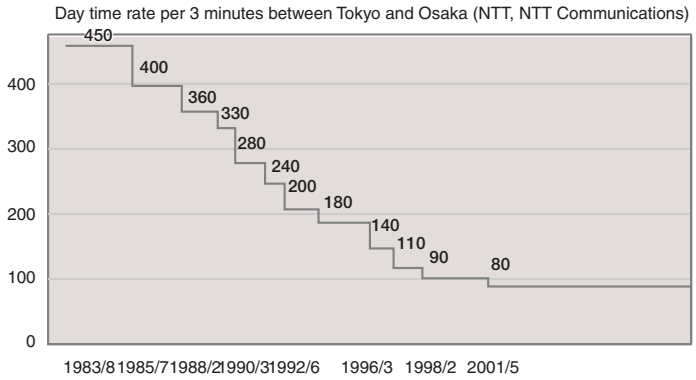


Figure 2-1-4 Transition in the call time per day per subscription (unit: minute)



* Calculation for IP telephone was started in FY 2004. So there is no value before FY 2004.
Adapted from MIC, Status of Domestic Use of Telecommunications in Terms of Traffic

Figure 2-1-5 Transition in the rate standard of long distance calls of East / West NTT subscription telephones.



Produced from the Telecom Data Book 2006 and NTT documents.

Section 2

Broadcasting Business

1 Broadcasters

Broadcasting in Japan is provided by NHK which runs its business with reception fees, and general broadcasters which run on advertising revenues. In addition, the University of the Air provides broadcasting for educational purposes.

Sales in FY 2004 of broadcasters totaled 3.9698 trillion yen (a 3.5% increase over the previous fiscal year). The market size of broadcasting is expanding because of the increase in the number of subscribers for pay-TV. Of these sales, NHK's business income was 685.5 billion yen (a 0.8% increase over the previous fiscal year), terrestrial commercial broadcasters' sales was 2.6153 trillion yen (a 3.7% increase over the previous fiscal year), satellite commercial broadcasters' sales was 315.8 billion yen (a 5.4% increase over the previous fiscal year), and cable television broadcasters' sales was 353.3 billion yen (a 6.1% increase over the previous fiscal year).

Terrestrial commercial broadcasters occupy 65.9% of the total market share; however, satellite commercial broadcasters and cable television broadcasters are expanding their share.

2 Broadcasting services

As "the Tokyo Broadcasting Station," NHK started Japan's first broadcasting service (radio) in March 1925. It formed a corporation for providing broadcasting service in 1950, based on the Broadcast law. For domestic broadcasting, NHK provides 7 channels as its terrestrial broadcasting services including television (analogue channels (General and Education), digital channels (General and Education), and radio channels (First, Second and FM), and 6 channels as its satellite broadcasting (BS) including Television 1 (Digital and Analogue (simultaneous broadcasting of digital), Television 2 (Digital and Analogue (simultaneous broadcasting of digital)) and High vision (Digital and Analogue (simultaneous broadcasting of digital)).

As of the end of FY 2005, the total number of NHK subscribers was 37.51 million (a 1.1% decrease from the previous fiscal year). Of this, the number of general reception subscriptions (regular and color contracts) was 24.97 million, and that of satellite broadcasting reception subscriptions (satellite and special contracts) was 12.54 million.

There were 127 operators with terrestrial commercial broadcasting stations as of the end of FY 2005. For terrestrial commercial broadcasting, more than 4 channels were available to approximately 90% of households.

3 Status of broadcasting media use

Annual expenditure for broadcasting services per household was 19,442 yen **(Figure 2-2-1)**, which reflects an increase in the number of pay-TV service subscriptions. Of this, an expenditure on cable television was 6,446 yen.

4 International broadcasting

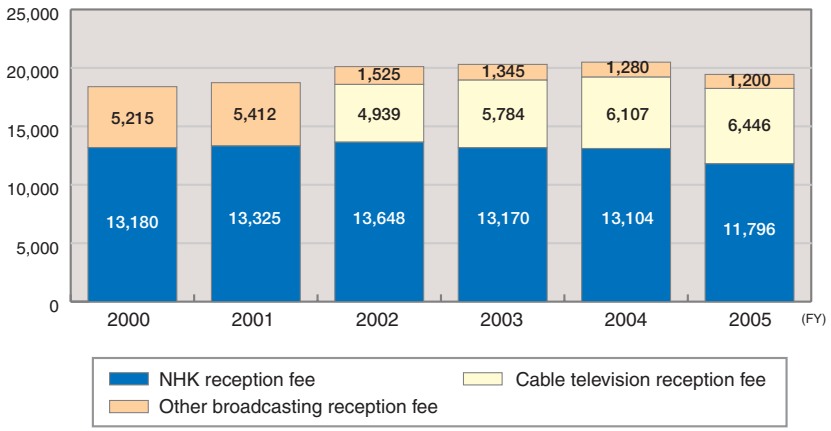
For international broadcasting services for reception overseas, NHK provides the international radio broadcasting service "NHK World Radio Japan" and the international television broadcasting service "NHK World TV" which uses an artificial satellite.

As of the end of FY 2005, "NHK World Radio Japan" was broadcasted for 65 hours in total per day (general broadcasting: 31 hours, local broadcasting: 34 hours) in 22 languages including Japanese and English around the world via the Yatsumata Transmitting Station and relay stations in each country. Services such as news are also distributed via the Internet.

Following the revision of the Broadcast law in June 1994, "NHK World TV" began to be provided in April 1995 as an unscrambled international television broadcasting program via a foreign artificial satellite. As for North America and Europe, "NHK World TV" is broadcasted as part of the broadcasting services from JNG (Japan Network Group, Inc.) in North America, and JSTV (Japan Satellite TV Limited) in Europe, which are the local corporations that broadcast Japanese programs via an artificial satellite. As of the end of FY 2005, in North America, it was provided 7 hours per day by four Echo Star satellites, and in Europe, 7.5 hours per day by Hot Bird satellites.

In April 1998, using a PanAmSat satellite, an international television broadcasting service which covers Asia and the Pacific region was started. After this, it had been gradually extending its broadcasting time and service area to 24 hours a day in October 1999. In August 2001, it achieved an almost 100% coverage of the overseas area where Japanese live by using three PanAmSat satellites.

Figure 2-2-1 Total expenditure of broadcasting services in household finance



* Total expenditure for broadcasting services includes NHK reception fee, cable television reception fee and other broadcasting reception fees.

Produced from MIC, Family Expenditure Survey (whole households)

Section 3

Section 3 Postal Service

1 Finances of postal service

In FY 2004, postal services recorded a surplus of 28.3 billion yen as a result of enhancing the earnings performance, improving productivity by promoting JPS (the Japan Post System), and cost-cutting by promoting automation, shifting workload to part-time workers, and saving the cost for outsourced transportation of postal items in order to overcome the severe business environment **(Figure 2-3-1)**.

2 Volume of postal items

A total of 24.81862 billion domestic and international postal items (a 0.7% decrease from the previous fiscal year) were processed in FY 2005.

While the number of domestic postal items dropped to 22.66611 billion (a 3.5% decrease from the previous fiscal year), the number of postal parcels processed was 2.07498 billion (a 45.1% increase over the previous fiscal year). The number of outgoing international postal items was 77.54 million (a 4.4% decrease from the pre-

vious fiscal year) and the number of incoming international postal items was 210.89 million (a 2.1% decrease from the previous fiscal year).

3 Post office network

As of the end of FY 2005, 24,631 post offices (a 0.2% decrease from the previous fiscal year) offered mail-handling facilities.

By type, there were 1,304 ordinary post offices (a decrease of 4 from the previous fiscal year), 18,917 special post offices (a decrease of 6 from the previous fiscal year), and 4,410 postal agencies (a decrease of 37 from the previous fiscal year). Regarding ordinary and special post offices which are either collection and delivery offices or non-collection and non-delivery offices, there were 4,695 collection and delivery post offices (a decrease of 31 from the previous fiscal year) and 15,526 non-collection and non-delivery post offices (an increase of 21 over the previous fiscal year).

4 Correspondence delivery businesses

As of the end of FY 2005, 159 operators entered the special correspondence delivery business **(Figure 2-3-2)**.

Figure 2-3-1 Transition in earnings performance of postal service

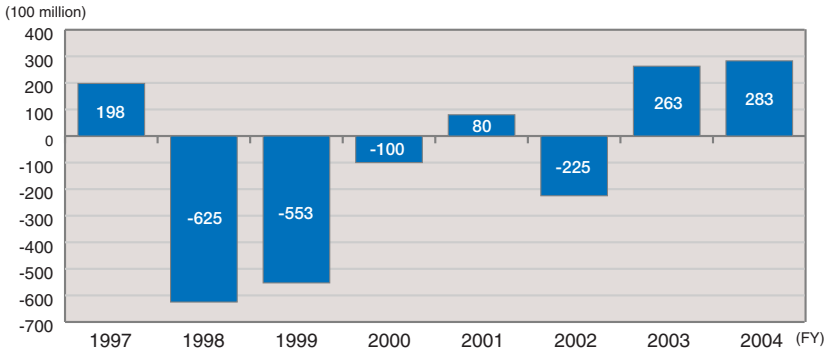
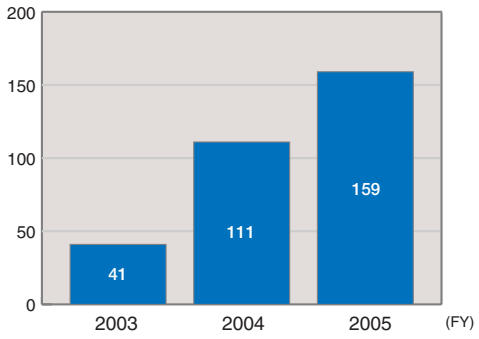


Figure 2-3-2 Transition in the number of operators in special correspondence delivery business (as of the end of FY 2005)



Section 4

Section 4 R&D / Human Resources Development

1 Research in the information and communications field

In FY 2004, the industrial R&D cost in total was 12.4349 trillion yen. Of this, R&D spending by the information and communication industry accounted for 4.7036 trillion yen, or 37.8% of the total **(Figure 2-4-1)**.

Of the R&D spending by the information and communication industry, information and communication electronics equipment industry makes up 18.4% of the entire industry.

2 Trade in technology

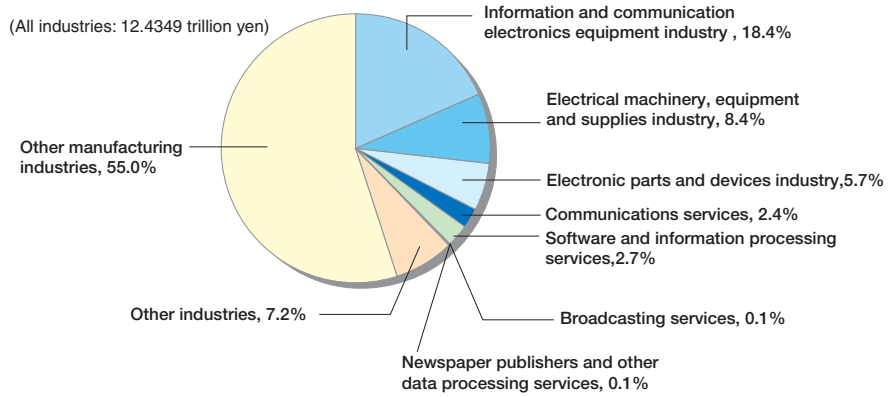
In FY 2004, the export value of trade in technology was 1.7694 trillion yen (a 17.0% increase over the previous year), and of this, the export value in the information and communication industry accounted for 309.6 billion yen. In the meantime, the import value of trade in technology was 567.6 billion yen (a 0.7% increase over the previous fiscal year). Of this, the import value in the information and communication industry accounted for 302.1 billion yen. The market of trade in technology in total shows an excess of export, however, import and export values in the information and communication industry are very close.

Of technology import and export in the information and communication industry, the industry of information and communication electronics equipment accounted for over 60%.

3 Human resources development

Among researchers in companies, those engaged in the information and communication industry were 193,830 people (a 6.1% increase over the previous fiscal year). Of researchers engaged in the information and communication industry, those in the information and communication electronics equipment industry occupied 18.8% of the entire industry, which was the highest rate in the information and communication industry.

Figure 2-4-1 Ratio of R&D spending in information and communication technology industry



* R&D spending in the information and communication industry means that for the information and communication electronics equipment industry, electrical machinery and equipment industry, electronic parts and devices industry, and information and communications services (software and information processing services, communications services, broadcasting services, newspaper, publication and other data processing services).

Source: MIAC "2005 Report on the Survey of Research and Development"

Section 5

Informatization of Government and Public Sector

1 e-government

A typical interface between administrative agencies and people would be the Internet websites of each office and ministry. All offices and ministries have their own websites to provide a wide range of information including their measures and policies.

As for administrative procedures, the number of online applications and notifications was 13,669 (96.2% were online) and that of those other than applications and notifications was 11,388 (63.6% were online) **(Figure 2-5-1)**.

2 e-municipality

Almost all local municipal organizations (all organizations of prefectural governments and 2,407 organizations of local municipalities (99.5%)) have their own websites.

As for the system which accepts applications and notifications (all-purpose acceptance system), it had been installed by 37 organizations (78.7%) of prefectural governments and 493 organizations (20.4%) of local municipalities, as of April 2005 **(Figure 2-5-2)**.

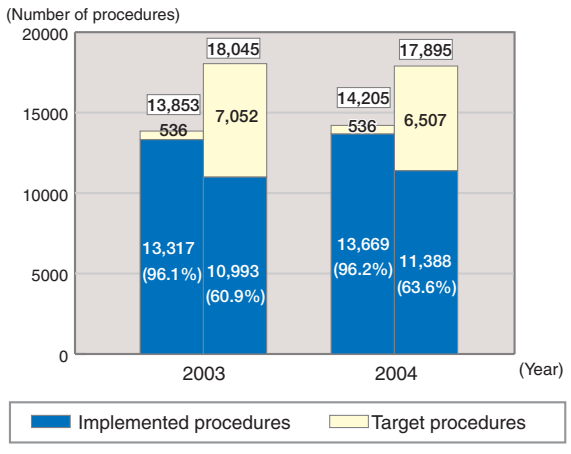
3 Public services

Needs for services to ensure safety and security for daily life and to prevent incident occurrence by the use of networks are on an upward trend, and the actual utilization of the services is increasing.

When asking the public for their expectations on services provided by ubiquitous networks, the most common answer was "medical and nursing services," accounting for 61.6%, which was the only answer over half. This was followed by "administrative services" at 49.7%, "security" at 46.0%, and "disaster countermeasures" at 42.8%. This shows the public's high expectations of applications to local infrastructures.

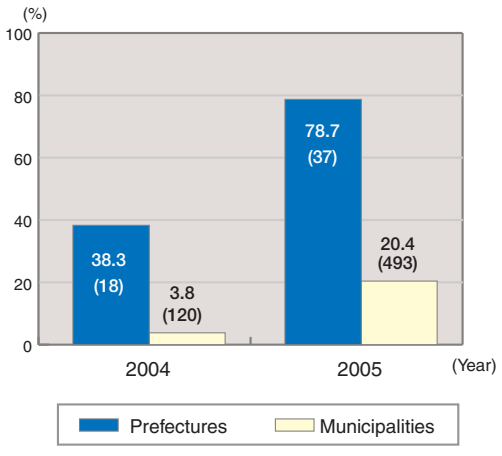
Figure 2-5-1 Transition in the number of online administrative procedures handled by national administrative agencies.

(Left: Applications and Notifications,
Right: Other than Applications and Notifications)



Produced from MIC, "Outline on Items Published by Administrative Agencies on the basis of Online Administrative Procedure Law".

Figure 2-5-2 Transition in installation ratio of all-purpose acceptance system (prefectures, municipalities)



*Values in ( ) show the number of organizations

Adapted from MIC, "Outline of Local Government Information Management"

Section 6

Trends Abroad

1 Information and communications market abroad

In 2004, total sales of telecommunications services in the world reached 1.2160 trillion US dollars (139.8400 trillion yen: 115 yen / 1 US dollar), a 10.6% increase over the previous year, and still keeping an 8% increase from the previous year **(Figure 2-6-1)**.

Sales of fixed communications were stable between 1998 and 2003; however, it jumped up to 520 billion US dollars (59.8 trillion yen) or a 21.8% increase over the previous year. Sales of international calls totaled 32.0 billion US dollars in 2004, decreased by almost 50% from the peak 60.0 billion US dollars (6.9000 trillion yen) in 2000. Sales of mobile communications achieved 454.0 billion US dollars (52.2100 trillion yen) in 2004, a 9.7% increase over the previous year.

2 Trends in ICT policies abroad

As is the case in Japan, other countries formulate new national strategies and revise existing strategies in response to changes in the market environment, including the progress of broadband, convergence, and ubiquitous networking.

For example, "i2010: European Information Society 2010," adopted in June 2005 by the EU, targets three different goals: 1. Realization of a Single European Information Space offering reasonable and secure broadband communications, rich and diverse contents and digital services; 2. Enhancement of research and technical innovation in the ICT field; and 3. Realization of an Inclusive European Information Society which offers high-quality public services and improves the quality of life. In the UK, "Connecting the UK: the Digital Strategy" was adopted in March 2005 to close the digital divide caused by ICT and the progress of broadband.

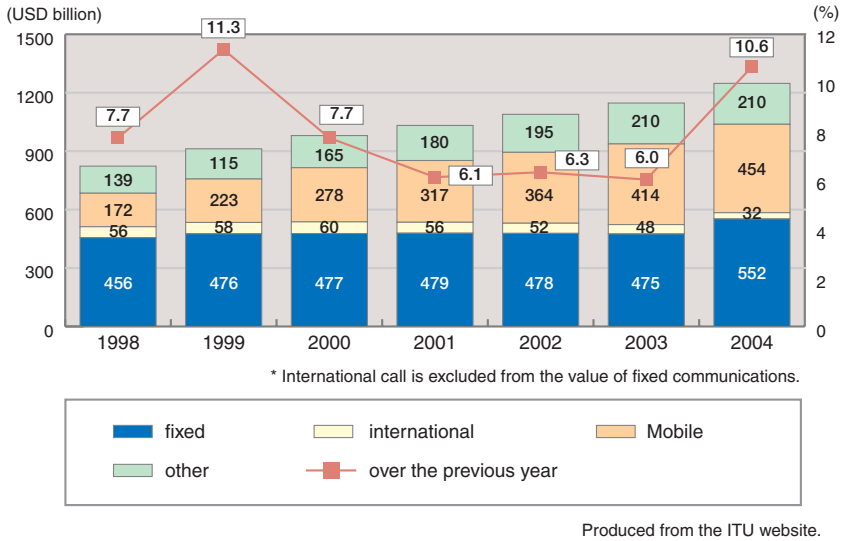
Korea adopted the "u-Korea basic plan" in March 2006 to promote ubiquitous society at the highest global standards.

(1) Trends in ICT policies in the United States

The FCC (Federal Communications Commission) has been reviewing its rules since the end of 2001 in order to promote broadband deployment in the United States. In 2003, the FCC adopted a decision to abolish the unbundling obligation for fiber-to-the-home (FTTH), which allowed Verizon to start establishing its fiber-optic networks.

In 2005, the FCC reviewed the regulatory classifications for wired broadband services such as DSL and FTTH, and adopted a decision to abolish the obligation for telecommunications carriers to offer transmission component of the wireline broadband Internet access ser-

Figure 2-6-1 Increase in telecommunications market (services)



Produced from the ITU website.

vice separately in August. This eliminated the requirements for telecommunications carriers to provide services such as DSL and FTTH to their competitors on an undifferentiated basis.

Along with the review of the broadband regulations, public concerns are growing regarding the telecommunications carriers' Internet dominance. In response to those concerns, the FCC adopted the "Internet Policy Statement" in August 2005 to show their continued commitment to promote the open and interconnected nature of the public Internet. This statement shows only the principles without enforcement.

Being pushed by companies providing services on the Internet, the movement has become more active since late 2005 to legislate a provision that prohibits telecommunications carriers from discriminating against other companies intending to provide services on the Internet to be incorporated into the Telecommunications act. This argument, so called "Net Neutrality", has become the focusing point in the US telecommunications policy and the Committees of the US Congress have held public hearings about this issue.

Telecommunications carriers are against this movement. They are also seeking measures to recoup their increasing investments on network facility, such as establishing a framework to ensure high-speed transmission only for the contents provided by companies who paid additional fees.

(2) Trends in ICT policies in EU

EU Member States were obliged to legislate the "2002 EU regulatory framework for electronic communications", and the legislation in all 25 Member States was completed by the Greek promulgation on its electronic communications low in February 2006. Each Member State also has a duty to conduct a market analysis on the 18 of the relevant markets contained in the EU Recommendation on relevant markets. As of the end of 2005, 12 Member States including Finland, France, Germany and the United Kingdom have almost completed their market review while the remaining 13 Member States have conducted the review only partially.

The European Commission is going to complete its first periodical review on the above framework toward the submission of a draft of its revision at the end of 2006. In November 2005, a public consultation was launched for five Directives (Framework Directive, Authorisation Directive, Access Directive, Universal Service Directive, and Privacy and Electronic Communications Directive) and Recommendations on relevant markets. As basic principles for the review, the European Commission indicates three points: 1. Reinforcing investments by infrastructure-based competitions; 2. Promoting innovation by clarification of the regulation policy for new technologies; and 3. Establishing a single market with unified rules within the region.

As for the "Television Without Frontiers Directive" enacted in 1989 to seek the harmonization of television program rules within the EU Member States, the European Commission had reviewed it in order to address the current various transmission forms, and in December 2005, it released a draft of its revision which included changing the name to "Audiovisual Media Services Directive." The revision expanded the applicable scope of the Directive to the provisions of motion pictures to the public via electronic communications.

Non-linear services which receivers can decide the timing of transmission are imposed minimum regulations such as juvenile protection and the prohibition of encouraging discrimination, whereas linear services (television broadcasting) which the transmitters can decide the timing of transmission are imposed regulations such as the proportion of European works and a right of reply, in addition to those above.

(3) Trends in ICT policies in China

The telecommunications market in China has been growing at 10% annually for more than 10 years.

According to the official statistics at the end of December 2005, fixed line telephone subscribers reached 350.43 million and mobile phone subscribers reached 393.42 million (exceeded 400 million subscribers as of end-February 2006), which placed China at the top of the world in terms of the number of subscribers (743.85 million for total). China still keeps an increase of almost 100 million subscribers a year. Because the penetration rate is still 30%, further growth will be expected.

Meanwhile, the number of Internet subscribers reached 111.00 million as of the end of December 2005, which placed China at the second position of the world. Of this, broadband subscribers accounted for more than half, 64.30 million.

The current hottest topic in the telecommunications market in China is the licensing for the third generation mobile phone (3G). Based on comments of a senior government official that 3G services will be offered by the 2008 Beijing Olympics, licenses are currently expected to be issued within 2006. However, since no official announcement has been released yet, there are various views on the direction of the licensing of China's standard TD-SCDMA system and the reorganization of telecommunications carriers.

Regarding policy aspects, legal frameworks have been developed, whereas the "Telecommunication act" which is the basic act in the telecommunications field has not yet been established. While a debate on the legislation of the Telecommunication act is growing, there are movements to handle new problems such as the regulation on IP telephone, and the establishment of universal service fund to promote the "Village Connected (extending telephone services to each village)" project which close the gap between villages and cities.

The software industry in China has been rapidly growing for the last several years and is expanding 5 times in 4 years, from 79.6 billion yuan in 2001 to 390 billion yuan in 2005. This is achieved not only by the

rapid economic growth, but also by the government's active policy efforts since 2000. In 2000, the outline draft of "The 10th 5 Year Plan (2001 – 2005) " including the promotion of software development was compiled and "Policies for Encouraging the Development of Software and IC Industries" (No.18 document) was announced in order to catch up with R&D and production capabilities in the software field in developed countries by 2010. "The 10th 5 Year Plan" was formally adopted in 2001, and in the following year, "the Action Plan for Promotion of the Software Industry (2002-2005)" (No. 47 document) was announced which sets specific targets including market size, scale for the export, and the number of professional engineers by 2005 on a basis of the "No.18 document".

Recently, an outline draft of "The 11th 5 Year Plan (2006-2010)," which is a guideline until 2010 was formulated at the National People's Congress (NPC) in March 2006.

(4) Trends in ICT policies in Korea

According to the Republic of Korea's Ministry of Information and Communication, the number of Internet users reached 33.01 million (70% of the total population) as of the end of 2005. The number of subscribers to broadband services was 12.19 million, which was still on an upward trend but the growth rate showed a significant slowdown. More and more efforts for seeking next generation services are being intensified to encourage the growth of the market.

In March 2006, the ICT Promotion Committee approved the "u-KOREA Basic Plan" as a new mid- and long-term national information and communications policy which took over "Broadband IT Korea Vision 2007," formulated in December 2003. This plan shows the prospect to accomplish the world's first ubiquitous society (u-society) and contribute to building an advanced nation "Advanced Korea" on the base of the world's top-level ubiquitous infrastructure. The goal of this plan is to raise national income more than 22,000 dollars, the nation's competitive power within 15th place, and the quality of life within 25th place by 2010, and to expand a ubiquitous network environment to the whole society to establish "u-Korea" at the national level by 2015.

Additionally, from the viewpoint of the expansion and development of IT industry, the government revised "IT 839 Strategy (formulated in 2004)," which had been promoted primarily by the Ministry of Information and Telecommunication in order to keep in step with the u-Korea strategy, and announced the revised plan as "u-IT 839 Strategy" in February 2006. As with "IT 839 Strategy," the strategy aims to make nine new major "IT Growth Engines" (including cutting-edge equipment, terminals, and the contents industry) grow as a whole by a synergy effect by using the value chain of the information and communication industry, introducing eight new major communications services at an early stage and promoting an investment in three major network infrastructures. To address issues which emerged as a result of the IT839 Strategy and changes in the IT environment, some modifications including changing target services are made in the u-IT 839 Strategy. This strategy aims for the growth at an average of 14.2% annually in eight new major information and communications services and nine new major "IT Growth Engines."

(5) Trends in ICT policies in India

The growth rate in the current telecommunications market in India is said to be fastest in the world. As of the end of February 2006, the total number of fixed telephone and mobile phone subscribers had reached 134.00 million, a 40% increase over the previous year, and the telephone penetration rate reached 12.28%. Of this, the number of fixed telephone subscribers was 49.45 million, and that of mobile phone subscribers were 84.88 million. In 2005, the growth rate of the fixed telephone market was 9.0%, whereas that of the mobile phone market achieved 58.1%.

Such development of the telecommunications market has been attained through a series of drastic promotions of policies which have been implemented since the late 1990s. In India, private carriers have been entering the market since the "National Telecom Policy" was announced in 1994. Whereas still more than 80% is dominated by two national carriers in the fixed telephone market, 13 carriers, including three major private carriers taking up more than a 60% share, are vigorously competing with each other in the mobile phone market. India's government is currently enhancing political efforts, aiming to increase the number of telephone subscribers to 250 million by the end of 2007, and formally decided, in October 2005, to raise the upper limit of the foreign direct investment (FDI) ratio in the telecommunications field from 49% to 74%. Due to the decision, carriers worldwide, including Vodafone (the United Kingdom) and Maxis (Malaysia), started to enter into the mobile phone market in India.

Meanwhile, India which is nine times as large as Japan is facing a serious digital divide between cities and rural villages. Lack of infrastructures in rural areas is a major obstacle to deploy communications services.

Considering 70% of more than a billion people live in rural areas, it is essential to enhance more efforts to deploy communications services in those areas.

In 2006, 3G services are scheduled to start and further growth in the mobile phone market is expected. India's government is also vigorously working on environmental improvements to expand broadband services, for example, establishing the next generation networks.