Chapter 2

Current Status of Information and Communications

Section 1

Trends in the Information and Communications Industry, etc.

1. Market Size

The market size of the Japanese information and communications industry became 123.1 trillion yen (a 7.0% increase over the previous year) in 2001, consistently expanding since 1995. Despite the continuing stagnation of economic activities in Japan, the information and communications industry has been achieving steady growth. The share of the information and communications industry in the total market size of all industries has also been making a consistent increase since 1995, marking 12.6% (a 0.8 point increase over the previous year) in 2001 (**Figure 2-1**).

2. Amount of Additional Value

The real GDP of the Japanese information and communications industry was 64.3 trillion yen (a 7.4% increase over the previous year) in 2001, continuing to make steady growth. Its proportion in Japan's overall real GDP was 12.0%, exceeding one-tenth. Furthermore, while the annual average growth rate of Japan's overall real GDP was 1.2% from 1995 to 2001, that of the information and communications industry was 9.3%, indicating a remarkable growth.

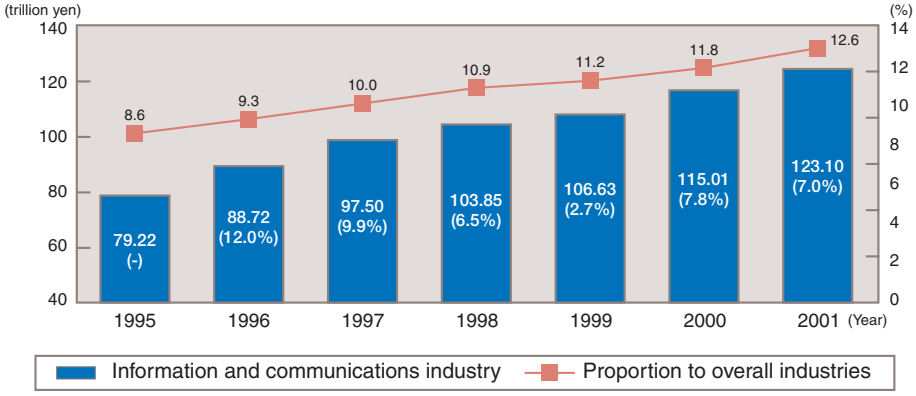
3. Employment

In 2001, the working population in the Japanese information and communications industry was 3.79 million, accounting for 7.1% of the entire working population in Japan. Although the working population in the information and communications industry had been slightly increasing from 1995 to 1999, it has been on a slight decline for two consecutive years since 2000. In terms of the working population in 2001 by type of industry, the information and communications industry came after the retail industry (6.37 million) and the construction industry (5.11 million).

4. Productivity

The growth rate of total factor productivity in the information and communications industry from 1995 to 2001 was 3.6%. This is the highest rate among all industries, far exceeding the 0.2% growth rate of overall industries. In 2001, the labor productivity for the information and communications industry was 16.99 million yen. The information and communications industry achieved the highest growth among all industries with respect to labor productivity from 1995 to 2001.

Figure 2-1: Transitions in the Market Size and Proportion of the Information and Communications Industry to Overall Industries



*The percentages in brackets indicate changes over the previous year.

Source: "Survey on Economic Analysis of IT."

5. Contribution of the Information and Communications Industry and IT Investment to the Macro-Economy

In 2001, the growing information and communications industry contributed 0.83% for an overall economic growth rate of 0.30%. Comparing the contribution of various industries to the economic growth rate, the information and communications industry is supporting economic growth while electric machinery and other industries are curbing economic growth (**Figure 2-2**).

IT investment not only contributes greatly to revitalizing the information and communications industry, but also has a considerable economic impact on other industries. Accordingly, the ripple effect of IT investment on the Japanese economy was estimated. In 2001, IT investment significantly increased production and employment in various industries, inducing a production value of 40.7 trillion yen and creating jobs for about 1.59 million people (**Figure 2-3**).

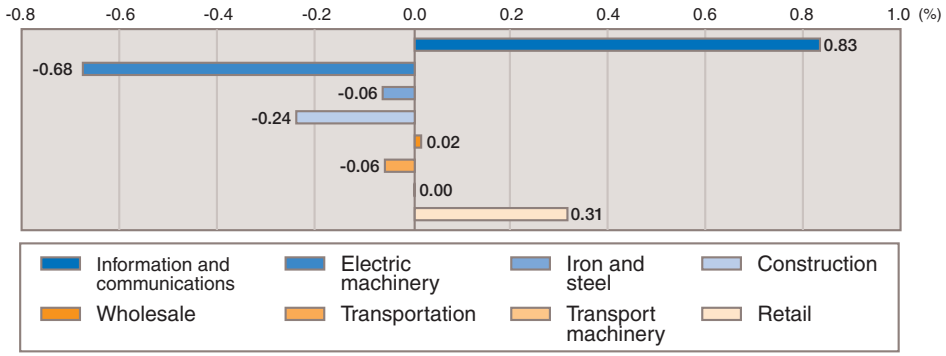
6. Capital Investment

The actual amount of capital investment in the communications/broadcasting industry in fiscal 2001 took a downward turn to 3.2 trillion yen (a 24.4% decrease from the previous year). The planned amount of capital investment for fiscal 2002 also decreased to 2.9 trillion yen (a 9.0% decrease from the previous year). Since the decline rates in the actual amount of capital investment in fiscal 2001 and the planned amount for fiscal 2002 for overall industries were 4.9% and 7.9% respectively, the decline rates were larger for the communications/broadcasting industry.

7. Information and Communications Venture Businesses

Amidst the stagnation of the Japanese economy, there are growing expectations for venture businesses founded on original technologies and business models to drive economic growth and job creation. While the number of business establishments in Japan decreased or remained

Figure 2-2: Contribution of Various Industries to the Japanese Economic Growth Rate (2001)



Source: "Survey on Economic Analysis of IT."

Figure 2-3: Ripple Effect of IT Investment on the Economy (2001)

Target of investment	Amount of investment (million yen)
Software (for computers)	7,803,445
Computers and auxiliary equipment	10,461,758
Wire telecommunications equipment	1,832,761
Wireless telecommunications equipment	4,926,418
Total	25,024,381

Value of production induced	40,692,751 (million yen)
Value of GDP induced	19,784,112 (million yen)
Jobs created	1,594,172 (persons)

Source: "Survey on Economic Analysis of IT."

the same from 1996 to 2001, the number of establishments in the telecommunications, broadcasting, and information services fields has increased by 62.7%. Among these, the number of establishments in the telecommunications field has almost tripled. Meanwhile, the number of venture start-ups from universities, etc. in the information and communications field was 32 in 2001 and 24 in 2002 (until the end of August), commanding about a 30% share of the total number of venture businesses that started up from universities, etc. in the same years.

8. International Trade/Investment

Japan's IT-related trade value in 2002 was 104.8 billion dollars in export (a 2.1% decrease from the previous year) and 59.6 billion dollars in import (a 6.7% decrease from the previous year). Both export and import have been declining for the second year in a row due to the impact of the collapse of the IT bubble economy. The amount of investment in the Japanese communications industry in fiscal 2001 was 6.62 billion dollars (a 2.5% decrease from the previous year), remaining more or less at the same level as in the previous fiscal year.

Section 2
Telecommunications Business

1. Telecommunications Carriers

At the end of fiscal 2002, the number of telecommunications carriers was 11,318 companies. The breakdown was 414 Type I carriers and 10,904 Type II carriers, with Type II carriers further divided into 115 Special Type II carriers (of which 109 companies were International Special Type II carriers) and 10,789 General Type II carriers. Among the telecommunications carriers, the number of those providing Internet connection services was 7,527 (an 11.7% increase over the previous year) at the end of fiscal 2002, showing a constant increase.

The telecommunications carriers made sales of 18.69 trillion yen (a 1.8% increase over the previous year) in fiscal 2001. Of this figure, 17.25 trillion yen was earned by Type I carriers (a 1.5% increase over the previous year) and 1.45 trillion yen by Type II carriers (a 5.2% increase over the previous year).

The share of new common carriers (NCC) in the overall frequency of long-distance communications (inter-prefectural communications) has come to dominate almost half of such communications, increasing from 37.3% in fiscal 1997 to 49.8% in fiscal 2001. At the same time, the share of NCCs in the overall frequency of local communications (intra-prefectural communications) increased from 10.9% in fiscal 1997 to 34.8% in fiscal 2001. Furthermore, the share of NCCs in the overall frequency of international communications expanded from 34.2% in fiscal 1997 to 55.9% in fiscal 2001, exceeding 50% for the first time. In this manner, competition is rapidly intensifying in the area of Japanese telecommunications business.

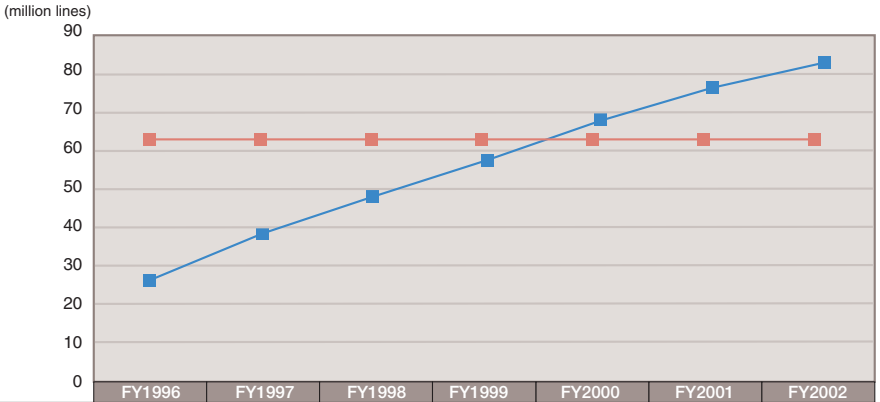
2. Telecommunications Services

Ever since the first launch of a subscriber telephone service in 1890, the telecommunications services in Japan have been increasingly diversifying with entry of NCCs in the local telephone service market and start of ISDN services, etc. In recent years, telecommunications services that support high-speed and large-capacity data communications, such as DSL, cable Internet, and IMT-2000, have been rapidly diffusing. In addition, IP telephone services using wireless LAN services and broadband circuits as access means began to be provided in full fledge in 2002. Services of calling to and from general subscriber telephones to IP telephones by using numbers starting with "050" are scheduled to be commenced by the end of 2003.

The total number of subscribers to subscriber telephone services was 51.16 million (a 0.3% increase over the previous year) at the end of fiscal 2002, increasing for the first time in six years. The number of subscribers to cell phone services was 75.66 million (a 9.5% increase over the previous year) at the end of fiscal 2002, indicating a slight slowdown in growth since fiscal 2001.

Comparing fixed-line communications (subscriber telephones and ISDN) and mobile communications (cell phones and PHS), the number of subscribers to mobile communications surpassed that to fixed-line communications in fiscal 2000, and the gap is continuing to widen (**Figure 2-4**).

Figure 2-4: Transitions in the Number of Subscribers to Fixed Communications and Mobile Communications



	FY1996	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002
Fixed communications	62.64	62.85	62.63	62.23	61.96	61.33	60.77
Mobile communications	26.91	38.26	47.31	56.85	66.78	74.82	81.12

3. Telecommunications Rates

With respect to the level of telecommunications rates from 1995 to 2002, the "Corporate Service Price Index (CSPI; 1995 base)" of the Bank of Japan shows that both the rates for fixed-line communications and those for mobile communications made a larger drop than the overall average of the CSPI. The fall of rates is particularly notable for international telephone services (a 51.2 point decrease from 1995) in fixed-line communications, and cell phone services (a 50.9 point decrease from 1995) in mobile communications.

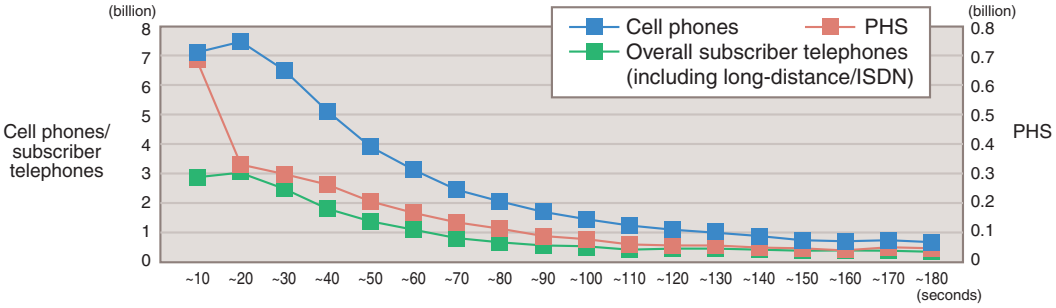
Comparing the communication rates with those in major cities of other countries, the levels of rates of international telephone services, domestic leased circuit services, and cell phone services in Japan have all shown a steep or average fall from fiscal 1996 to fiscal 2001.

4. Status of Use of Telecommunications Media

In fiscal 2001, the total number of communications in Japan was 138.4 billion (a 4.4% decrease from the previous year) and the total communication time was 6.57 billion hours (a 6.5% decrease from the previous year), both turning to a decline. As for the number of communications by type of originating terminal, the number of communications originating from cell phones continued to be on an increase as in the previous year at 45.24 billion (a 3.2% increase over the previous year). On the other hand, the number of communications originating from fixed-line telephones declined to 90.53 billion (a 7.0% decrease from the previous year) and those originating from PHS declined to 2.62 billion (a 27.0% decrease from the previous year).

Looking at the distribution of the time consumed per communication, communications of 30 seconds or less accounted for about 50% of total cell phone communications, about 40% of total PHS communications, and about 30% of total subscriber telephone communications, commanding large proportions in all of these terminal types. It is notable that the proportion of communications that end within 10 seconds is overwhelmingly large in the case of PHS (**Figure 2-5**). One of the assumable reasons is the extensive use of text message communications, which require short communication time, in PHS communications.

Figure 2-5: Number of Communications by Length of Communication Time



Source: Based on "Status of Use of Communications in Japan Based on Traffic," MPHPT.

Figure 2-6: Transitions in Optical Fiber Network Coverage by City Size

(%)

Category \ End of FY		Coverage								
		1994	1995	1996	1997	1998	1999	2000	2001	2002
Government-designated cities, prefectural capitals, and cities of equivalent size	All areas	16	21	28	34	44	56	61	77	89
	Major areas (business areas)	32	47	74	89	92	93	94	95	97
Cities with a population of 100,000 or more	All areas	8	11	11	13	22	31	40	54	73
	Major areas (business areas)	6	23	48	59	69	72	72	77	85
Other cities		2	3	5	6	8	14	22	38	49
Nationwide		10	13	16	19	27	36	43	59	72

* "Major areas" indicates areas in which offices constitute 50% or more of the subscribers.

5. Telecommunications Networks

The optical fiber network coverage at the end of fiscal 2002 was 72% (a 13 point increase over the previous year) on a national average based on the concentration points of telecommunications carriers, showing steady progress. However, there are still gaps in coverage between urban areas and rural areas with the coverage in the government-designated cities, prefectural capitals, and cities of equivalent size being 89% (97% in business areas) and that in cities with a population of 100,000 or more being 73% (85% in business areas), while the coverage in other cities is only 49% (**Figure 2-6**).

6. Complaints and Inquiries on Telecommunications Services

The number of complaints and inquiries on information and communications received by the National Consumer Affairs Center of Japan in fiscal 2002 was 142,536, about 1.5 times more than in fiscal 2001. Among troubles related to information and communications, those related to the Internet are increasing remarkably. Frequently made complaints and inquiries are that one has received a bill for unaccountable information fees or international call fees or one has received equipment for a broadband service despite declining participation in a free trial campaign.

Section 3

Broadcasting Business

1. Broadcasters

Japan Broadcasting Corporation (NHK) provides its domestic broadcasting services through six terrestrial broadcasting channels, both television and radio, and six BS satellite broadcasting channels, specifically, BS-1 (analog/digital simultaneous broadcasting), BS-2 (analog/digital simultaneous broadcasting), and Hi-Vision (analog/digital simultaneous broadcasting).

At the end of fiscal 2002, the number of commercial broadcasters was 1,023 (an increase of 12 companies over the previous year), which break down into 358 terrestrial broadcasters (an increase of 10 companies over the previous year), 137 satellite broadcasters (a decrease of nine companies from the previous year), and 528 cable television broadcasters (cable television broadcasters engaged in self-originating broadcasting using licensed facilities) (an increase of 11 companies over the previous year) (**Figure 2-7**).

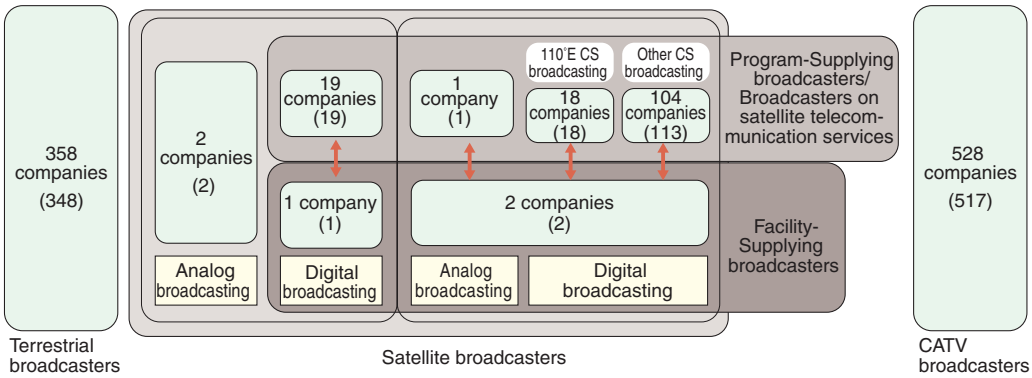
A system of broadcasting business on telecommunications services, which is broadcasting using telecommunications circuits, such as communication satellites and optical fiber, was introduced in January 2002. The number of broadcasters registered at the end of fiscal 2002 was 24 broadcasters engaged in broadcasting using satellite services and two broadcasters engaged in broadcasting using wire telecommunications services.

Broadcasters made sales of 3.76 trillion yen (a 0.7% increase over the previous year) in fiscal 2001. They are broken down into the business income of NHK of 657.6 billion yen (a 0.8% increase over the previous year), sales by commercial terrestrial broadcasters of 2.60 trillion yen (a 1.9% decrease from the previous year), sales by commercial satellite broadcasters of 233.5 billion yen (a 23.5% increase over the previous year), and sales by cable television broadcasters of 271.8 billion yen (a 10.4% increase over the previous year). Although commercial terrestrial broadcasters decreased their sales, other broadcasters are continuing to expand their sales.

2. Broadcasting Services

Year 2003 marks the 50th anniversary of terrestrial television broadcasting in Japan, which was first launched by NHK in February 1953 and by Nippon Television Network Corporation in August of the same year as the first commercial broadcaster. Colorcast, which was commenced in full scale in 1960, is now widely diffused among citizens as the most popular media. Digital terrestrial broadcasting is planned to be launched in December 2003 in the Kanto, Kinki, and Chukyo regions.

Figure 2-7: Breakdown of Commercial Broadcasters (end of FY 2002)



*The numbers in brackets indicate the numbers of broadcasters at the end of fiscal 2001.

The number of commercial terrestrial television broadcasting stations operating at the end of fiscal 2002 was 127. Meanwhile, the number of stations engaged in community broadcasting, which was institutionalized in January 1992, was 162 at the end of fiscal 2002, making a steady increase.

With respect to satellite broadcasting, BS analog broadcasting started in June 1989 and BS digital broadcasting began in December 2000. As for CS broadcasting, analog broadcasting commenced in April 1992 and digital broadcasting in June 1996, more or less completing the shift to digital broadcasting. In addition, "110°E CS broadcasting," which is CS broadcasting using satellite "N-SAT-100" that was launched at the same 110°E as BS in March 2002, started.

At the end of fiscal 2002, the number of subscribers to cable television broadcasters engaged in self-originating broadcasting using licensed facilities counted 15.14 million (a 16.5% increase over the previous year), and the household diffusion rate steadily increased to 31.2%. The number of subscribers to overall cable television has also increased to 23.33 million (a 9.8% increase over the previous year).

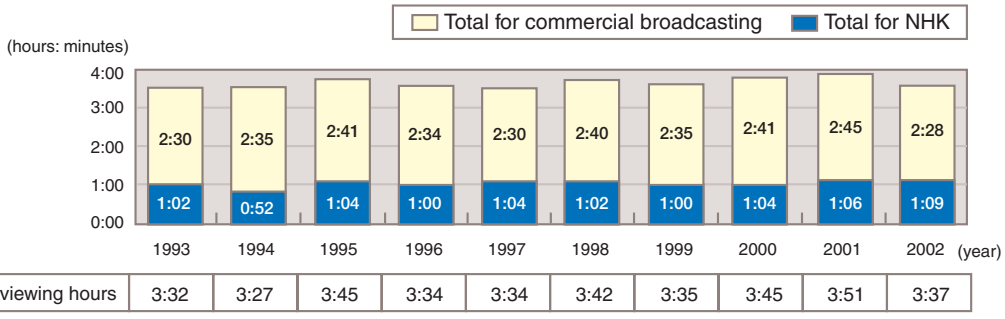
Cable television facilities are not only used for broadcasting, but also for providing Internet connection services and communications services such as IP telephone service. Thus, cable television has developed into a local comprehensive information and communications infrastructure providing "full service" encompassing communications and broadcasting services. Internet connection services using cable television networks were provided by 282 companies and used by 2.07 million subscribers at the end of fiscal 2002. Furthermore, as a measure to respond to the broadband trend, efforts are being made to use optical fiber for the trunk lines of the cable television networks to broaden the transmission capacity.

With respect to International broadcasting intended for reception overseas, NHK provides NHK World Radio Japan through short-wave broadcasting and NHK World TV through satellite broadcasting. As for program distribution services for overseas countries, NHK and commercial broadcasters provide news, information, and entertainment programs to overseas broadcasters.

3. Status of Use of Broadcasting Media

According to the National Individual Audience Rating Survey conducted by the NHK Broadcasting Culture Research Institute in June 2002, the length of television viewing per day (weekly average) was three hours 37 minutes. The breakdown was commercial broadcasting for two hours 28 minutes and NHK for one hour nine minutes, indicating a slight decline in the length of viewing commercial broadcasting from 2001 (**Figure 2-8**). Looking at the viewing rate by hour, the television viewing peaks at seven o'clock to half-seven in the morning, twelve o'clock to half-twelve in the day, and eight o'clock to nine o'clock at night.

Figure 2-8 Transitions in the Length of Television Viewing per Day (weekly average)



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total viewing hours	3:32	3:27	3:45	3:34	3:34	3:42	3:35	3:45	3:51	3:37

Source: Based on "National Individual Audience Rating Survey (Survey in June 2002)," NHK Broadcasting Culture Research Institute.

Section 4

Postal Service

1. Finance of Postal Service

Due to the sluggish growth of postal service revenues, the finance of postal service marked a deficit of 62.5 billion yen in fiscal 1998, 55.3 billion yen in fiscal 1999, and 10.0 billion yen in fiscal 2000, running into the red for three consecutive years despite the cost-cutting efforts through implementation of various efficiency measures. However, as the effects of the efficiency measures gradually turned out, the amount of deficit decreased every year, and a surplus was recorded in fiscal 2001 for the first time in four years since fiscal 1997. In fiscal 2002, a supplementary budget was compiled to leave a deficit of 37.9 billion yen due to the drop in postal service revenue.

2. Mail Volume

The total mail volume (total of the number of domestic postal items and the number of international postal items processed) in fiscal 2002 was 26.2 billion items (a 2.0% decrease from the previous year), running below the number in the previous year for the first time in eight years since fiscal 1994.

Comparing the total mail volume in various countries in fiscal 2001, Japan ranked third in the world after the United States and China. However, in terms of the annual mail volume per capita in fiscal 2001, Japan ranked 18th in the world, accounting for about 28% of the volume in top-ranking Switzerland.

3. Post Office Network

Post offices of Japan Post are located at all municipal areas and continue to provide impartial, universal services nationwide. At the end of fiscal 2002, the number of facilities engaged in postal services was 24,752 post offices (a 0.1% decrease from the previous year), 150,617 postage stamps sales agencies/revenue stamp sales agencies (a 0.7% decrease from the previous year), and 71,194 parcel acceptance contractors (a 9.8% decrease from the previous year).

Section 5
Information Flow

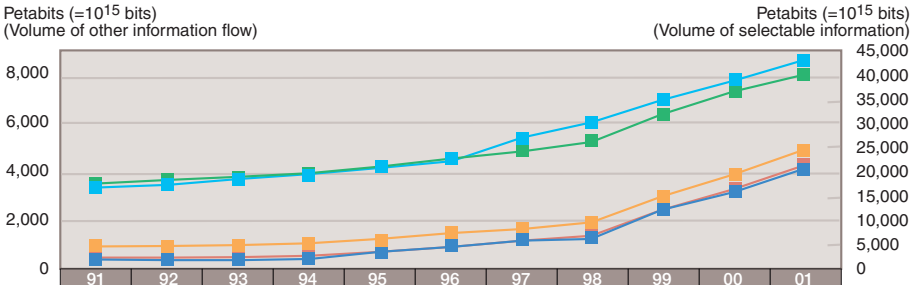
1. Information Flow in Japan

In order to comprehensively and quantitatively understand the volumes of diverse information flows that constitute the information environment, the MPHPT conducts "Census of Information Flow." The average annual increase rates of information volumes in Japan over the past ten years (from fiscal 1991 to fiscal 2001) was 28.5% for information supplied, 24.2% for information transmitted, 9.8% for selectable information, 8.4% for consumable information, and 17.5% for information consumed. All types of information have consistently increased, and the growth has been particularly remarkable in recent years (**Figure 2-9**). This is because the volume of information flow in "dedicated service (data transmission)" has been increasing at an accelerating pace due to the development of IT and networks.

2. Regional Information Flows

A breakdown of the share of information transmitted in fiscal 2001 by prefecture shows that Tokyo Metropolis had the largest share with 16.1%, leading Osaka Prefecture that has the second largest share (6.6%) and others by a large margin. As in the category of selectable information, Tokyo Metropolis had the largest share in selectable information with 13.1%, once again leading second place Osaka Prefecture (9.0%) but with a slightly narrower margin than in the former category. In addition, in the category of information consumed the share of Tokyo Metropolis (10.8%) leads second place Osaka Prefecture (6.8%), with the gap between the two being similar to the margin observed in the category of selectable information. Meanwhile, the shares of information consumed indicate relatively smaller regional gaps compared to the cases of information transmitted and selectable information, with the shares of many prefectures distributed around the national average. All of the above suggest that even though the regional gap in information flow is large as far as the transmitting of information is concerned, such a regional gap is relatively narrow when it comes to the consumption of information.

Figure 2-9: Transitions in the Volume of Information Flow in Japan



	91	92	93	94	95	96	97	98	99	00	01
Information supplied	328.2	349.4	378.2	419.1	545.1	759.2	951.3	1,151.8	2,208.0	3,033.0	4,039.2
Information transmitted	484.9	503.2	531.6	574.2	705.9	928.4	1,124.5	1,325.4	2,383.6	3,214.0	4,219.0
Selectable information	16,820.8	17,646.9	18,660.1	19,527.5	20,972.5	22,320.9	26,888.8	30,323.5	34,757.2	38,740.6	42,798.0
Consumable information	3,573.5	3,726.4	3,862.1	3,930.1	4,224.9	4,593.1	4,872.1	5,235.8	6,371.0	7,261.6	7,974.8
Information consumed	964.3	986.3	1,028.7	1,071.3	1,234.9	1,443.0	1,647.9	1,870.6	2,936.8	3,800.8	4,828.0

* The figures show the various types of information converted into bits.

Source: "Census of Information Flow."

Section 6

Human Resources Development

1. IT Education in Public Schools

The installation rate of educational computers in public schools was one for 11.1 pupils in fiscal 2001. In addition, most of the public schools are now connected to the Internet with the connection rate jumping from 57.4% in fiscal 1999 to 97.9% in fiscal 2001.

The proportion of public school teachers who can operate computers was 84.9% in fiscal 2001. At the same time, the proportion of teachers who can teach computer classes became 47.4% in fiscal 2001.

2. Development of IT Experts

(1) Necessity for IT-capable human resources in companies

Since IT has come to be used widely and frequently in corporate activities, such as e-commerce and introduction of various information systems, it has become increasingly important to develop and secure human resources that can utilize IT in order to maintain competitiveness in corporate activities. Today, 42.0% of companies recognize lack of people capable of network administration and management as a problem in using information and communications networks (it is a reason for not using information and communications networks in the case of companies that do not use such networks) (**Figure 2-10**). The most commonly implemented IT education for employees in companies was "external IT educational/training programs" with 25.3% and "in-house IT educational/training programs" with 21.2%. However, the proportion of companies that had not implemented any IT education for employees was the highest at 42.6% (**Figure 2-11**).

(2) Development of IT experts in universities, etc.

In order to respond to the needs for IT experts and to maintain/increase Japan's international competitiveness, there are calls for developing people with advanced, expert IT knowledge and technology even in university education. According to a survey by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), the number of people who acquired a master's degree or a doctor's degree in an IT-related field was 14,808 and 1,663, respectively, in fiscal 2001.

Figure 2-10: Problems Companies Face in Using Information and Communications Networks

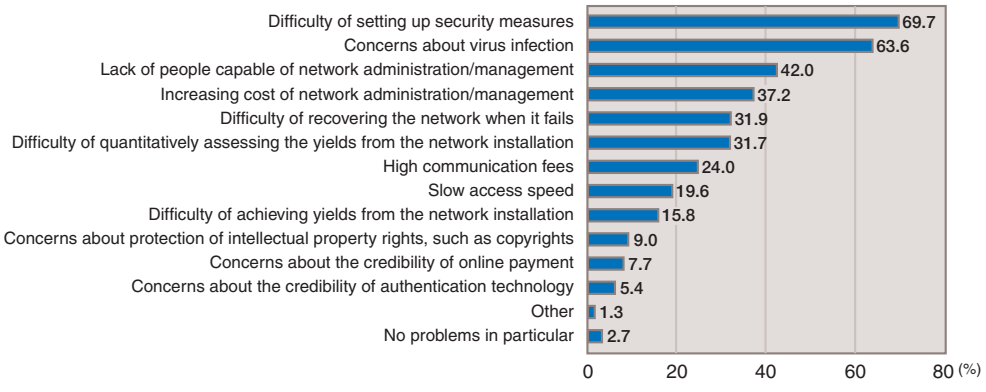
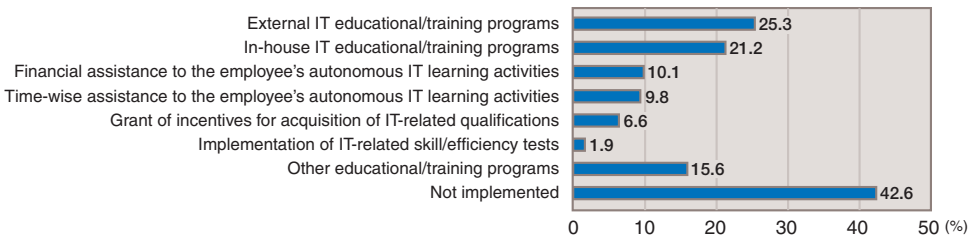


Figure: 2-11: Implementation Status of IT Education for Employees in Companies



Source (Figures 2-10&2-11): "Communications Usage Trend Survey in 2002," MPHPT.

Section 7
Digitization of Homes and Companies

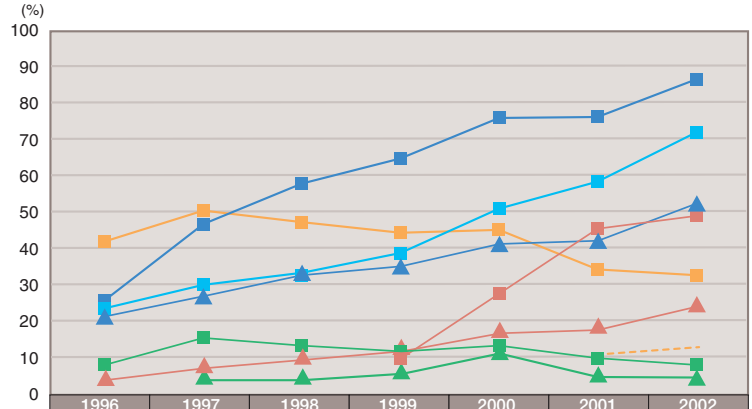
1. Digitization of Homes

With regard to the ownership rate of information and communications equipment among households at the end of fiscal 2002, 86.1% of households owned cell phones (a 10.5 point increase over the previous year) of which 47.7% owned Internet-supporting cell phones (a 3.1 point increase over the previous year), 71.7% of households owned PCs (a 13.7 point increase over the previous year), 50.8% owned facsimiles (a 9.4 point increase over the previous year), and 23.8% owned car navigation systems (a 6.3 point increase over the previous year), showing a consistent increase overall (**Figure 2-12**).

The annual household expenditure for various information and communications services (total of telephone communication fees and broadcast reception fees) was 132,864 yen (a 6.8% increase over the previous year) in 2002. While household consumption expenditure has decreased by 0.8% from the previous year, expenditure for information and communications services is on an increase, so the proportion of expenditure for information and communications services in the overall household expenditure expanded to 3.6% (a 0.2 point increase over the previous year).

According to a survey conducted by the Communications Research Laboratory, the average time consumed for using the Internet per day (total for PCs, cell phones, and PHS) was 32 minutes and the average time consumed for reading newspaper was 34 minutes (a 20.1% increase over the previous year) in 2002. On the other hand, the average time consumed for viewing television was overwhelmingly long at three hours and 22 minutes. The time consumed for viewing television and reading newspaper tends to be long for people of higher age, but the time consumed for using the Internet is longer for younger generations. The time consumed for using the Internet is longer than that for reading newspapers for people under the age of 50.

Figure 2-12: Transitions in the Ownership Rate of Information and Communications Equipment (households)



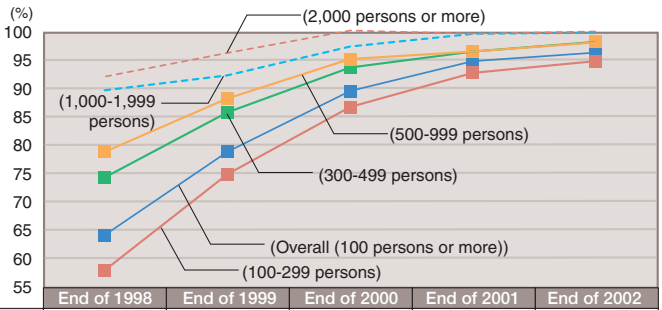
	1996	1997	1998	1999	2000	2001	2002
Cell phones (including Internet-supporting models)	24.9	46.0	57.7	64.2	75.4	75.6	86.1
Internet-supporting cell phones	–	–	–	8.9	26.7	44.6	47.7
PHS	7.8	15.3	13.1	11.5	13.0	9.1	7.6
Word processors	41.7	50.0	46.9	44.2	44.7	33.7	31.8
PCs	22.3	28.8	32.6	37.7	50.0	58.0	71.7
Facsimiles	20.7	26.4	31.9	34.2	40.4	41.4	50.8
Car navigation systems	3.3	7.0	9.3	11.6	16.0	17.5	23.8
Personal digital assistants	–	3.3	3.3	4.9	10.3	4.1	3.3
Internet-supporting video game equipment	–	–	–	–	–	9.0	11.0
Home appliances connectable to the Internet	–	–	–	–	–	–	3.2

Source: "Communications Usage Trend Survey."

2. Digitization of Companies

With regard to the Internet utilization rate of companies, 96.1% of companies (a 1.6 point increase over the previous year) were connected to the Internet at the end of 2002. The utilization rate was 95.1% (a 1.9 point increase over the previous year) even in relatively small companies with employees of 100 to 299 people, and the gaps by size of company have almost disappeared (**Figure 2-13**). As of the end of 2002, 80.0% of all companies had their own Web sites.

Figure 2-13: Transitions in the Internet Utilization Rate of Companies



	End of 1998	End of 1999	End of 2000	End of 2001	End of 2002
Overall	63.8	78.3	89.3	94.5	96.1
100-299 persons	57.6	74.4	86.9	93.2	95.1
300-499 persons	74.8	86.0	94.0	97.6	97.8
500-999 persons	78.6	87.8	95.9	96.6	98.2
1,000-1,999 persons	89.8	92.3	97.2	99.1	100.0
2,000 persons or more	92.3	96.0	100.0	99.4	100.0

Source: "Communications Usage Trend Survey," MPHPT.

Section 8

R&D

1. R&D in the Information and Communications Industry

The R&D expenditure in the information and communications industry was 4.6 trillion yen (a 2.1% increase over the previous year) in fiscal 2001. While overall R&D expenditure for the private sector has stayed at the same level due to the stagnation of the Japanese economy and other factors, the proportion of R&D expenditure in the information and communications industry to that in overall industries was 39.7% in fiscal 2001, accounting for about 40% of the total.

2. R&D in the Information and Communications Field

The research funds used in the field of information and communications by companies, non-profit organizations/public institutions, and universities, etc. in fiscal 2001 totaled 2.3 trillion yen. Of this figure, the research expenditure in companies engaged in the fields of telecommunications, electronics, and electric measuring equipment accounted for 42.8% of the total. In fiscal 2001, the number of joint research projects between national universities and companies in the field of information and communications was 763, accounting for 14.5% of the overall joint research projects by national universities and companies (5,264 projects).

Section 9

Trends Abroad

1. IT National Strategies of Other Countries

Similar to Japan, other countries are also formulating new IT national strategies or reviewing their existing strategies to respond to the progress in information and communications. For example, the EU adopted the "eEurope 2005 Action Plan" in June 2002. In addition, the Republic of Korea formulated the "e-Korea VISION 2006" in April 2002.

2. Status of Use and Market Size of Telecommunications in the World

The number of Internet users in the world is continuing to grow. According to an estimate released by NUA, the number of Internet users reached approximately 606 million as of September 2002. The number was the highest for the European region with 190.91 million people (31.5%), followed by the Asia-Pacific region with 187.24 million people (30.9%), and the North American region with 182.67 million people (30.2%).

With regard to the use of telecommunications services in the world in 2001, the number of fixed telephone lines (including public telephones) was 1.05 billion and the number of subscribers to mobile phones was 955 million. The number of mobile phone subscribers is rapidly increasing, and mobile phone subscribers are expected to outnumber fixed telephone lines in 2002.

According to the International Telecommunication Union (ITU), the market size of telecommunications in the world expanded to 968 billion dollars (a 5.2% increase over the previous year) in 2001. Of this, the size of the fixed communications market was 472.0 billion dollars (a 1.0% decrease from the previous year) and the size of the mobile communications market dramatically expanded to 317.0 billion dollars (a 14.0% increase over the previous year) in 2001.

3. Trends in Communications Carriers and Broadcasters Overseas

In 2001, small, new entrant carriers, such as DSL providers, failed one after another in the United States. In July 2002, WorldCom (current MCI), the second largest long-distance/international communications carrier in the United States failed due to revelation of accounting fraud. Also in Europe, major communications carriers in the respective countries, including BT, Deutsche Telekom, and France Telecom, are withdrawing from or selling overseas businesses and non-core divisions because of financial difficulties, such as a growth of debt. In addition, some next-generation cell phone businesses are being postponed or withdrawn due to a steep rise in license fees and IT depression. In this manner, there has been a wave of failures and financial troubles among communications carriers and broadcasters in Europe and the United States.

4. Trends in IT Policies in the United States

With the aim of promoting diffusion of broadband, the Federal Communications Commission (FCC) started a series of surveys from December 2001 to March 2002, on [1] whether or not wire broadband access services should be positioned as non-regulated information services and [2] the extent to which the unbundling regulation (a regulation that obligates release of the network to competitive carriers by network element) imposed on Bell-group local telephone carriers for promoting local competition should be eased for broadband services. With regard to the unbundling regulation, the FCC announced that it would partially ease the regulation for Bell-group local telephone carriers in February 2003.

5. Trends in IT Policies in the EU

In June 2002, the European Council adopted the "eEurope 2005 Action Plan (An Information Society for All)." This plan succeeds the "eEurope 2002 Action Plan" that was aimed at diffusing the Internet throughout Europe. The objectives are: [1] to improve the environment for private investment and create new jobs; [2] to raise productivity; [3] to innovate public services and education; and [4] to provide the opportunity for all people to participate in a global information society.

Furthermore, in the effort to create a dynamic and competitive telecommunications market within the EU, such as promoting competition and converging communications and broadcasting, the EU reviewed the conventional framework of regulations in the telecommunications field, and promulgated and enforced a series of new telecommunications regulations in April 2002 (July 2002 with regard to the EU Directive on Privacy and Electronic Communications).

6. Trends in IT Policies in Asia

China, which achieved official entry to the WTO in December 2001, is developing legal systems and promoting release of the telecommunications market. As for legal systems, China enacted the "Telecommunications Administrative Regulations," which serves as the basic

law in the telecommunications field, in September 2000. The Regulations categorize telecommunications services into "basic telecommunications services" and "value-added telecommunications services," and open up the market to foreign capital by allowing foreign capital injection of up to 49% in basic telecommunications services and providing no restrictions on foreign capital in value-added telecommunications services. In addition, the "Administrative Regulations on Foreign-Invested Telecommunications Enterprises," which stipulate conditions and procedures for launching telecommunications services by a joint venture between foreign capital and a Chinese company, went into force in January 2002.

With regard to IT strategies, Hong Kong released the "2001 Digital 21 Strategy" in May 2001, setting initiatives and detailed targets for five major target fields. As for telecommunications services, the (domestic) fixed communications market within Hong Kong was completely liberalized in January 2003, enabling free business entry without limitations in the number of licenses granted to carriers.

The Republic of Korea released the "e-Korea VISION 2006," which modified and supplemented the "CYBER KOREA 21" in April 2002, with objectives to "raise citizens' information utilization abilities," "strengthen the international competitiveness of all industries," "realize a transparent and productive smart government," etc.

7. Status of International Digital Divide

Comparing the diffusion status of information and communications in various countries, outstanding gaps are found between high-income countries and low-income countries, so the closing of the international gaps in use of information and communications (international digital divide) has become a major issue. According to the "World Telecommunication Indicators 2002" released by the ITU, high-income countries (countries with a per-capita gross national income (GNI) of 9,266 dollars or more), which only command 14.7% of the global population, cover 51.9% of the global number of fixed telephone lines, 58.3% of global mobile phone subscribers, and 72.6% of global Internet users. On the other hand, low-income countries (countries with a per-capita GNI of 755 dollars or less), which account for 40.8% of the global population, merely cover 6.9% of the global number of fixed telephone lines, 2.5% of global mobile phone subscribers, and 3.1% of global Internet users.