

Outline of the Telecommunications Business in Japan



**TELECOMMUNICATIONS BUREAU,
MINISTRY OF PUBLIC MANAGEMENT,
HOME AFFAIRS, POSTS AND
TELECOMMUNICATIONS (MPHPT)**

February 2003

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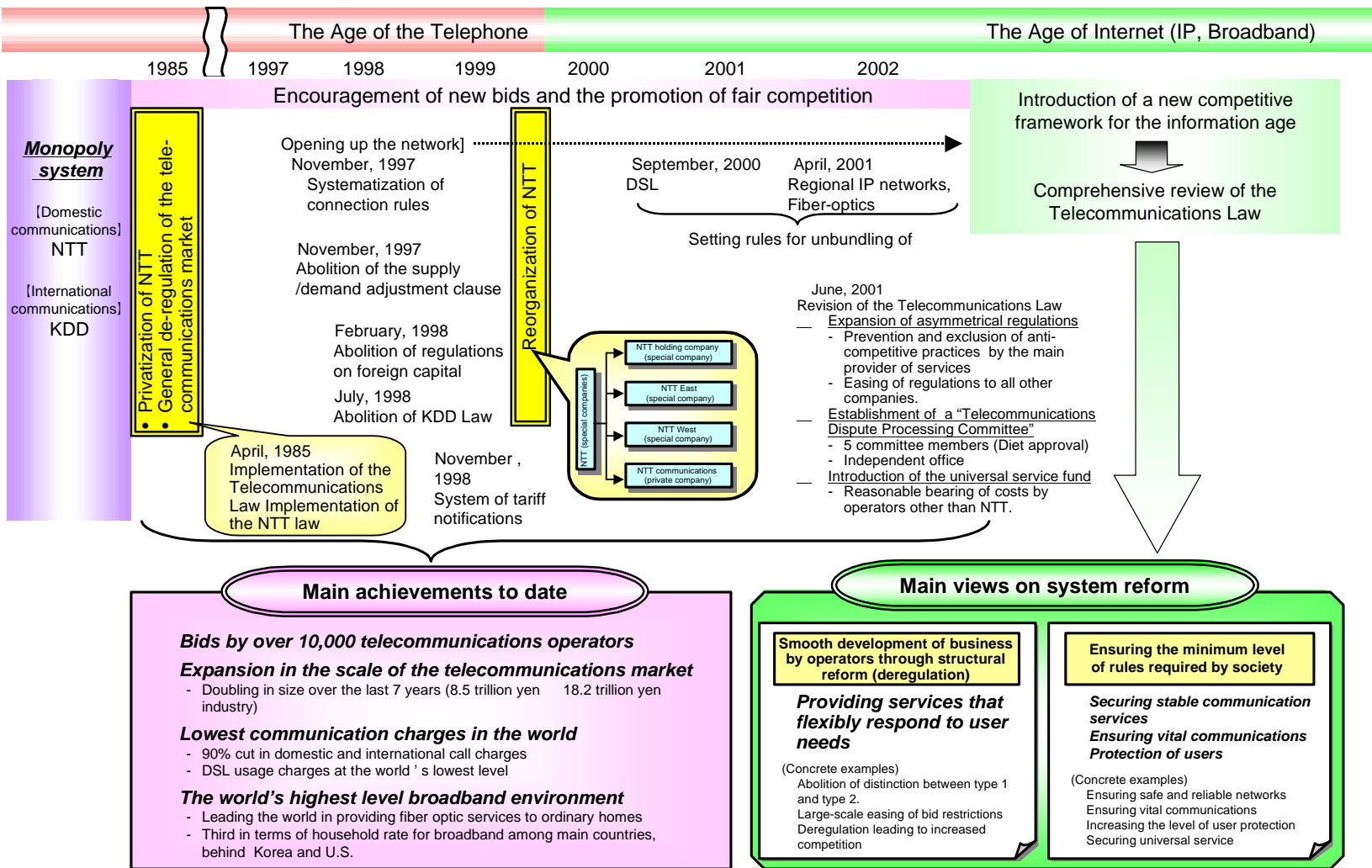
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I. Development of Japanese pro-competition policy

1. The Promotion of Pro-Competitive Policies in the Telecommunications Field



2. Pro-competition policy in the telecommunications carriers business for promoting the IT revolution

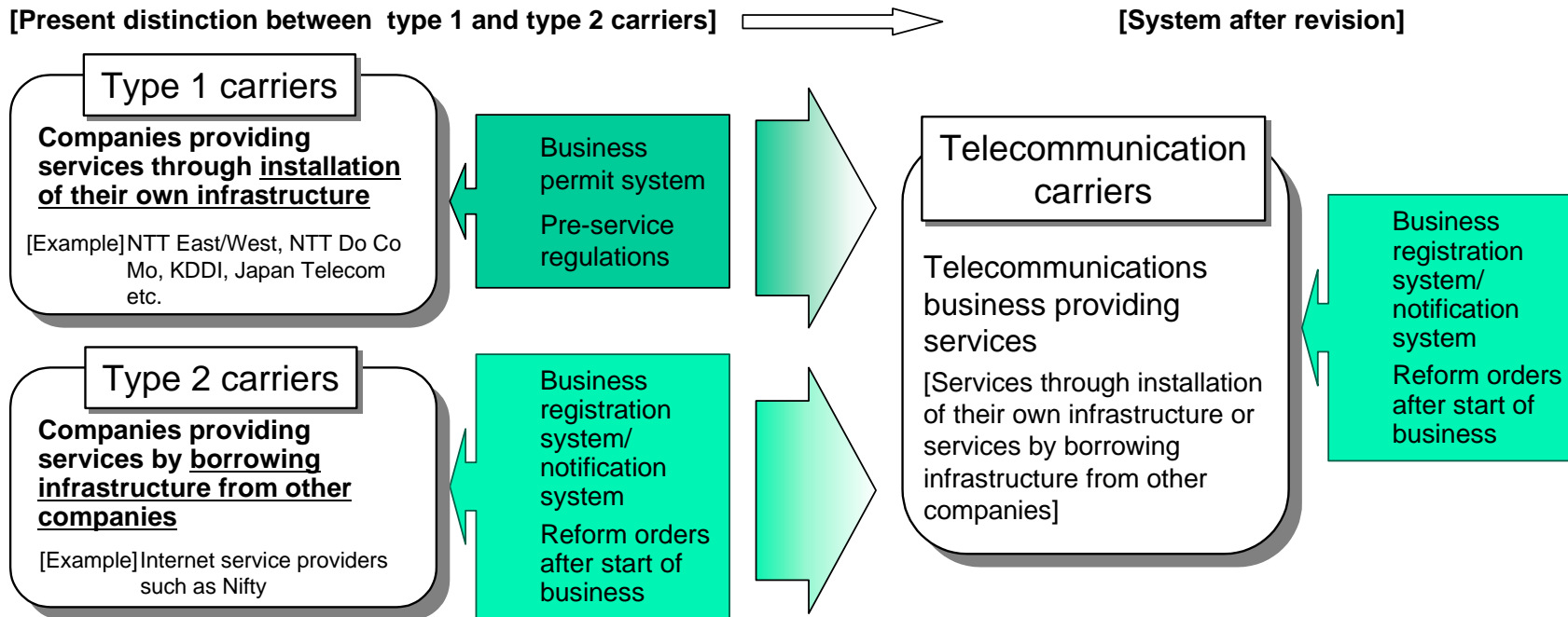
On the basis of the first recommendation compiled by the Telecommunications Council concerning the pro-competition policy in the telecommunications industry to promote the IT revolution (published on Dec. 21, 2000), the three-year deregulation plan approved by the Cabinet on March 31, 2001, and others, the government submitted revision bills of the Telecommunications Business Law and other related laws to the 151 Regular Diet session. The bills were legislated on June 15, 2001 and most of them were put into force on Nov. 30 of the same year.

Background and objectives

Drastic changes are occurring in the telecommunications network and market structure with the move to IP and broadband.
In order to respond flexibly to these changes, stimulate the Japanese economy by promoting the influx of new operators and the flexible business development of existing operators.

Content of the Bill

Abolish the distinction between “type 1 carriers” and “type 2 carriers” in the current Telecommunications Law, in which rules differ according to whether infrastructure equipment has been installed or not, and generally ease restrictions.



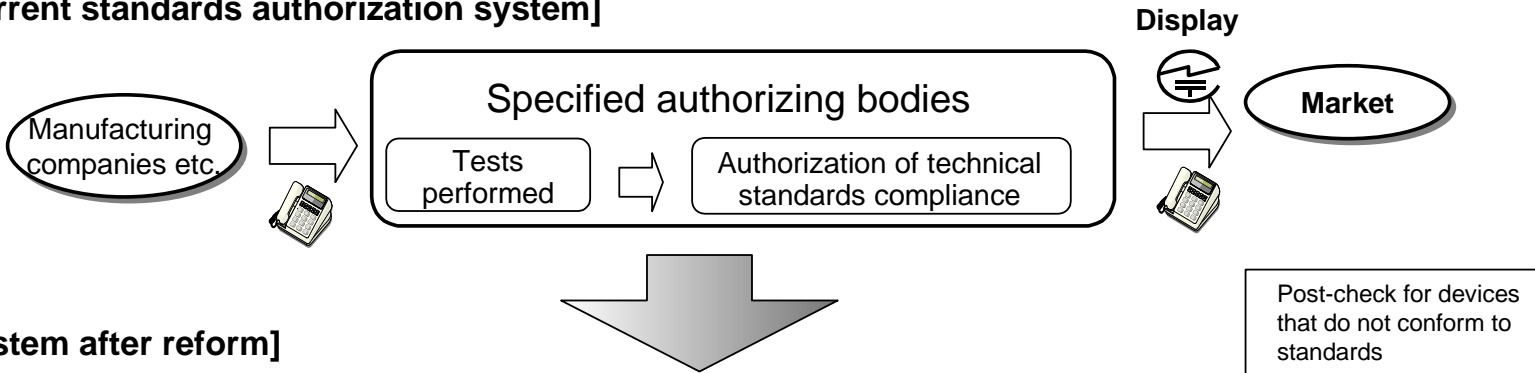
Background and objectives

Manufacturing companies, based on changes in the market environment, have requested the introduction of an “independent declaration of conformance system” in which it is possible to make an independent declaration that their products conform to a technical standard. Maintain and strengthen international competitiveness in industry, in order to realize the swift introduction of telecommunications devices into the market.

Content of the Bill

According to the Telecommunications Law, newly create a system in which it is possible for manufacturers to confirm their own conformity to technical standards. Change from a system in which specified authorizing bodies conduct authorizations to a system in which authorization is performed by bodies registering with the MPHPT Minister.

[Current standards authorization system]



[System after reform]



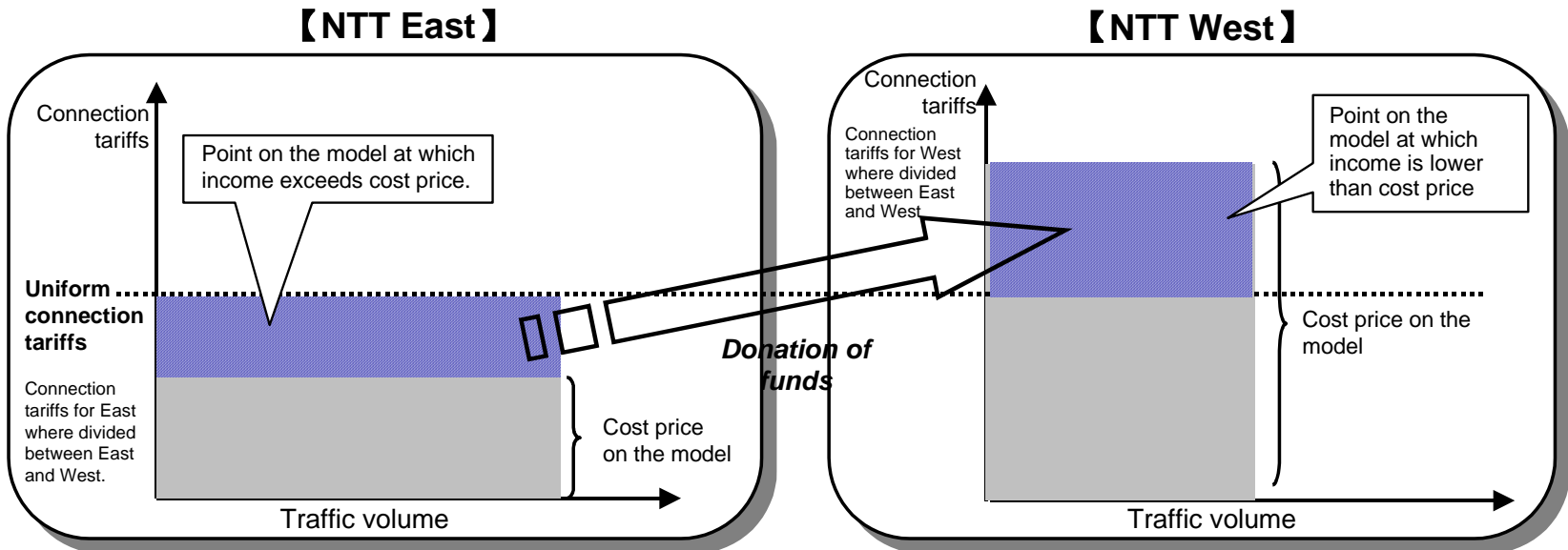
Manufacturing companies etc. without test facilities can choose an authorization system involving newly registered bodies in a system similar to the current specified authorizing bodies system.

Background and objectives

In the ??Upper and Lower House Committee for General Affairs?? on November 28th 2002, it was decided that the connection tariffs for NTT East and West should continue to be the same for both NTT East and West beyond the year 2003, in keeping with the intentions of universal service.
 From the viewpoint of contributing to the appropriate, fair and stable provision of telephone services throughout the country, which are essential for everyday public life, specified connection tariffs should be kept at the same rate between NTT East and NTT West.

Content of the Bill

Revise the NTT Law, and for specified connection charges in 2003 and 2004, create the necessary measures to allow NTT East to donate funds to NTT West.



3. Establishment of interconnection rules

November 1997:	A law to revise part of the Telecommunications Business Law was enforced 《Formulation of basic rules on interconnection》
September 2000:	Establishment of rules concerning unbundling of subscriber lines
October 2000:	Establishment of rules concerning collocation
December 2000:	The first recommendation from the Telecommunications Council on the “review of interconnection rules.”
April 2001:	Establishment of rules concerning unbundling of fiber optic networks.
July 2001:	The second recommendation from the Telecommunications Council concerning “interconnection rules in the age of information technology.”

(1) Unbundling of subscriber lines and fiber-optic networks

This means that telecommunications carriers divide network components and lease them to Internet connection providers

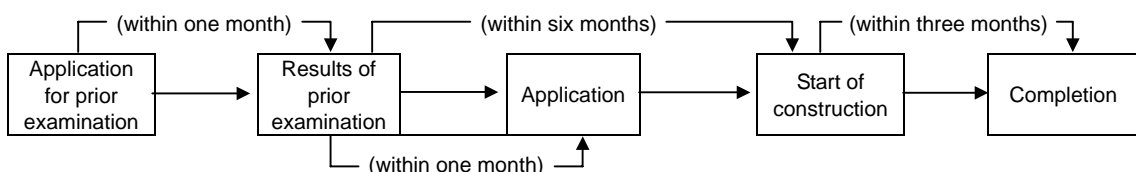
Typical examples

- Subscriber lines (not overlapped by telephone lines) 2,062 yen
- Subscriber lines (overlapped by telephone lines) 187 yen
- Subscriber fiber-optic lines 5,231 yen
- Relay carriers' fiber-optic networks 4.29 yen / meter + 157 yen

(2) Collocation

This means that Internet connection providers install the equipment necessary for connection, in the facilities of NTT East, NTT West, etc.

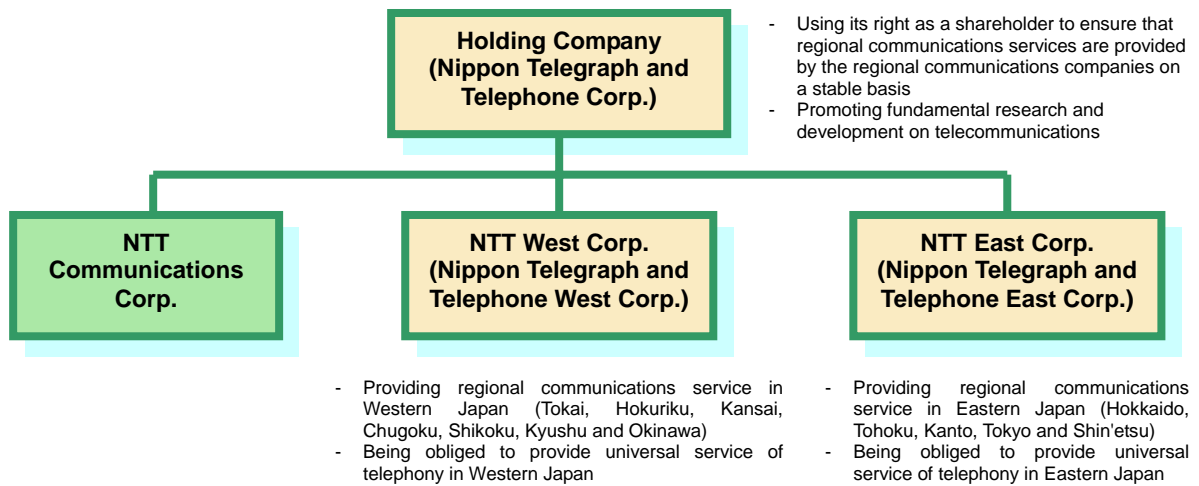
Procedures for collocation



(3) Efforts made in response to the recommendation on “interconnection rules in the age of information technology”

- Ministry ordinance
Further unbundling of fiber-optic networks and non-discriminatory treatment of domestic and foreign carriers in taking procedures for the use of fiber-optic networks (inquiry to a subcommittee on Sept. 21, 2001).
- Future efforts
Resale of public networks, further unbundling of subscriber lines, etc.

4. Outline of NTT Reorganization Scheme



References

1. special corporation, private company
2. The holding company holds all shares of NTT East Corp. and NTT West Corp.

	1986	1987	1988	1999	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2009	2001	2002	2003 March
Type I Telecommunications Carriers	7	13	37	45	62	68	70	80	86	111	126	138	153	178	249	342	384	417
NTT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3
KDD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
NTTDoCoMo,Inc.and its group Carriers	-	-	-	-	-	-	-	1	9	9	9	9	9	9	9	9	9	9
New Type I Telecommunications Carriers	5	11	35	43	60	66	68	77	75	100	115	127	142	167	236	330	372	405
Long-distance/International Carriers	3	3	5	5	5	5	5	5	5	5	5	5	6	12	21	32	35	34
Regional Carriers	-	3	4	4	7	7	7	8	10	11	16	28	47	77	159	274	319	351
Satellite Carriers	2	2	2	2	2	2	3	3	2	2	4	4	5	6	5	5	5	6
Mobile Communications	-	2	23	31	46	52	53	61	58	82	90	90	84	72	51	19	13	14
Cellular Phones	-	-	2	4	8	8	9	15	15	17	21	21	21	21	21	8	5	5
Radio Paging	-	2	20	26	33	36	36	36	31	31	31	31	31	31	19	3	2	2
PHS	-	-	-	-	-	-	-	-	-	23	28	28	28	18	9	5	2	2
CRP	-	-	-	-	2	4	4	7	7	7	6	6	-	-	-	-	-	-
Ship Telephone	-	-	1	1	2	3	3	2	2	1	-	-	-	-	-	-	-	-
Airport Radio Telephone	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3
Data communications	-	-	-	-	1	1	1	1	1	1	2	2	2	-	-	-	-	-
Radio access system	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Others	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	209	356	530	693	841	943	1,036	1,179	1,589	2,107	3,134	4,588	5,871	6,602	7,651	9,006	10,137	10,803
Special Type II Telecommunications Carriers	9	10	18	25	28	31	36	36	39	44	50	78	95	88	101	113	112	115
General Type II Telecommunications Carriers	200	346	512	668	813	912	1,000	1,143	1,550	2,063	3,084	4,510	5,776	6,514	7,550	8,893	10,025	10,688
Total	216	369	567	738	903	1,011	1,106	1,259	1,675	2,218	3,260	4,726	6,024	6,780	7,900	9,348	10,521	11,220

Notes:

1. Type I carriers offer services by establishing their own telecommunications circuit facilities.
2. Type II carriers offer services by leasing telecommunications circuit facilities.
3. NTT was reorganized into two regional Type I carriers (NTT East Corp. and NTT West Corp.) and one long-distance/international carrier (NTT Communications Corp.) under one holding company (NTT) on July 1, 1999.
4. On October 1, 2000, DDI Corp., KDD Corp. and IDO Corp. were merged into DDI Corp. (KDDI)

II. Current situation surrounding the Telecommunications business

1. Changes in the total number of telecommunications carriers

2. Current Status of Main Foreign Investment in Telecommunications Carriers

(As of March. 1, 2002)

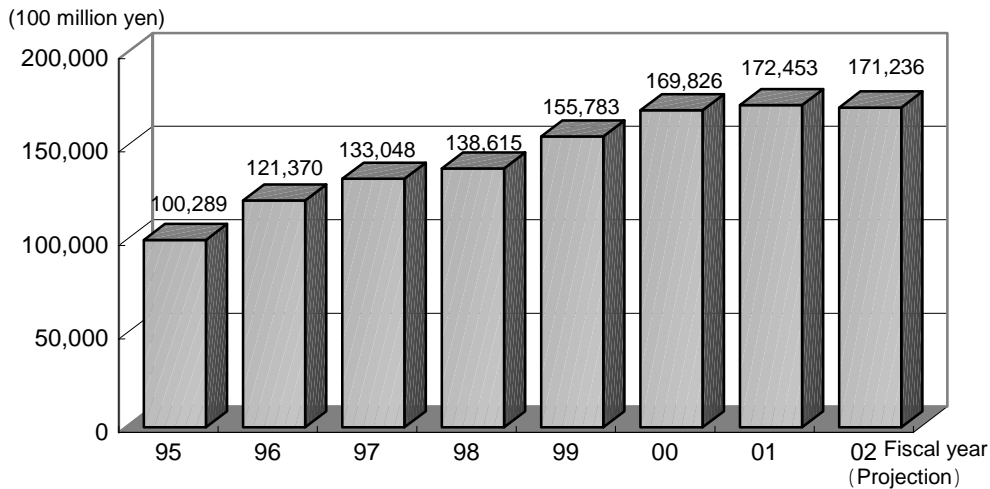
(1) Type I telecommunications carriers	(2) Special Type II telecommunications carriers
Japan Telecom Co., Ltd.	IBM Japan, Ltd.
Cable & Wireless IDC Inc.	Information Service International-Dentsu, Ltd.
J-phone Co., Ltd.	Xpedite
PCCA Private Limited	Compaq Computer K.K.
PanAmSat International Systems, Inc.	Cable & Wireless Japan Ltd.
J-COM Kanto Co., Ltd.	Concert Global Network Japan
MCI WorldCom Japan, Ltd.	Deutsche Telecom K.K.
ORBCOMM Japan Limited	Reach Holdings Singapore Japan
Metromedia Fiber Network Japan K.K.	Saiki-Tech Communications Japan Co., Ltd.
Global One Communications Network, Inc.	TMI Telemedia International Hong Kong Ltd.
J-COM Kansai Co., Ltd.	IXnet Japan Co., Ltd.
Primus Japan K.K.	UUNet Japan Co., Ltd.
	MCI International (Japan) Co., Ltd.
KVH Telecom Co., Ltd.	AT & T Communications Service Japan Ltd.
RSL COM Service Japan K.K.	MCI WorldCom Communications Japan Ltd.
Sony Corp.	Far East Data Ltd.
Singapore Telecom Japan, Co., Ltd.	DoCoMo AOL, Inc.
	PSINet Japan Inc.
Reach Networks K.K.	Coyote Network Systems, Inc.
J-COM Shonan Co., Ltd.	Magde Web Japan Co., Ltd.
Kisarazu Cable TV	Equant Co., Ltd.
J-COM Kitakyushu Co., Ltd.	Primus Telecommunications K.K.
EGN B.V.	City Telecom (Japan) Co., Ltd.
T Systems Japan K.K.	Telegroup Japan, Inc.
FLAG Telecom Japan Limited	RSL COM Japan, K.K.
	Teleglobe Services Japan, Inc.
J-COM Sapporo Co., Ltd.	Pacific Gateway Exchange Japan Inc.
Asia Net COM Communications Co.,Ltd	GINGA Communications International, Inc.
J-COM Gunma Co., Ltd.	Singapore Telecom Japan Co., Ltd.
World Exchange	Nippon WorldxChange Ltd.
Circle Asia Corporation	Genuity International Inc. (Japan)
GTE Far East (Services) Ltd.	AIC Telecom (Japan) Ltd.
AT&T Communications Service Japan Ltd.	i-Tel Corp.
Williams Communications, Inc.	AT & T Global Network Services Japan LLC
PowerBand, Inc.	Verizon Global Solutions Holdings Limited
Sprint International Japan Co., Ltd.	Signal Telecommunications Japan K.K.
Tyco Networks Japan Co., Ltd.	Korea Telecom Japan K.K.
C2C Japan Co., Ltd.	REUTERS Japan Ltd.
Qwest Communications Japan Co., Ltd.	Telecom New Zealand Japan K.K.
Horizons satellite limited liability Co. Ltd.	Wherever Japan K.K.
	At Home Japan Ltd.
	KPN Japan, Ltd.
	Nittan Telecom (Japan) Ltd.
	Global Crossing Japan Corp.
	M3Com (Japan) K.K.
	AboveNet Japan KK
	Savvis Japan Ltd.
	Bazillion Inc.
	WAM!NET Holding Japan KK
	Hewlett-Packard Japan, Ltd.
	At Network Japan KK
	Streamscape
	Enron Broadband Services Network
	QoS Network Services Japan
	Sprint International Holding, Inc.
	Angstrom Network Japan
	iBasis Japan Co., Ltd.
	XA Alliance Co., Ltd.
	Infoserve Technology Co., Ltd
	BELGACOM Japan Co., Ltd
	PCCW Communications Japan Co., Ltd
	SK Cyberpass Co., Ltd.
	Chinalink Networks Co., Ltd.
	Japan run xun Communications Co., Ltd.
	France Telecom Long Distance Japan Co., Ltd.
	Schlumberger K.K.
	Circle Asia Co., Ltd
	Global Exchange Service Japan Co., Ltd

3. Changes in market size / investment in facilities and equipment

(1) Changes in market size of type-1 carriers

The market size (combined sales) of type 1 carriers in fiscal 2001 was 17,245.3 billion yen (up 9.8 percent from the previous year)

Supported by the growth of the mobile communications business, the combined sales surged from the previous year.

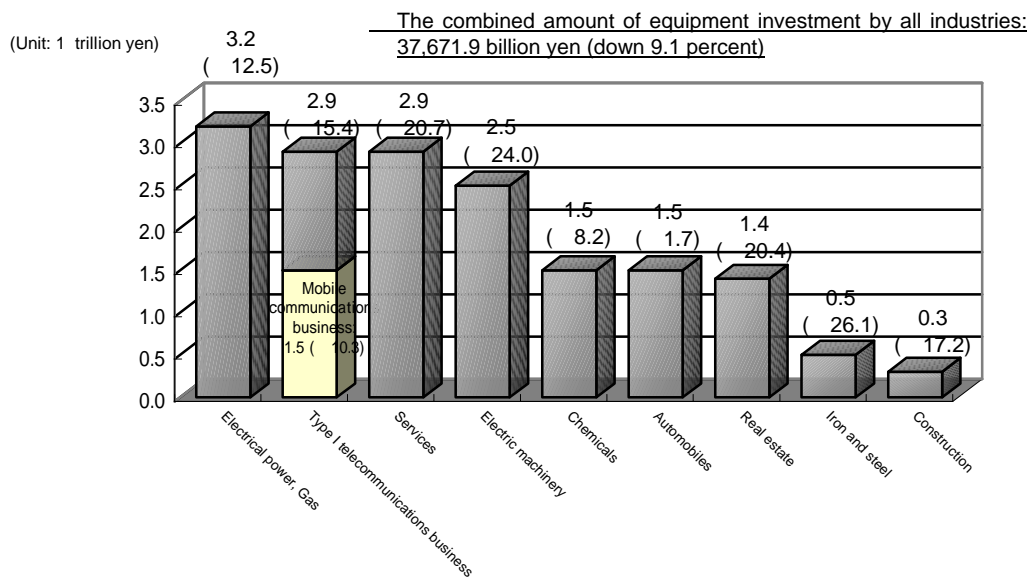


(2) Equipment investment by type-1 carriers (Plans for fiscal 2002)

The total amount of equipment investment projected for fiscal 2002 is 2,882.3 billion yen (down 3.8 percent from the previous year's total)

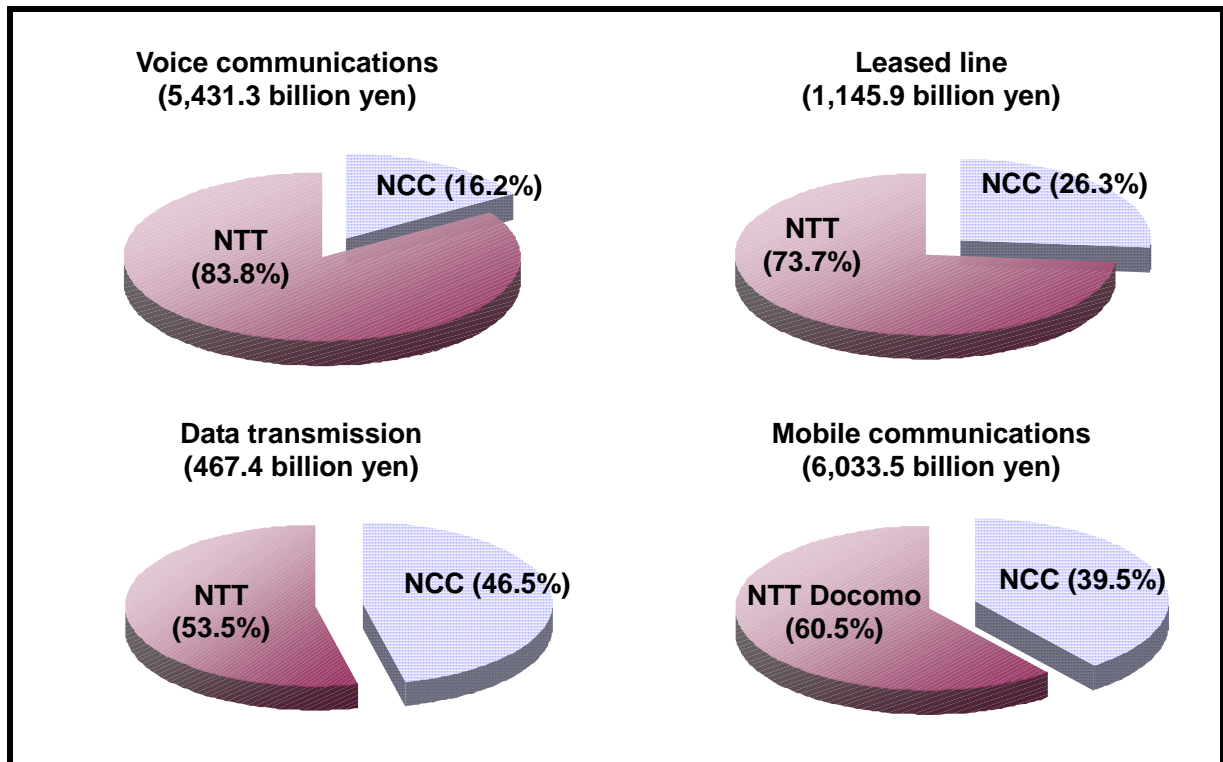
This represents the second-highest amount in equipment investment projected by all industries (37,671.9 billion yen).

Equipment investment by type-1 carriers is the second largest, next to that of the electrical power and gas industries.



4. Shares of NTT and NCC

(1) Sales of NTT-Group companies in each type of service (FY2001)

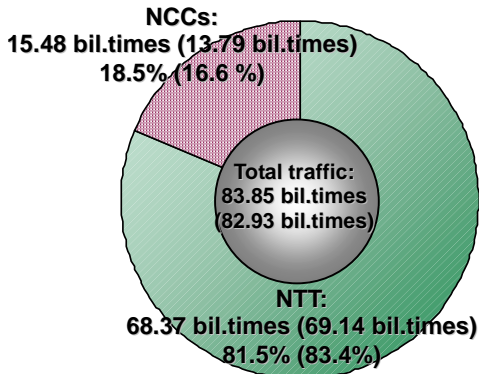


Note:

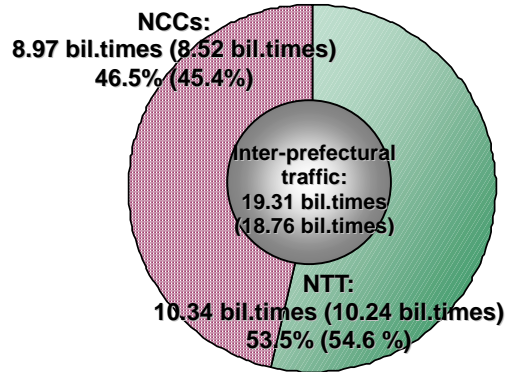
1. "NTT" indicates the combined sales of NTT East, NTT West, and NTT Communications.
2. The figures in the charts of voice communications, leased line, and data transmission services are those of the fixed telephone service providers.
3. The figure for mobile communication indicates the combined sales of all mobile communications service providers.

(2) Telephone (Subscriber Telephone + ISDN) Market Share of NTT and NCCs
(Share of traffic in FY2000)

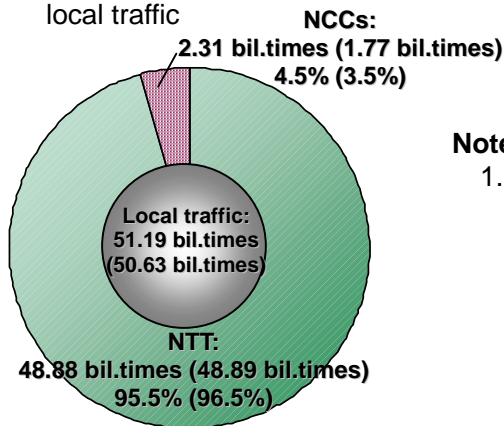
(1) Share of NTT and NCCs in all traffic



(2) Share of inter-prefectural traffic NTT and NCCs in all traffic



(3) Share of NTT and NCCs in local traffic

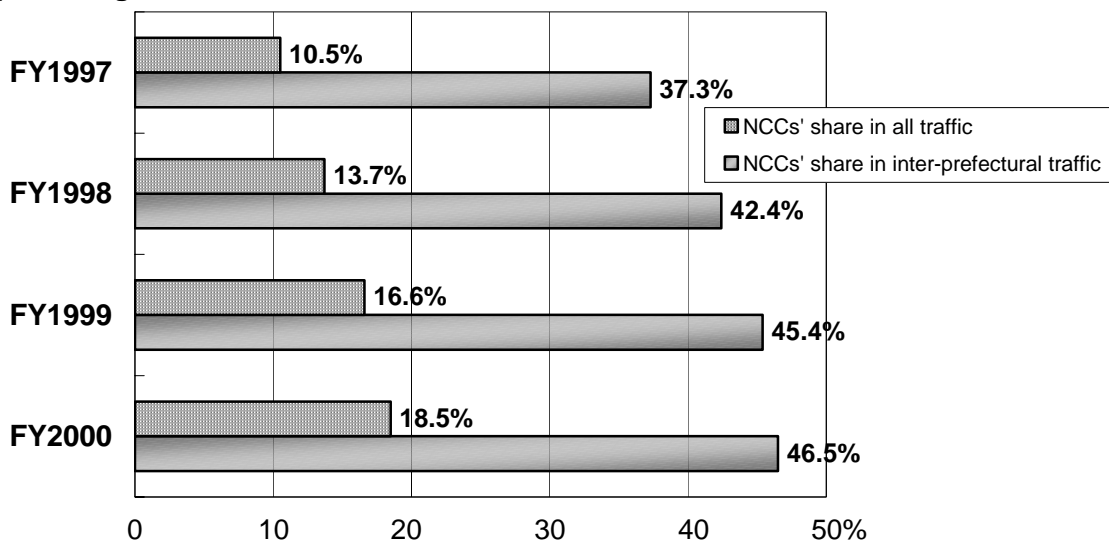


Figures in parenthesis represent the share of traffic in FY 1999.

Notes:

1. Figures for NCCs include those of KDDI Corp., Japan Telecom Co., Ltd., J-COM Tokyo, JCOM East Communications, Corp., MCIWC, C&W IDC and 8 power-utility-company-based NCCs (HOTnet, TOHKnet, HTnet, CTC, OMP, CTNet, STNet and QTNet).

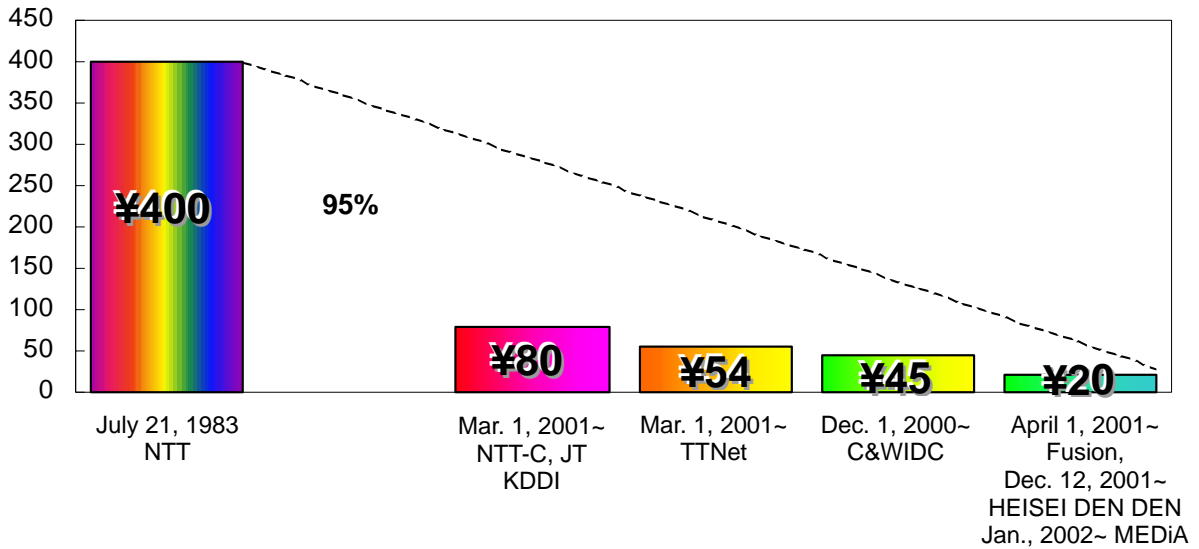
(3) Changes of NCCs' share in all traffic



5. Current Status of Rate Reductions

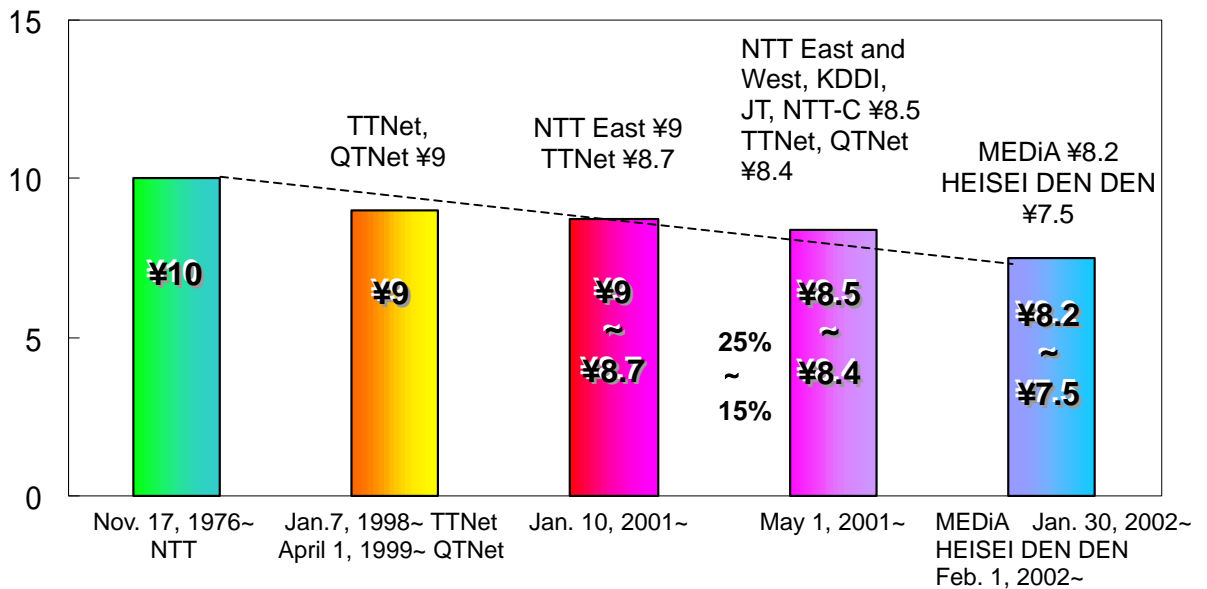
(1) Long-distance call (Tokyo-Osaka)

3 minutes, daytime, weekdays



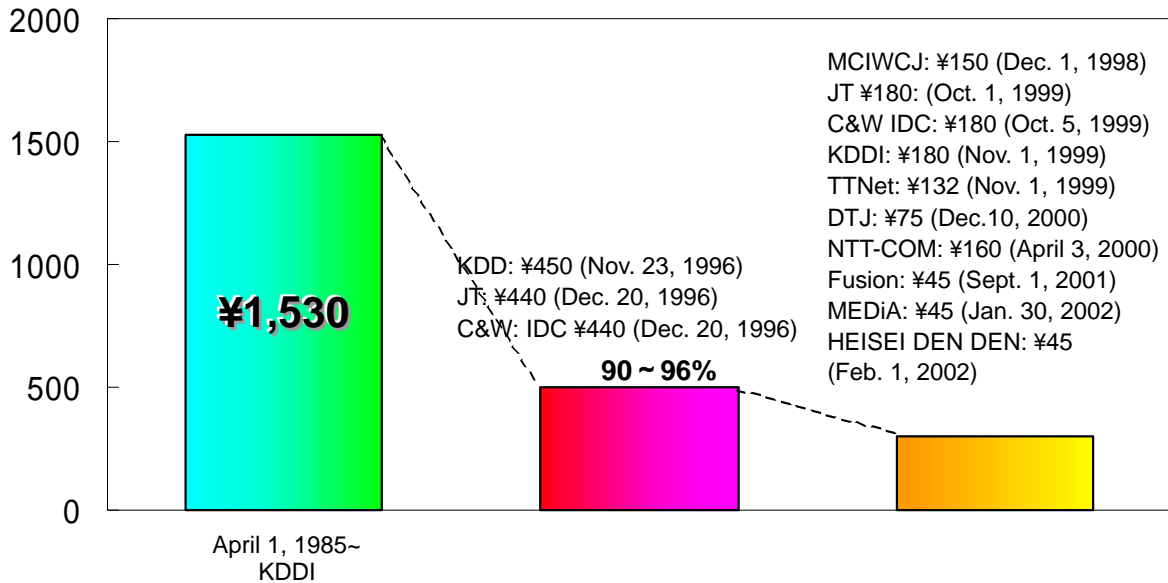
(2) Local call

3 minutes, daytime, weekdays



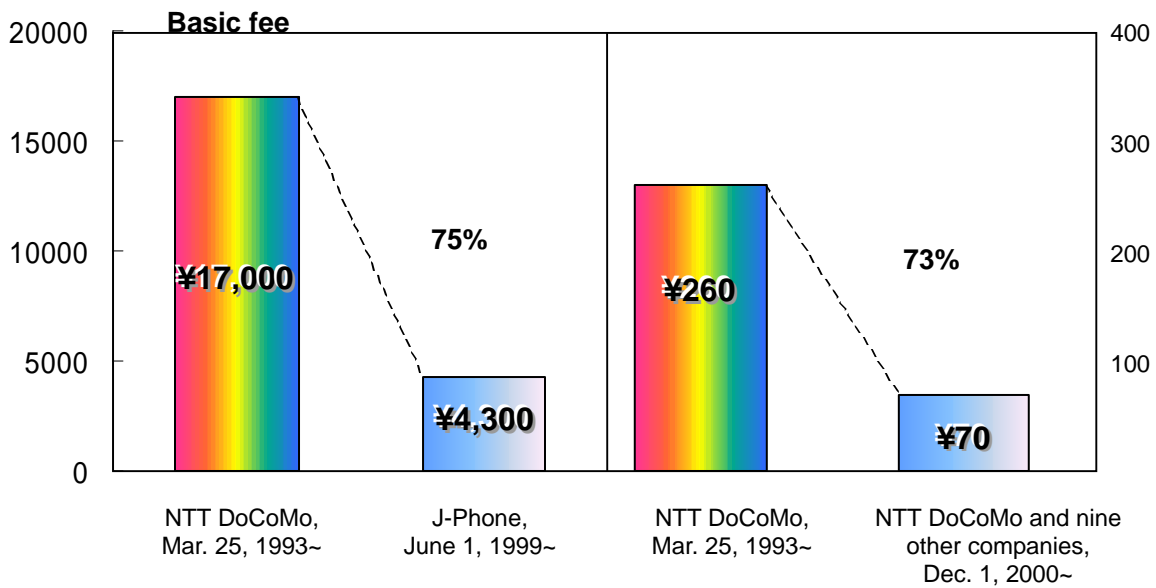
(3) International call (Japan-U.S.A)

3 minutes, daytime, weekdays



(4) Cellular phone (800MHz digital system)

Call rate (cellular phone fixed phone, intra-prefectural)

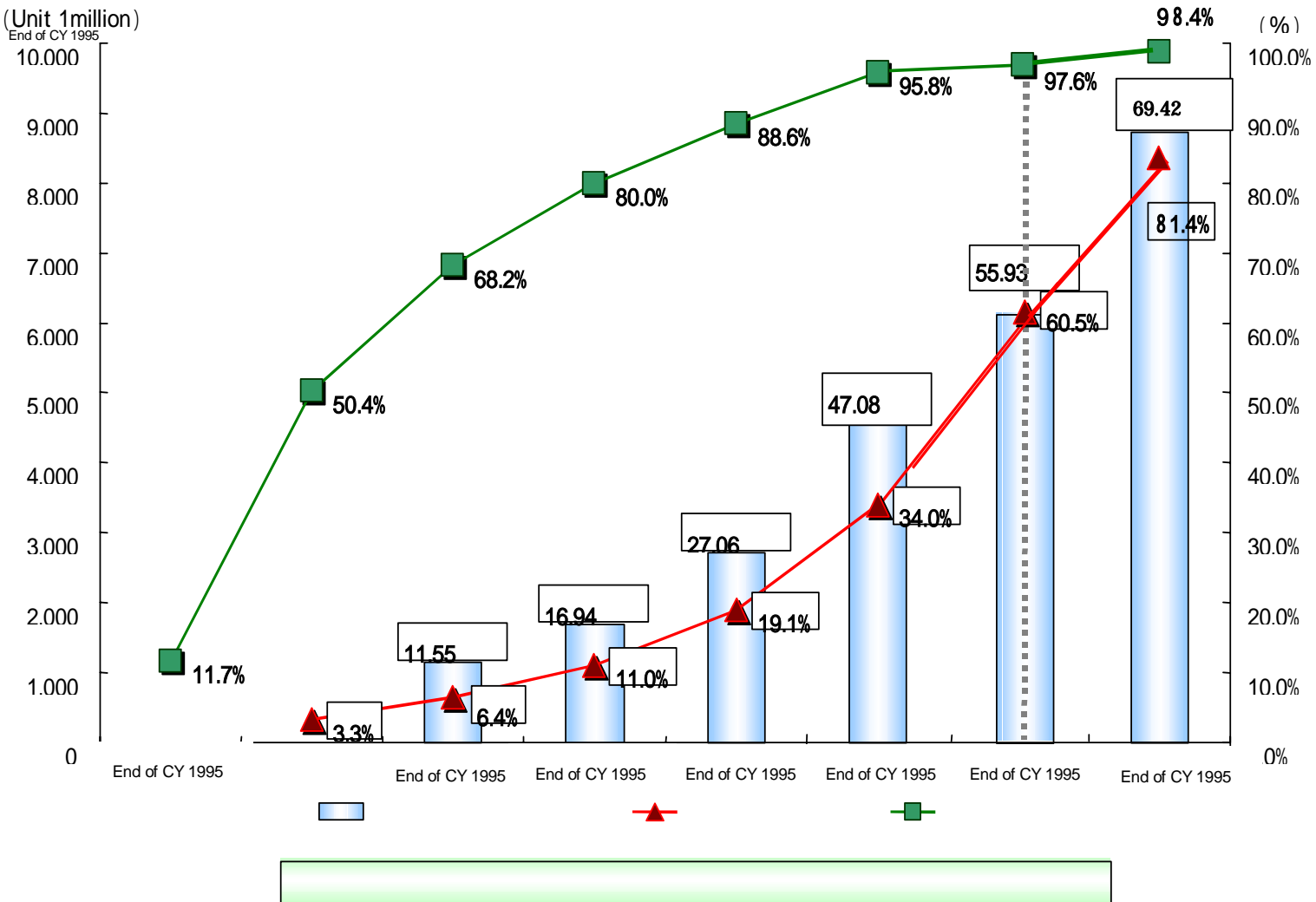


Note: On March 25, 1993, the "800MHz digital cellular phone service" started.
 NTT DoCoMo reduced the basic charge to 4,500 yen (including a free call allowance worth 200) in June 2000.

III. Internet

1. Total Internet user population and Internet diffusion rate

(1) Environment surrounding telecommunications business

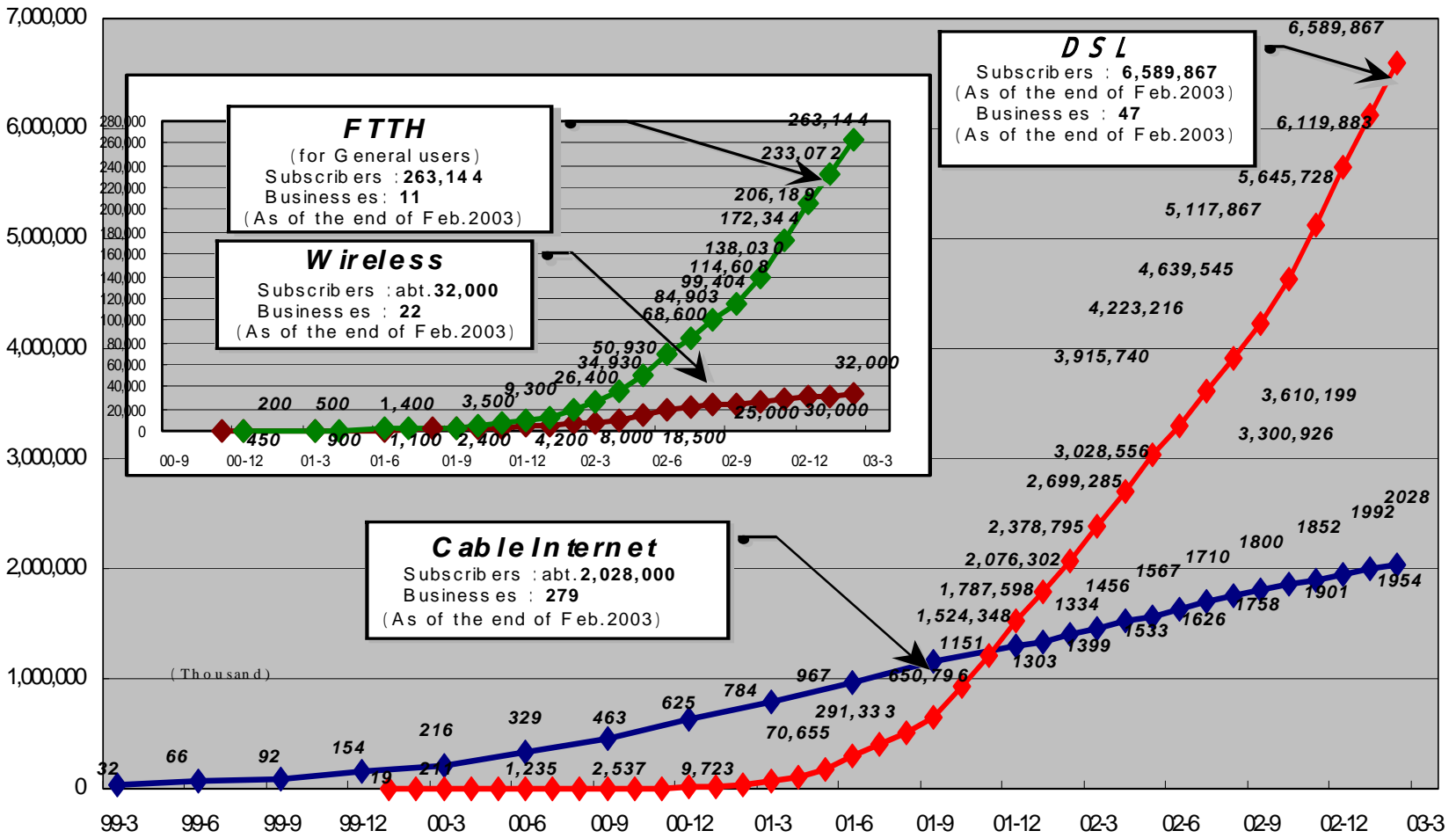


Businesses are those having more than 300 workers on their payrolls, and are located in Japan (excluding businesses in the agriculture, forestry, fisheries and mining industries).

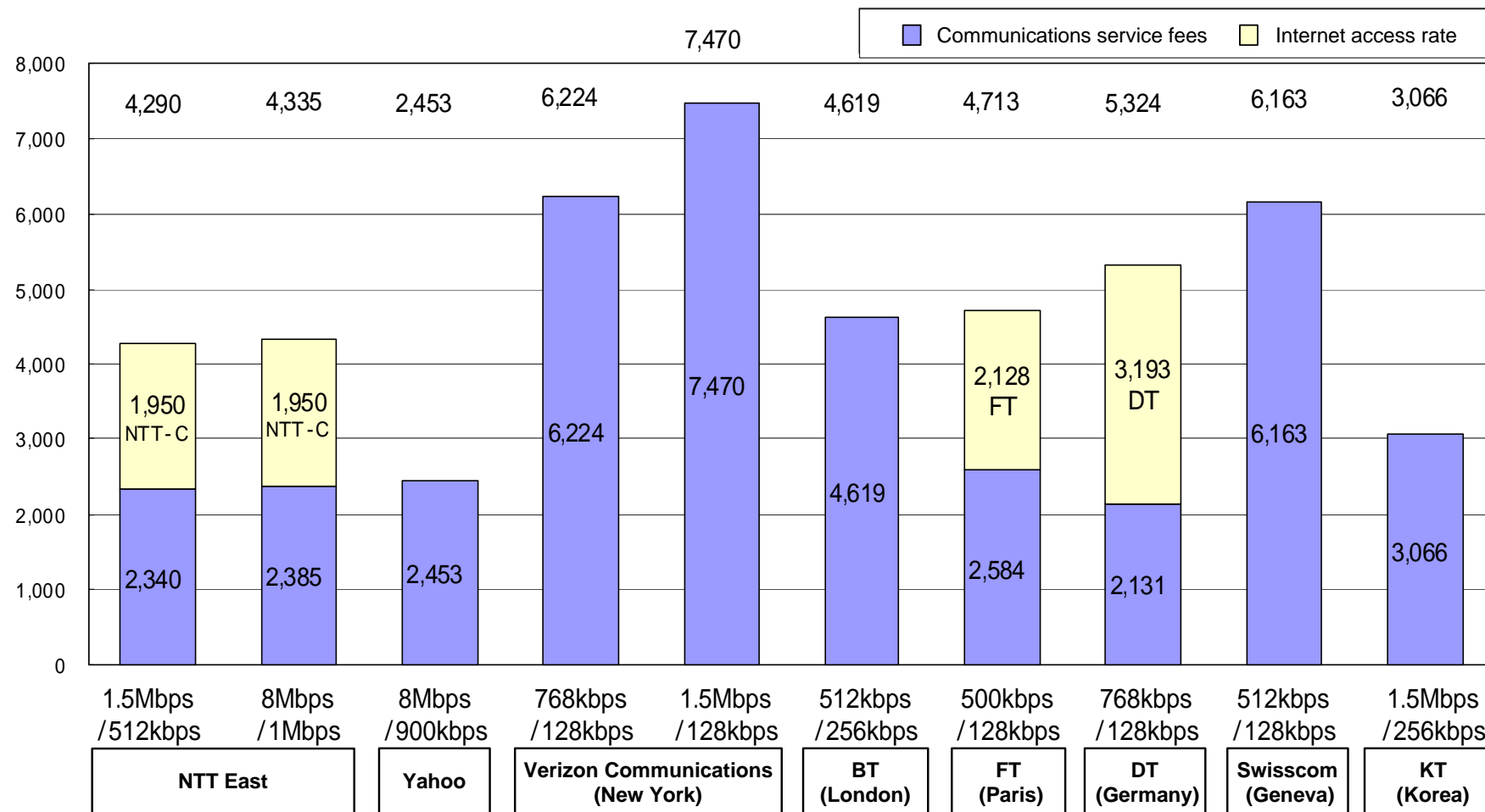
Source: WHITEPAPER Information and Communications in Japan 2001, etc.

(2) Changes in the total number of subscribers to high-speed and ultra-high-speed Internet services

Current Status of Broadband Penetration - Number of Subscribers



2. Current Conditions in Electronic Communications (International comparison of full-time Internet connection fees (ADSL))



Note:

1. The rates indicated are those of December 2002.
2. Exchange rates of December 2, 2002 were used to convert rates in each country (US\$1 = ¥124.61; £1 = ¥193.85; 1 euro = ¥123.66; 1 CHF = ¥83.938; 1 won = ¥0.10221)
3. Taxes were not included for all rates.

3. Deployment of fiber-optic networks

(1) Current status in terms of cable length used

(As of the end of FY2001; unit: 1,000km)

Item	Cable length	Fiber-optic cable
Backbone networks	283	257
Access networks	1,400	291
Total	1,683	548

(2) Changes in ratio of fiber-optic cables to all cables (cable length)

(Unit: %)

End of Fiscal Year	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Backbone networks	36.4	42.1	48.0	55.4	60.3	65.8	70.9	78.1	86.0	89.4	90.6
Access networks	2.3	2.9	3.8	4.7	6.4	9.7	13.2	15.2	17.7	18.9	20.7
Total	8.6	10.1	12.4	15.1	17.3	21.4	25.1	27.7	32.6	31.4	32.5

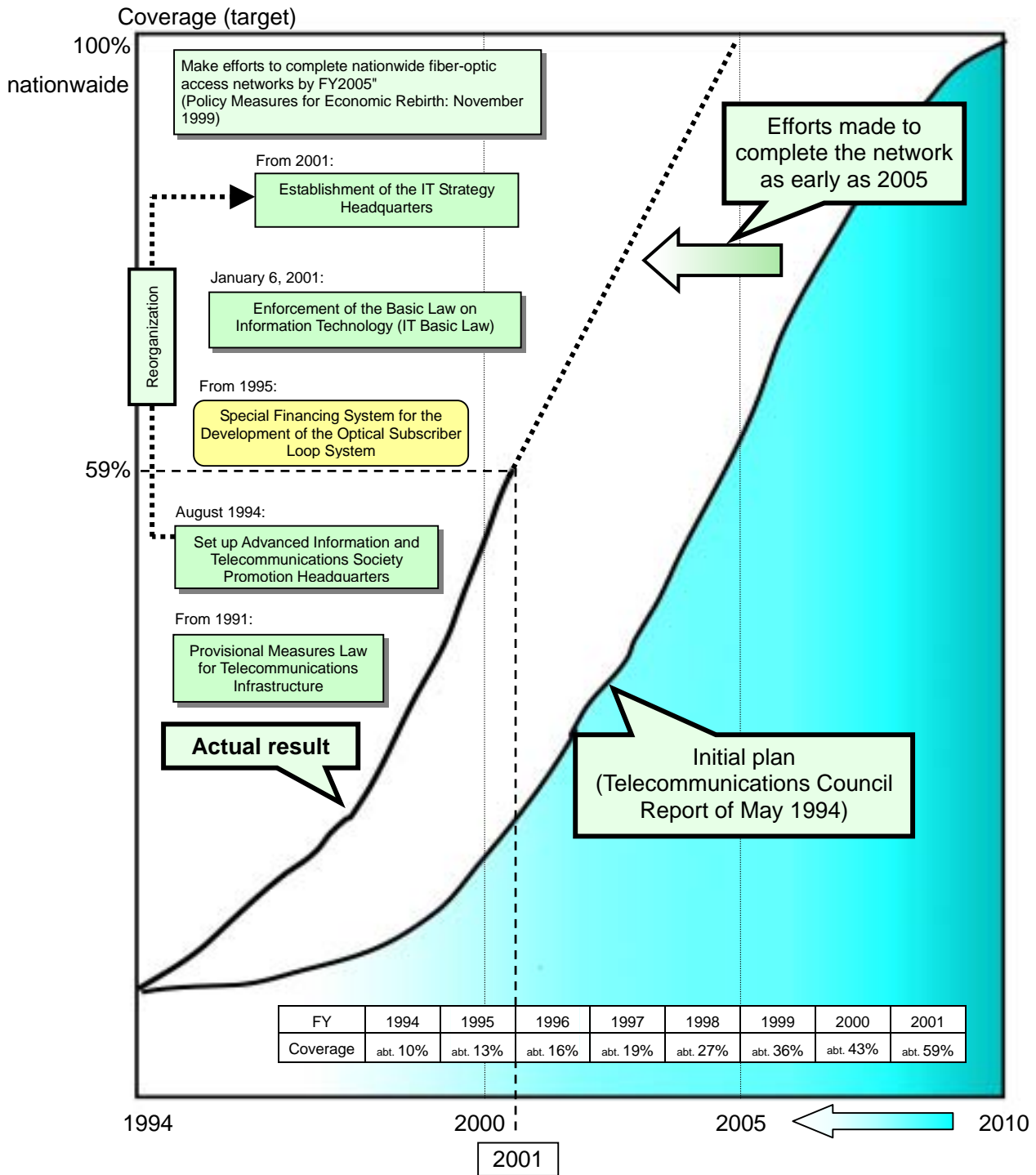
Note: Since the end of FY2000, the total length of the International cables has been deducted from the total length of the relay carriers' cables.

(3) Trends in actual investment in fiber-optic networks

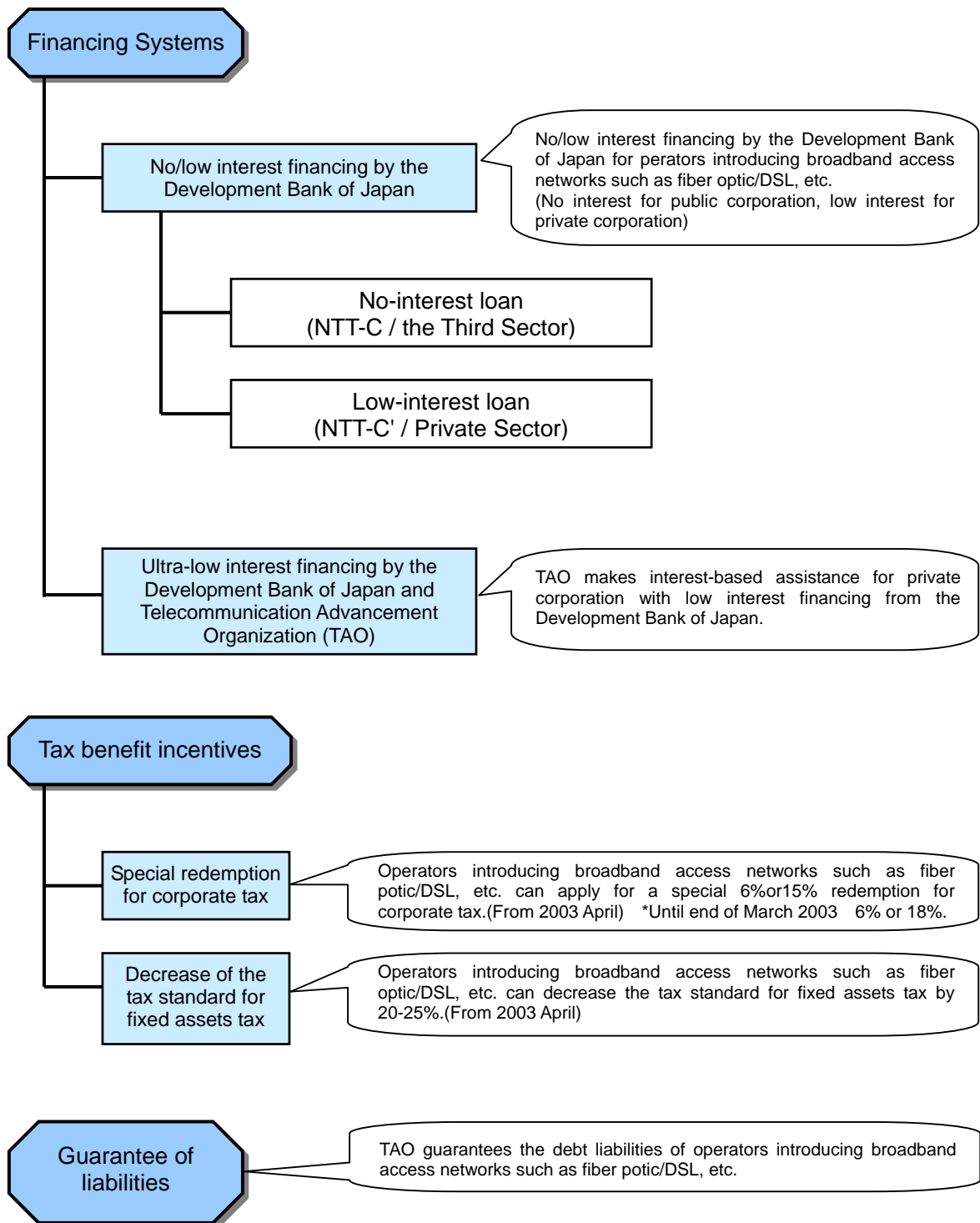
(Unit: \1 billion)

End of Fiscal Year	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Backbone networks	3,414	2,972	3,387	3,446	2,247	2,859	2,037	1,957
Access networks	1,299	2,447	3,315	3,033	2,415	2,774	2,052	2,153
Total	4,713	5,419	6,702	6,479	4,662	5,633	4,089	4,110

(4) Target of fiber optic Infrastructure



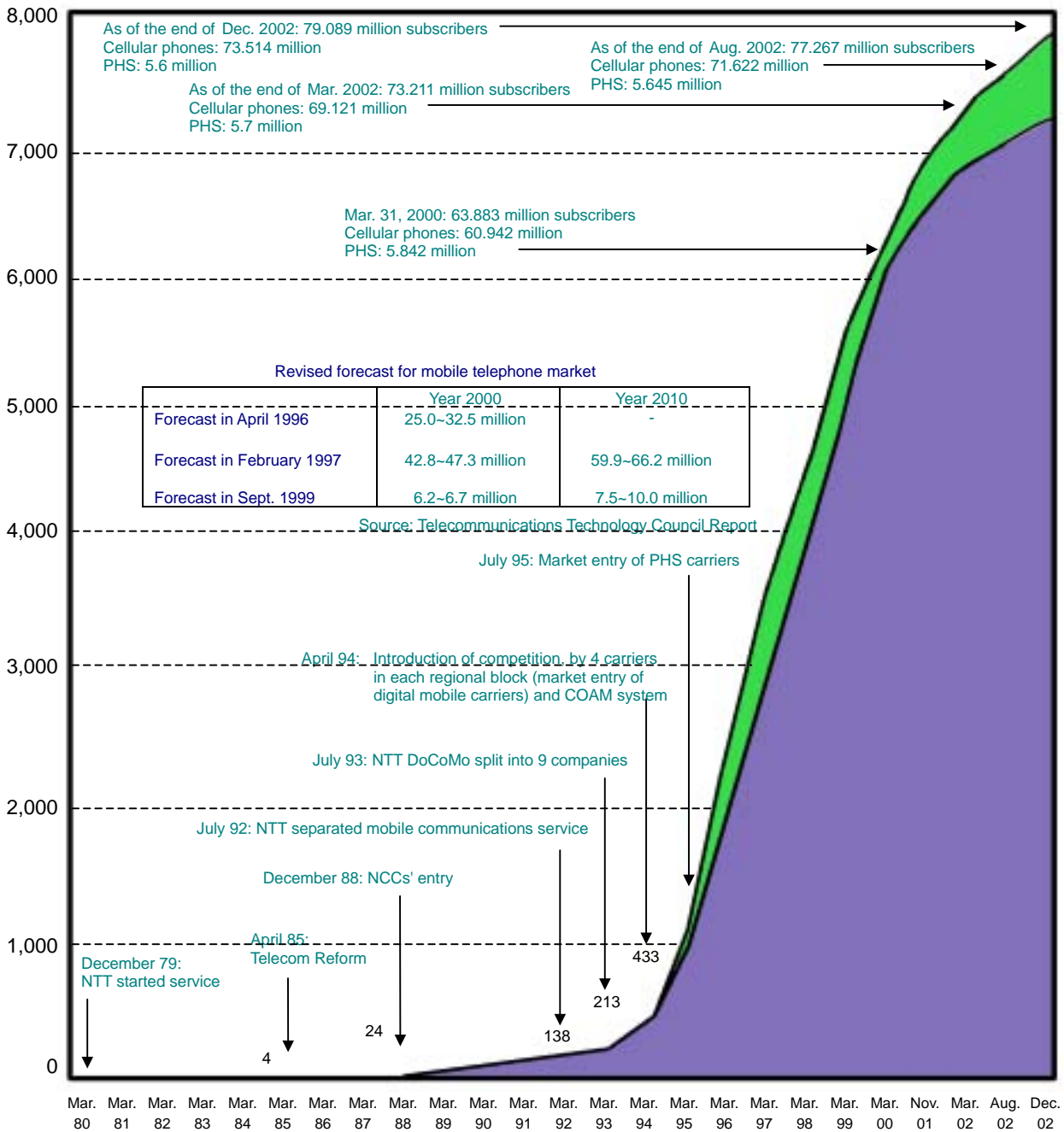
4. Major support systems for fiber-optic networks and broadband access networks



To receive the following support, applicants should obtain authorization of deployment plans from MPHPT in line with the Provisional Measures Law for Telecommunications Infrastructure Improvement.

IV. Mobile communications

1. Status of diffusion of mobile phones



Deposit	¥200,000 → ¥100,000 → Abolished
Subscription fee	¥80,000 → ¥72,000 → ¥45,800 → ¥21,000 → ¥9,000 → ¥6,000 → Free
Monthly basic charge	¥30,000 → ¥18,000 → ¥15,000 → ¥9,500 → ¥8,400 → ¥6,600 → Abolished (800MHz, digital) ¥8,800 → ¥6,800 → ¥4,900 → ¥4,500
Call charge (3 minutes)	¥280 (Analog) → ¥260 → ¥230 → ¥200 → ¥150 → ¥ Abolished (800MHz, digital) ¥260 → ¥200 → ¥180 → ¥110 → ¥80 → ¥70 (Dec. 2000)

Note: Figures are cellular phone rates of NTT DoCoMo (standard plan rate for 3 minutes during daytime hours on weekdays [when the person receiving the call is using a standard telephone within the central business zone of NTT DoCoMo]).

2. Growth Factors in the Mobile Phone Market

Mobile phone market is growing with an annual increase of 10 million subscribers each year.

26.91 million (FY96) 38.25 million (FY97) 47.31 million (FY98)
 56.85 million (FY99) 66.78 million (FY2000) (Cellular phone: 60.94 million, PHS: 5.84 million) 74.817 million (As of the end of Mar.) (Cellular phone: 69.12 million, PHS: 5.697 million)

High growth is fostered by pro-competition policy and technological innovation which accelerate rate reduction and diversification

Pro-competition policy

- Realization of fair and competitive markets containing six carriers in each market

- (1) July 1992: Separation of mobile business unit from NTT
 July 1993: Division of the mobile business carrier separated from NTT into 9 companies
- (2) 1994: Introduction of competition by 3 or 4 carriers in each market block
 This became the most pro-competitive policy in the world
- (3) Permission for 3 PHS carriers in each market block
- (4) April 1994: Introduction of COAM (Customer Owned and Maintained) system
- (5) Dec. 1998: Nine NTT Personal Group companies transferred their PHS business to NTT DoCoMo Group companies in each region. (5 or 6 cellular and PHS carriers in each regional block)

Technological innovation

- Digitalization and drastic technological innovation in terminal equipment

- (1) 1993: Digital mobile phone services launched - Higher quality, privacy function, etc.
- (2) Down-sizing and weight-reduction of terminals, longer battery life, low-priced terminals



	1997	2002
New subscription fees	0	0
Basic fees	6800	4500
Communication fees	130	70

Rate reduction and diversification

- Rapid reduction and diversification of rates

- (1) With the implementation of the above-mentioned pro-competition policy and the progress of technological innovation, we succeeded in cutting our rates sharply. The new subscription fee was reduced to zero starting December 1996. The basic charge was cut by about 34% and the telephone call rate, by about 46% during the past five years, said NTT DoCoMo, Inc.
- (2) April 1994: Introduction of "Low-volume call rate" tariff opened market to personal users.
- (3) April 1995: NTT DoCoMo introduced "Area-by-area call rate" tariff (3 min. \70: 800MHz, digital).

V. Introduction of new wireless systems

1. The third generation mobile communications system (IMT-2000)

IMT-2000: International Mobile Telecommunications - 2000

Characteristics

- Realization of an internationally unified system Global service that can be used worldwide
- High transmission speed about 200 times faster than that of existing mobile telephones (capable of transmitting simple, moving images)
- Capable of providing a voice-communications service whose quality is as good as that of the fixed telephone network.

Schedule for launching services

- NTT DoCoMo Group.....In May 2001, this group launched the third-generation mobile communications service on an experimental basis. (Japanese/European system)
In October 2001, this group launched the full-fledged service.
- J-PhoneThis group launched the experimental service in June 2002. (Japan/European System)
In December 2002, this group launched the full-fledged service.
- KDDI Group.....This group launched the service in April 2002. (North American system)

The 2 GHz service will be launched in April 2003 on an experimental basis, and the full-fledged service, in October, 2003.

~ Changes in the mobile communications system ~

The first-generation mobile telephone (analogue system)

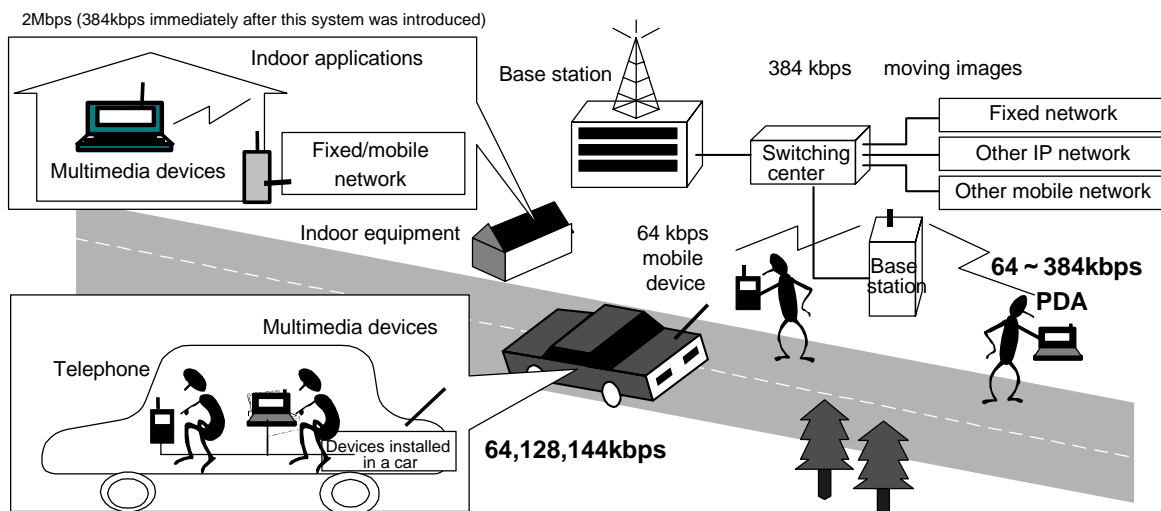
This system was launched in 1979, using the frequency band of 800MHz. Voice communications service only.

The second-generation mobile telephone (digital system)

This system was launched in 1993, using the frequency bands of 800MHz and 1.5GHz. Voice-communications and low-speed data transmission services (transmission speed of 9.6 – 64 kbps)

PHS (Personal Handy Phone System)

This system was launched in 1995, using the frequency band of 1.9 GHz. Voice-communications and low-speed data transmission services (transmission speed of 32 – 128 kbps)



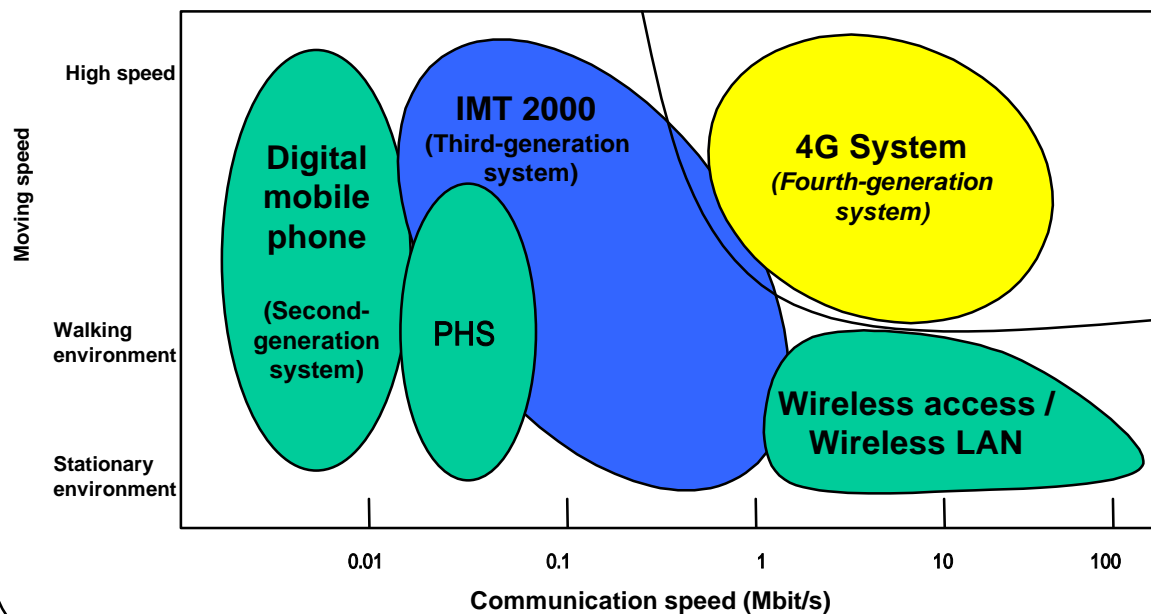
2. The fourth-generation mobile communications system

Image of the system

The next-generation mobile communications system will come after IMT-2000. The following high technology will be achieved.

- The downstream (from the base station to terminal devices) transmission speed will be increased to 50-100 Mbps. (In the case of IMT-2000, the maximum speed of both the downstream and upstream transmission is 2Mbps.)
- Multimedia mobile communications, including the transmission of high-definition, moving images.
- Increased compliance with the Internet protocol, and is compatible with IPv6.
- Introduction of the next-generation mobile communications technology, including wireless technology software (the technology that makes it possible to flexibly change the frequency, communications system, etc. via software)

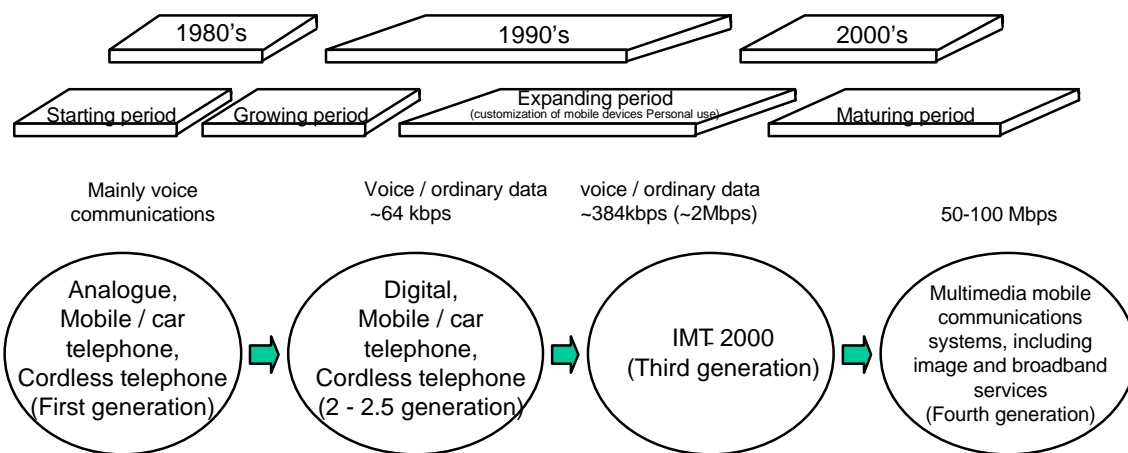
Classification of mobile communications systems



Application Schedule

- 2001: Recommendation from the Telecommunications Council (June)
(Basic concept, plans involving technological development / standardization, methods of achieving such plans, etc.)
Proposal to ITU
- 2002: Formulation of the policy on the frequency bands for future mobile communications, such as the fourth-generation mobile communications (Alteration of the frequency allocation plan)
- 2005 : Improvements and sophistication of the existing systems
Establishment of the technology required for the fourth-generation mobile communication system
- Around 2007: International identification of the frequency bands for the fourth-generation mobile communications system (WRC-2007)
- Around 2010: To put the fourth-generation mobile communications system into practical use

Trends of mobile communications



3. Wireless access system

E-Japan Priority Policy Program (Decided by the IT Strategy Headquarters on March 29, 2001)

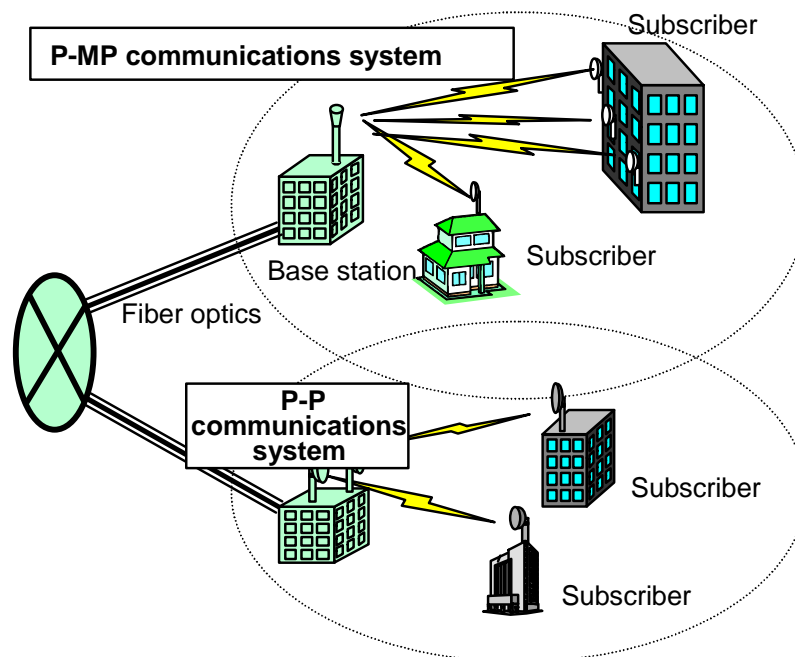
Extracts

Before the end of the year 2001, the frequency band available for high-speed wireless Internet access will be expanded. At the same time, the allocation of frequency will be reviewed and the re-allocation will be carried out by FY2002, to secure the frequency for fourth-generation mobile communications systems, etc.

Frequency bands	System	Maximum transmission speed	Transmission distance	Institutionalization	Number of companies entered
2.4 GHz band	Point-to-Point (P-P) ¹	Around 10Mbps ²	Around 5km ³	1999.10 (Expansion of the frequency-usable areas)	
	Point-to-multipoint (P-MP) ¹	Around 2 Mbps	Around 400m ³		
5 GHz band	Point-to-multipoint (P-MP) ¹	Around 30 Mbps	Around 300m - 3km	2002.9	0
22/26/38 GHz band	Point-to-Point (P-P)	Around 156 Mbps	Around 4km	1998.12	9 ⁴
26/38 GHz band	Point-to-multipoint (P-MP)	Around 10 Mbps	Around (radius) 1km		8 ⁴
25 GHz band	Point-to-Point Point-to-multipoint	Around 100 Mbps	Around 100m	2002.2	

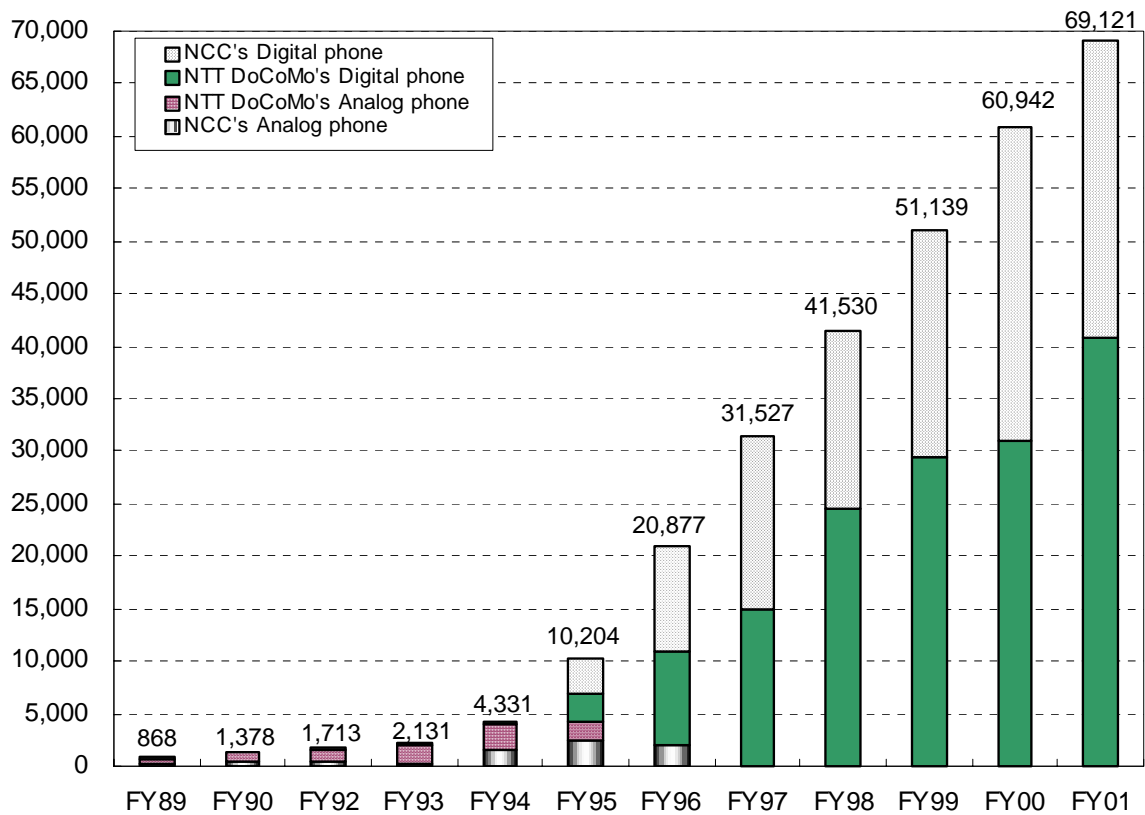
Notes:

1. P-P: A system used when one radio station communicates with another radio subscriber station.
P-MP: A system used when one base station communicates with more than one subscriber station.
2. The most widely-used system (IEEE 802.11b)
The revision of the current regulation in February 2002 enabled higher-speed telecommunications of more than 20 Mbps.
3. Because this frequency band is used for other purposes as well, the transmission distance is greatly affected by the surrounding environment. (High-directional antenna capable of extending transmission distance three-fold will be introduced around the spring of 2002.)
4. Some companies use both systems. As a result, the number of the companies in this market totaled 12.



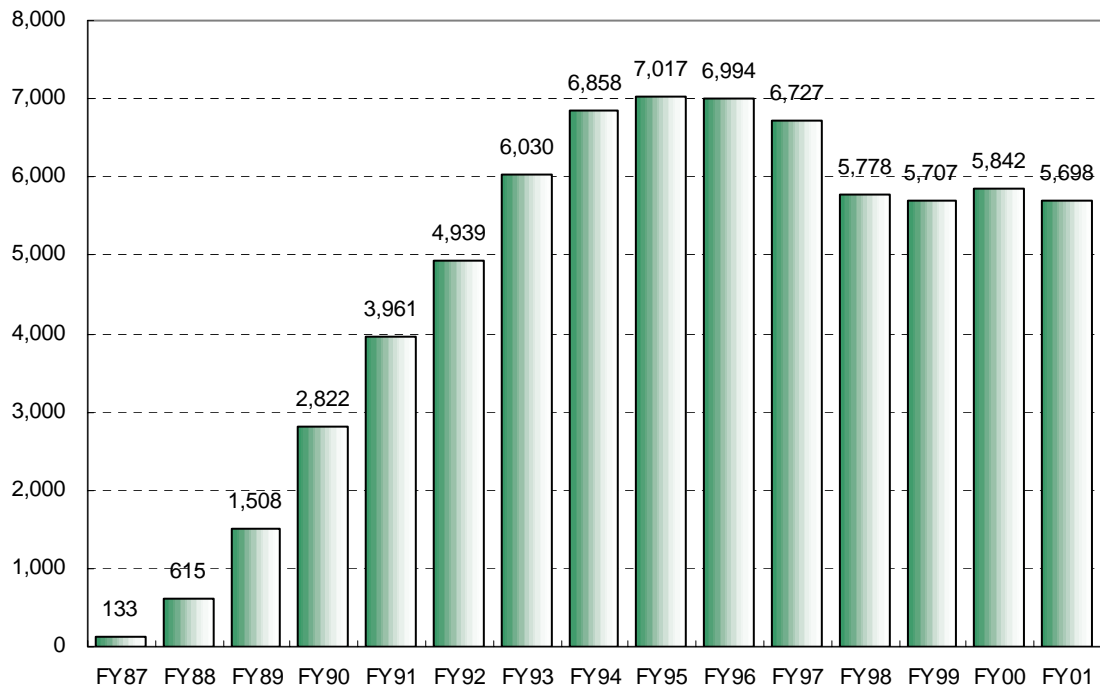
VI. Diffusion of major radio stations

1. Transition in the Number of Cellular Phones

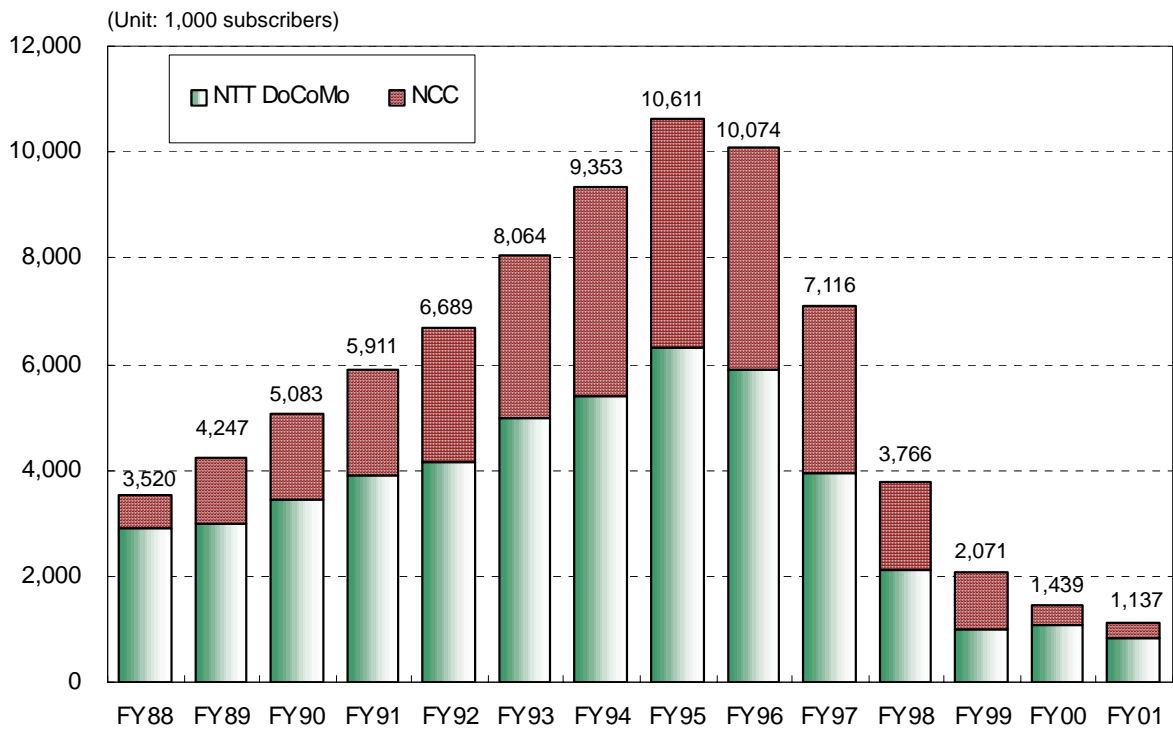


2. Transition in the Number of PHS Subscribers

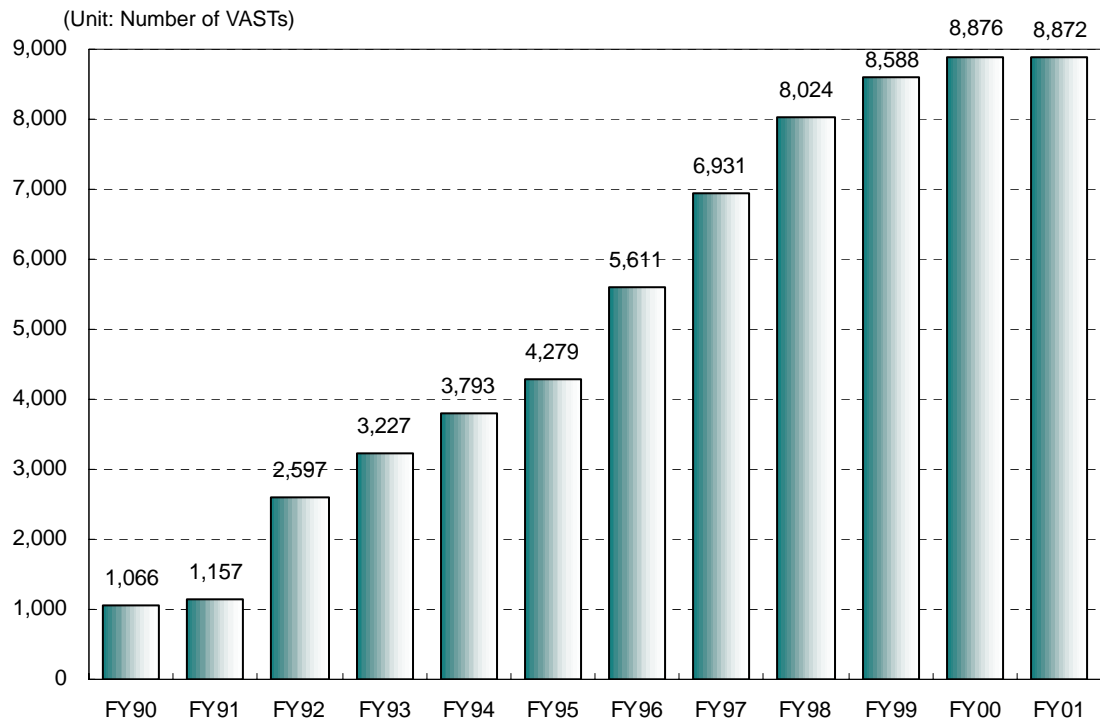
(Unit: 1,000 terminals)



3. Transition in the Number of Radio Pagers



4. Transition in the Number of SA Earth Stations



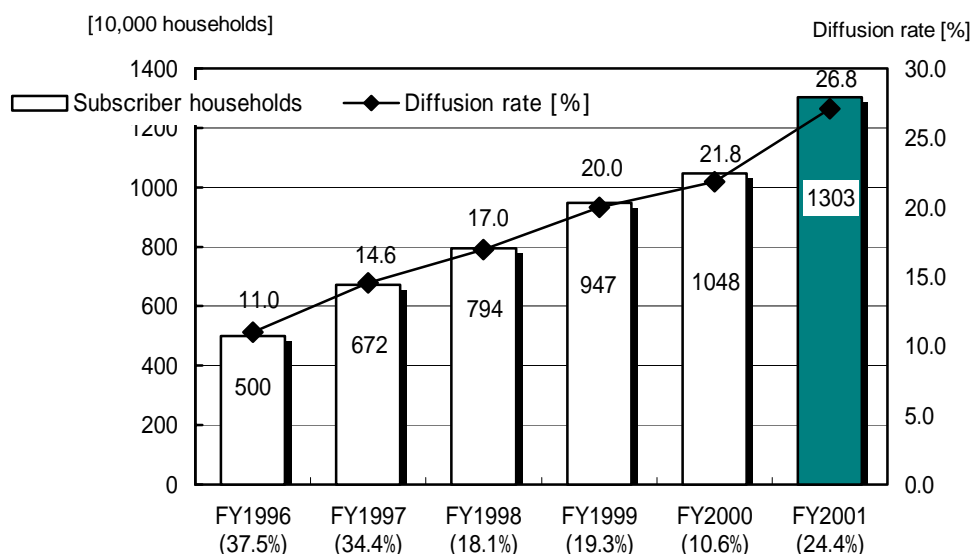
References

Reference I. Status of diffusion of cable television

Reference II. Current Status of Broadcasting Business
in Japan

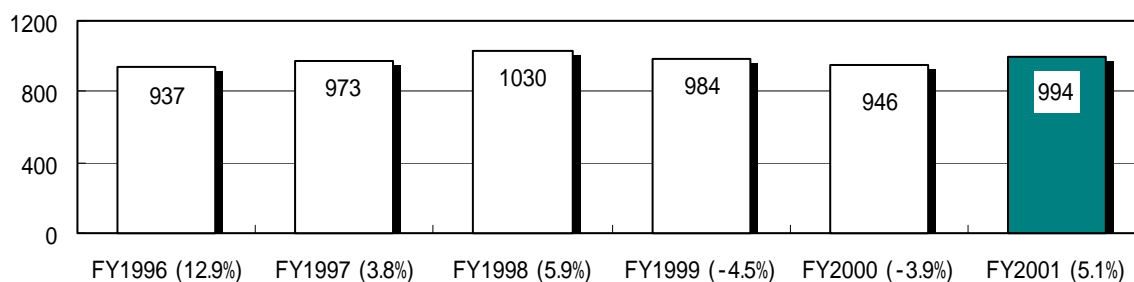
Reference I. Status of diffusion of cable television

1. Changes in the total number of subscriber households, diffusion rate



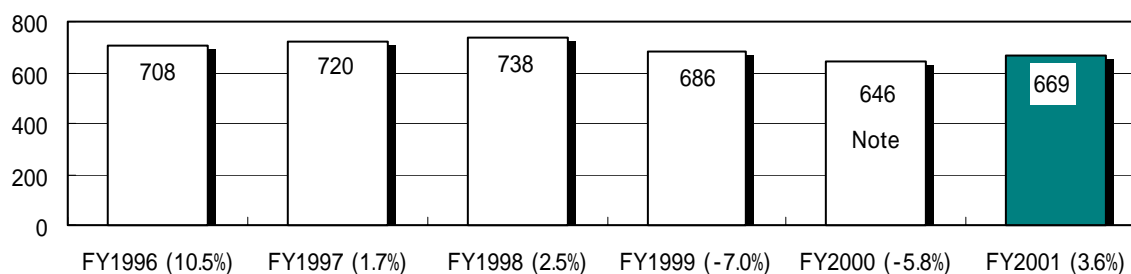
The data are as of the end of each fiscal year. The figures in the parenthesis are the rate of year-to-year increase in the total number of subscriber households. The diffusion rate was calculated using official family register data as of the end of each fiscal year.

2. Changes in the total number of cable television facilities



The data are as of the end of each fiscal year. The figures in the parenthesis are the rate of year-to-year increase in the total number of cable television facilities.

3. Changes in the total number of cable television service providers



The data are as of the end of each fiscal year. The figures in the parenthesis are the rate of year-to-year increase in the total number of cable television service providers.

Note: The data, up to FY1999, are the total of the figures collected by each Telecommunications Bureau (including overlapped figures). (The data for FY2000 including the overlapped figure is 660.)

Reference II. Current Status of Broadcasting Business in Japan

1. Operating Status of Broadcasters

	FY94	FY95	FY96	FY97	FY98	FY99	FY00	Aug. 2001	Oct. 2001	Dec. 2001	Feb. 2002	Mar. 2002	Apr. 2002	Jun. 2002	Aug. 2002	Oct. 2002	Dec. 2002	Mar. 2003
AM broadcasters	48	48	48	48	48	48	48	48	48	48	48	48	-	-	-	-	-	-
Shortwave broadcasters	2	2	2	2	2	2	2	-	-	-	-	2	-	-	-	-	-	-
FM broadcasters	46	49	51	51	52	53	55	-	-	-	-	55	-	-	-	-	-	-
FM sound multiplex broadcasters	1	1					0	-	-	-	-	0	-	-	-	-	-	-
FM teletext multiplex broadcasters		37	40	40	40	41	44	-	-	-	-	44	-	-	-	-	-	-
Community broadcasters	16	30	68	93	118	128	139	-	-	150	152	-	152	152	156	159	159	163
FM teletext multiplex broadcasts by community broadcasters					3	3	1	-	-	1	1	-	1	1	1	1	1	1
TV broadcasters	123	125	128	128	129	129	129	-	-	-	-	129	-	-	-	-	-	-
TV sound multiplex broadcasters	119	122	126	68	28	28	28	-	-	-	-	26	-	-	-	-	-	-
TV teletext multiplex broadcasters	25	24	25	24	23	21	19	-	-	-	-	16	-	-	-	-	-	-
TV data multiplex broadcasters			2	13	16	17	18	-	-	-	-	18	-	-	-	-	-	-
TV teletext multiplex and TV data multiplex broadcasters				16	16	15	15	-	-	-	-	15	-	-	-	-	-	-
BS analog TV broadcasters	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
BS analog sound multiplex broadcasters	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
BS analog data multiplex broadcasters	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BS digital TV broadcasters							1(8)	1(8)	1(8)	1(8)	1(8)	1(8)	1(8)	1(8)	1(8)	1(8)	1(8)	1(8)
BS digital radio broadcasters							1(10)	1(10)	1(10)	1(10)	1(10)	1(10)	1(10)	1(10)	1(10)	1(10)	1(10)	1(10)
BS digital data broadcasters							1(9)	1(9)	1(9)	1(9)	1(9)	1(9)	1(9)	1(9)	1(9)	1(9)	1(9)	1(9)
CS digital TV broadcasters (using a satellite that does not orbit above 110 degrees of east longitude)			1(56)	2(71)	2(115)	2(120)	1(113)	1(112)	1(112)	1(111)	1(111)	-	1(110)	1(108)	1(106)	1(104)	1(105)	1(102)
CS digital radio broadcasters			1(6)	2(8)	2(11)	2(11)	2(8)	2(8)	2(6)	2(6)	2(6)	2(6)	2(6)	2(6)	2(6)	2(6)	2(6)	2(6)
CS digital data broadcasters			1(1)	2(2)	2(4)	2(4)	2(2)	2(2)	2(3)	2(3)	2(3)	2(3)	2(3)	2(3)	2(3)	2(3)	2(3)	2(3)
CS digital TV broadcasters using a satellite that orbits above 110 degrees of east longitude							2(15)	2(15)	2(15)	2(15)	2(15)	2(15)	2(15)	2(15)	2(15)	2(15)	2(15)	2(15)
CS digital FM broadcasters using a satellite that orbits above 110 degrees of east longitude							1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)
CS digital data broadcasters using a satellite that orbits above 110 degrees of east longitude							2(8)	2(8)	2(8)	2(8)	2(8)	2(8)	2(8)	2(8)	2(8)	2(8)	2(8)	2(8)
CS analog TV broadcasters	2(10)	2(13)	2(13)	2(13)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
CS-PCM sound multiplex broadcasters	1(3)	1(2)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)

Notes :

1. Numbers of broadcasters include NHK, the University of the Air and other broadcasters.
2. Figures in parenthesis are the numbers of program supplying broadcasters who entrust broadcasting to facility supplying broadcasters (broadcast station licensees) and broadcasters on telecommunications services.

2. Diffusion of Terrestrial Broadcasting

	Commercial broadcasters	NHK
TV Broadcasting	Available nationwide. Four to six broadcast channels are viewable in approx. 90% of total household.	One general and one education channel are broadcast nationwide.
AM Broadcasting	Available nationwide. In major areas, two to four channels are broadcast.	Radio 1 and Radio 2 are broadcast nationwide.
FM Broadcasting	Available almost nationwide. In major areas, two channels are broadcast. In addition, foreign language broadcasting and community broadcasting are conducted.	One channel is broadcast nationwide.
Short Wave Broadcasting	One channel is broadcast nationwide.	(Overseas broadcasting is conducted.)

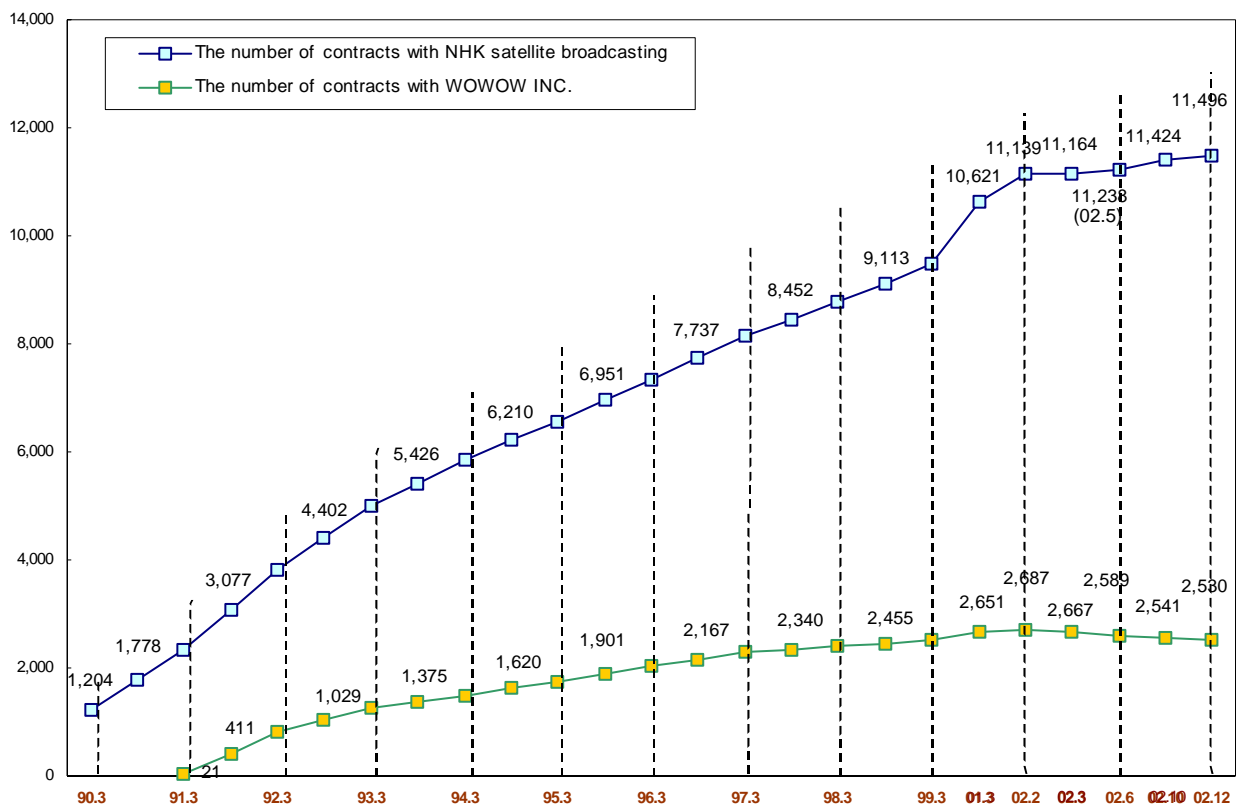
Note: In addition to the above, the University of the Air Foundation broadcasts one TV and one FM channel, targeting a major part of the Kanto Region as its coverage area.

3. Current Status of DBS in Japan

(1) DBS via broadcasting satellite (Transition of the number of household receivers)

Transition of the number of household receivers

Unit: 1,000 households



(2) DBS via Communication Satellites

1) Transition of receiver's contract

(Unit: 1000 cases)

	FY97	FY98	FY99	FY00	Jul., 2001	Feb., 2002	Apr., 2002	Aug., 2002	Oct., 2002	Dec., 2002
CS TV (Digital)	631	1,373	2,248	2,618	2,761	3,011	3,086	3,260	3,294	3,339

2) Numbers of licensees and channels by type of broadcasting

(i) BS analog broadcasting

Satellite	Type of broadcasting	Licensees	Number of channels
BSAT (BSAT-1a)	- High-definition TV broadcasting	- NHK	1
	- Standard definition TV broadcasting	- NHK and 1 commercial broadcaster	3
	- Standard definition TV sound multiplex broadcasting	- Commercial broadcasters	2
	- Standard definition TV data broadcasting	- 1 commercial broadcaster	1

(ii) BS digital broadcasting

Satellite	Type of broadcasting	Licensees	Number of channels
BSAT (BSAT-2a)	- High-definition TV broadcasting	- NHK and 6 commercial broadcasters	7
	- Standard definition TV broadcasting	- NHK (simulcast) and 7 commercial broadcasters	21
	- FM broadcasting	- 10 commercial broadcasters (including 1 simul-broadcaster)	23
	- Data broadcasting	- 9 commercial broadcasters (including 1 simul-broadcaster)	9

(iii) Analog broadcasting

Satellite	Type of broadcasting	Number of licensees	Number of channels
JSAT (JCSAT-2)	PCM sound broadcasting	1	17
	Data broadcasting	1	2

Notes: One broadcaster of JCSAT-2 data broadcasting also operates PCM sound broadcasting.

(iv) CS digital broadcasting (using a satellite that does not orbit above 110 degrees of east longitude)

Broadcasting Satellite	Type of broadcasting	Number of licensees	Number of channels
JSAT (JCSAT-3)	Standard definition TV broadcasting	54	106
	FM broadcasting	5 ^{*1}	105
	Data broadcasting	2 ^{*2}	24
JSAT (JCSAT-4)	Standard definition TV broadcasting	54	69
	Data broadcasting	1 ^{*2}	16
SCC (SUPERBIRD-C)	FM broadcasting	1	402
	Data broadcasting	1 ^{*3}	2

Notes:

1. Three broadcasters of JCSAT-3 radio broadcasting also operate standard definition TV broadcasting.
2. All data broadcasters also operate standard definition TV broadcasting.
3. All data broadcasters also operate FM broadcasting.

(v) CS digital broadcasting using a satellite that orbits above 110 degrees of east longitude

Broadcasting Satellite	Type of broadcasting	Number of licensees	Number of channels
SCC (N-SAT-110)	- High-definition TV broadcasting	1 ^{*1}	2
	- Standard TV broadcasting	7	23
	- FM broadcasting	1 ^{*2}	20
	- Data broadcasting	6 ^{*3}	8
JSAT (N-SAT-110)	- Standard TV broadcasting	8	38
	- Data broadcasting	2 ^{*4}	2

Notes:

1. High-definition TV broadcasting is operated only when the standard TV broadcasting is not operated. The high-definition TV broadcaster is also one of the standard TV broadcasters.
2. The FM broadcaster is also one of the standard TV broadcasters.
3. Three of the data broadcasters are also among the standard TV broadcasters.
4. Two of the data broadcasters are also among the standard TV broadcasters.