Outline of the Telecommunications Business in Japan

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

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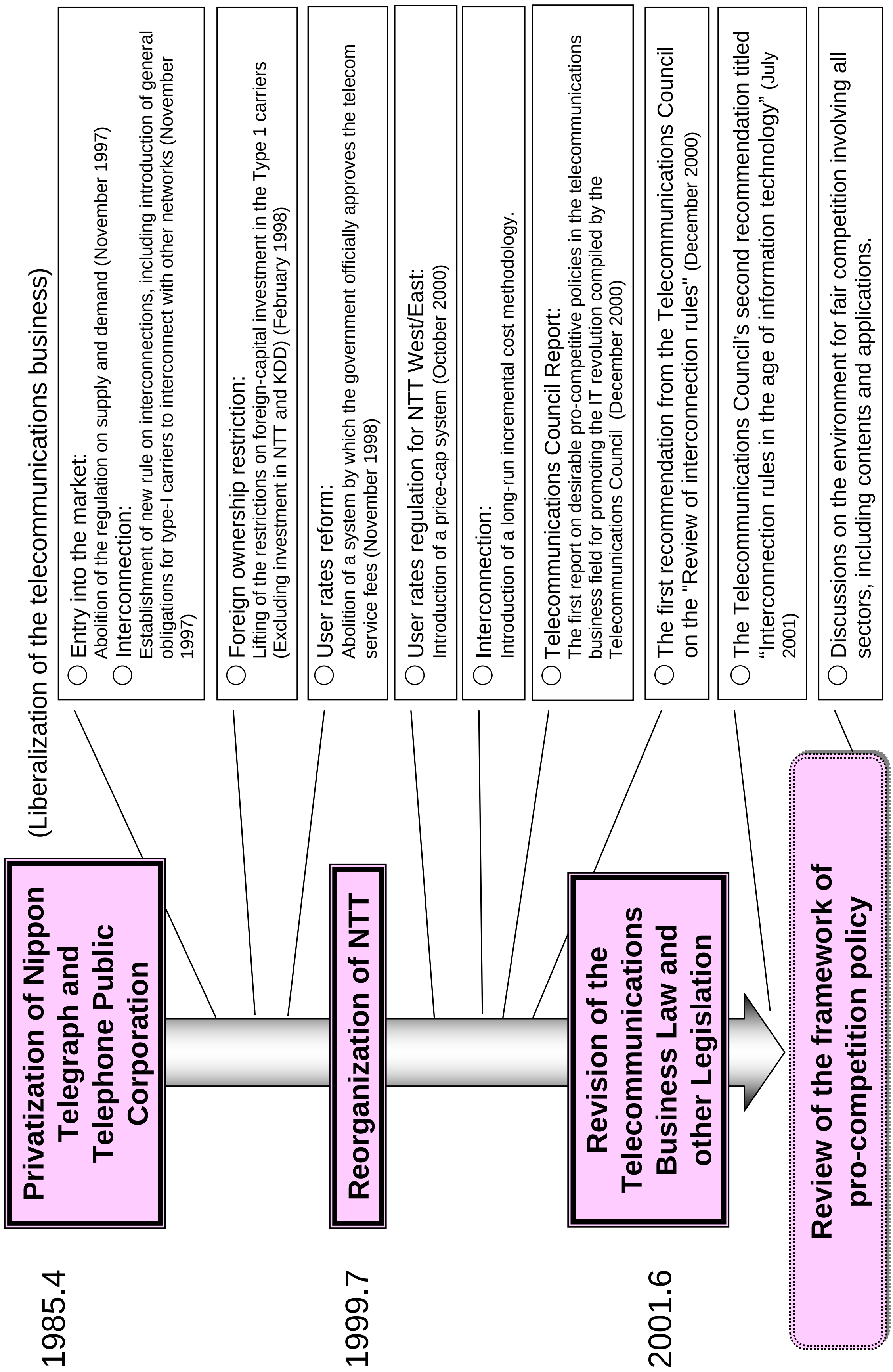
Contents

References

I. Development of Japanese pro-competition policy

1. Outline



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

○ The government submitted to the Telecommunications Council for deliberations plans concerning the pro-competition policy in the telecommunications industry to promote the IT revolution. (July 26, 2000)

○ On the basis of the council's first recommendation presented on Dec. 21, 2000, the government drafted revision bills of the Telecommunications Business Law and other related laws, and submitted them to the 151th Regular Diet session. The revision bills were legislated on June 22, 2001.

(1) Programs for promoting competition in the age of information technology

～ *Programs to be implemented* before the end of 2001 ～

i) Formulation of rules for fair competition

(a) Smooth implementation of cable laying ※

(b) Institutionalization of the wholesale telecommunications services ※

(c) Creation of interconnection rules

(d) Introduction of a system for dominant telecommunications carriers ※
(including the establishment of firewalls between the dominant telecommunications carrier and its affiliated companies that have special ties with the parent company)

(e) Deregulation of general restrictions ※

ii) Implementation of fair-competition rules

(a) Reinforcement of the system for filing complaints

(b) Greater efforts on administrative policies for consumers

(c) Establishment of a dispute-settlement committee for the telecommunications carriers business ※

iii) NTT's operations

(a) Introduction of a policy to promote competition using incentives
(Creation of an official approval system for expansion of business by NTT East and West, etc. ※※)

(b) Relaxation of the official approval system for issuance of new shares by NTT's holding company ※※

(c) Relaxation of restrictions on foreign investment in the holding company (less than one third of the total capital) ※※

(d) Abolition of the official approval system governing sales of shares in NTT Communications Corp. by the holding company ※※

iv) To secure a universal telephony service

Establishment of the universal telephony service fund ※

v) Matters to be discussed before the law is put into force

Discussions on the criteria for determining a dominant telecommunications carrier, criteria for assessing the progress of competition, the method of calculating costs for providing universal telephony service, etc. should be completed and conclusions must be drawn from the discussions before the law is enforced.

※ requires revision of the Telecommunications Business Law.
※※ requires revision of the NTT Law.

〜 *Conclusions must be drawn from discussions* on the following matters before the end of 2001 〜

i) NTT's operations

(a) Abolition of restrictions on foreign investment, and measures to ensure national security

(b) Abolition of NTT's requirements to conduct research and development, and Japan's research and development system

(c) Policies concerning the abolition of the government's duty to hold NTT shares

ii) Basic framework of the Telecommunications Business Law (the way of classifying businesses, etc.)

The government will begin reviewing the law, and will draw conclusions on the basic framework promptly.

iii) Measures to support next-generation universal telephony service

iv) Support for telecommunications carriers expanding their businesses globally

Relaxation of restrictions on NTT's purchase of its own shares, enabling the company to form a tripartite merger with a foreign firm. (This requires revision of the Commercial Law.)

(2) Outline of partial revisions of the Telecommunications Law and related laws

Establishment of rules for fair competition

Establishment of asymmetric regulations

(Objective)
To create a typical pattern of telecommunications carriers that dominate the market (both in the regional fixed telephony service sector and the mobile communications sector), and to ensure proper operation of their business.
(Outline)
i) To create typical patterns of anti-competition acts which should be forbidden, and to formulate measures to promptly eliminate such acts.
ii) Measures to enhance transparency and fairness of interconnections (Measures to make it compulsory for carriers to formulate and publish their general contractual agreements).

Establishment of a system concerning universal telephony service

(Objective)
Establishment of a system in which all carriers benefiting from the universal telephony service bear an appropriate amount of the costs (external assistance).
(Outline)
Establishment of a system in which qualified telecommunications carriers receive subsidies to cover part of the cost of providing universal telephony service, through a designated, neutral and fair corporation.

Establishment of a committee to settle disputes involving the telecommunications carriers business

(Objective)
Establishment of a system to settle promptly and effectively disputes involving interconnections and other problems between telecommunications carriers
(Outline)
i) Establishment of a dispute-settlement committee (an organization to be set up in accordance with Article 8), which is organizationally independent of the division in charge of granting official approvals and permissions.
ii) Introduction of simpler and speedier dispute-settlement procedures (mediation, arbitration)
iii) Establishment of a system in which personnel changes of the committee are made after approval by the Diet, and another system in which new members are recommended to the Minister of Public Management, Home Affairs, Posts and Telecommunications.

Further deregulation

Drastic deregulation for the carriers who are not dominant in the market

(Objective)
Implementation of dramatic deregulation of existing restrictions to the extent where it does not damage the interest of users
(Outline)
To abolish all official approval systems involving general contractual conditions, interconnection agreements, and joint-use agreements of non-dominant carriers, and to introduce a notification system in the same manner as the tariff system.

Expansion of the business of NTT East and West

(Objective)
To enhance free management of business operations by NTT East and West, a new system will be established in which the two companies are allowed to enter new sectors, such as Internet-related services.
(Outline)
To enable NTT East and West to launch new telecommunications businesses busing its facilities, technology or personnel after obtaining the approval of the Minister of Public Management, Home Affairs, Posts and Telecommunications. The two firms will be allowed to do so as long as the new business does not obstruct the smooth operation of their mainstay businesses, and does not hamper fair competition in the telecommunications market.

Relaxation of NTT shares restrictions

(Objective)
To support the expansion of NTT-Group businesses globally
(Outline)
i) Relaxation of restrictions on foreign investment in the holding company (from less than 20 percent to one third of the total capital)
ii) Establishment of exceptional measures for the issuance of new shares by the holding company
iii) Abolition of a system requiring the NTT Group to obtain official approval when its holding company sells shares in NTT Communications Corp.

Promotion of establishment of an IT infrastructure

Smooth implementation of cable laying, etc.

(Objective)
To improve the flexibility of constructing networks by telecommunications carriers
(Outline)
To make it clear that procedures for resolving disputes over the use of electric poles, conduits, etc., stipulated in the Telecommunications Business Law, will involve officially-owned land. To establish procedures for mediation between a telecommunications carrier and person or office in charge of managing roads.

Introduction of the wholesale telecommunications services system

(Objective)
To promote effective use of fiber-optic networks by local governments, public utilities, etc. and to enhance the flexibility of network construction by telecommunications carriers
(Outline)
i) To introduce a system which enables provision of flexible wholesale telecommunications services based on individual contracts between telecommunications carriers (what is called the "carrier's carrier contract").
ii) To abolish the traditionally provided services not included in the general contractual agreement (subject to the official approval system), and to introduce a notification system in which all wholesale services will be reported to the authorities.

Others

Objective of the revision

(Outline)
"Promotion of fair competition" should be clearly stipulated in the purpose of the Telecommunications Business Law

Establishment of regulations concerning reviews

(Outline)
Establishment of regulations concerning a comprehensive review of systems involving the telecommunications business, in the supplementary provisions of the revised law.

To promote the IT revolution, efforts should be made to encourage fair competition and to maximize the profit of users

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

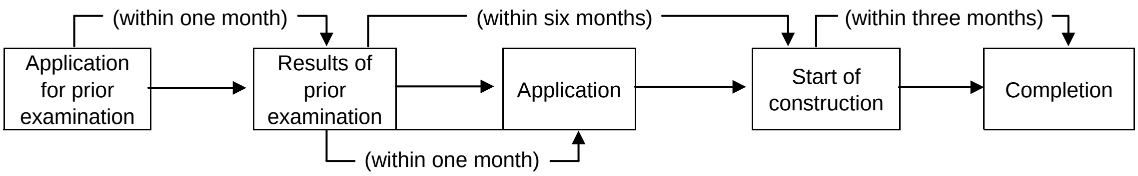
Typical examples

- 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”

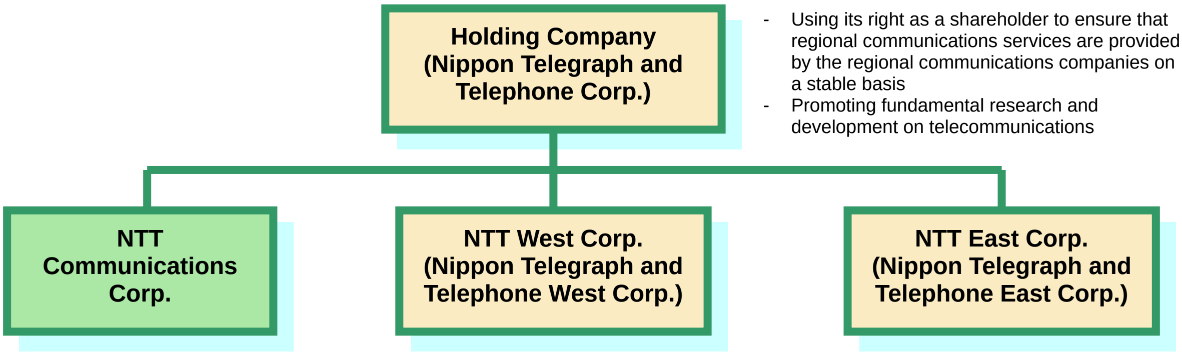
- Ministry ordinance

  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



Holding Company:

- Using its right as a shareholder to ensure that regional communications services are provided by the regional communications companies on a stable basis
- Promoting fundamental research and development on telecommunications

NTT West Corp.:

- Providing regional communications service in Western Japan (Tokai, Hokuriku, Kansai, Chugoku, Shikoku, Kyushu and Okinawa)
- Being obliged to provide universal service of telephony in Western Japan

NTT East Corp.:

- Providing regional communications service in Eastern Japan (Hokkaido, Tohoku, Kanto, Tokyo and Shin'etsu)
- Being obliged to provide universal service of telephony in Eastern Japan

References

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

II. Current situation surrounding the telecommunications business

1. Changes in the total number of telecommunications carriers

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Apr. 1 2001	Oct. 1 2001	Dec.1 2001	Feb. 1 2002
Type I Carriers	2	7	12	36	44	62	68	70	80	86	111	126	138	153	178	249	342	372	377	379
NTT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3
KDD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	-	-	-	-
NTT DoCoMo, Inc. and its group companies	-	-	-	-	-	-	-	-	1	9	9	9	9	9	9	9	9	9	9	9
New Type I Carriers	-	5	10	34	42	60	66	68	77	75	100	115	127	142	167	236	330	360	365	367
Long-distance/International Carriers	-	3	3	5	5	5	5	5	5	5	5	5	5	6	12	21	32	36	37	35
Regional Carriers	-	-	3	4	4	7	7	7	8	10	11	16	28	47	77	159	274	302	309	313
Satellite Carriers	-	2	2	2	2	2	2	3	3	2	2	4	4	5	6	5	5	5	5	5
Mobile Communications	-	-	2	23	31	46	52	53	61	58	82	90	90	84	72	51	19	17	14	14
Portable Phones	-	-	-	2	4	8	8	9	15	15	17	21	21	21	21	21	8	7	5	5
Radio Paging	-	-	2	20	26	33	36	36	36	31	31	31	31	31	31	19	3	2	2	2
PHS	-	-	-	-	-	-	-	-	-	-	23	28	28	28	18	9	5	4	3	3
Convenience Radio Phone (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	3
Data communications	-	-	-	-	-	1	1	1	1	1	1	2	2	2	-	-	-	-	-	-
Radio access system	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
Others	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Type II Carriers	85	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	9,691	9,837	9,960
Special Type II Carriers	0	9	10	18	25	28	31	36	36	39	44	50	78	95	88	101	113	115	113	114
General Type II Carriers	85	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	9,576	9,724	9,846
Total	87	216	368	566	737	903	1,011	1,106	1,259	1,675	2,218	3,260	4,726	6,024	6,780	7,900	9,348	10,063	10,214	10,339

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, KDD Corp., DDI Corp. and IDO Corp. were merged into DDI Corp.

2. Current Status of Main Foreign Investment in Telecommunications Carriers

(1) Type I telecommunications carriers and others

(As of Feb. 1, 2002)

Carrier	Foreign capital ratio	Major foreign investors
Cable & Wireless IDC	97.73%	Cable & Wireless plc (C&W), etc.
J-COM Kanto Co., Ltd.	59.00%	Liberty Japan, Inc., Liberty Jupiter, Inc., Microsoft Holding Inc.
J-COM Kansai Co., Ltd.	58.11%	Liberty Japan, Inc., Liberty Jupiter, Inc., Microsoft Holding Inc.
KVH Telecom Co., Ltd.	100.00%	KVH Telecom Holding SCDRL
PCCA Private Limited	100.00%	Pacific Century Cyberworks Limited
PanAmSat International Systems, Inc.	81.50%	Hughes Electronics
MCI WorldCom Japan, Ltd.	100.00%	MCI WorldCom, Inc.
Metromedia Fiber Network Japan K.K.	100.00%	Metromedia Fiber Network Service, Inc.
Global One Communications Network, Inc.	100.00%	Global One Communications World Holding
Global Access Ltd.	49.00%	Asia Global Crossing, Ltd.
Primus Japan K.K.	100.00%	Primus Telecommunications Group, Inc.
K.K. Telegloble Japan	100.00%	Teleglobe Communications Corp.
RSL COM Service Japan K.K.	100.00%	RSL COM Asia Pacific Ltd.
SingTel Japan, Co., Ltd.	100.00%	Singapore Telecommunications Ltd.
Reach Networks Japan Co., Ltd.	100.00%	Reach Networks Hong Kong Limited
PSI Networks Japan Inc.	100.00%	PSINet Inc.
Level 3 Communications K.K.	100.00%	Level 3 International Inc.
EGN B.V.	100.00%	Equant Finance B.V.
Deutsche Telekom Japan K.K.	100.00%	Deutsche Telecom AG
Sony Corp.	44.56%	Moxley & Co., State Street Bank and Trust Company, etc.
FLAG Telecom Japan Limited	100.00%	FLAG Telecom Ireland Limited
New Century Global Net Corp.	100.00%	NCG Holdings L.P.
Genuity Japan K.K.	100.00%	Genuity Inc.
Asia Global Crossing Japan	100.00%	Asia Global Crossing Limited
World Exchange	100.00%	World Exchange Communications
Dacom Japan	100.00%	Dacom Corporation
Circle Asia	54.39%	Grand River Group Limited, etc.
J-COM Kitakyushu Co., Ltd.	44.78%	Liberty Japan, Inc., Liberty Jupiter, Inc., Microsoft Holding Inc.
J-COM Shonan Co., Ltd.	41.00%	Liberty Japan, Inc., Liberty Jupiter, Inc., Microsoft Holding Inc.
J-COM Sapporo Co., Ltd.	46.32%	Liberty Japan, Inc., Liberty Jupiter, Inc., Microsoft Holding Inc.
Kisarazu Cable TV	45.78%	Liberty Japan, Inc., Liberty Jupiter, Inc., Microsoft Holding Inc.
J-COM Gunma Co., Ltd.	59.00%	Liberty Japan, Inc., Liberty Jupiter, Inc., Microsoft Holding Inc.
GTE Far East (Services) Ltd.	100.00%	Verizon Hawaii International
Concert Japan K.K.	100.00%	Concert Global Networks Japan Inc.
Williams Communications, Inc.	100.00%	Williams Communications Participations
Sprint International Japan Co., Ltd.	100.00%	Sprint International Holding Inc.
Ticom Networks Japan Co., Ltd.	100.00%	TCN Holding Luxemburg
C to C Japan Co., Ltd.	100.00%	C to C PTE Limited
Quest Communications Japan Co., Ltd.	100.00%	Quest Communications International
Japan Telecom Co., Ltd.	45.00%	Vodafone International Holdings BV
Power Band Co., Ltd.	64.20%	J.H. WHITNEY IV LP, World View Technology Partners III LP
J-phone Co., Ltd.	69.72%	Boderphone International Holdings B.V., etc.
ORBCOMM Japan Limited	37.91%	ORBCOMM Asia Limited

Note: This list includes companies with foreign capital ratio of more than a third.

(2) Special Type II telecommunications carriers

(As of Feb. 1, 2002)

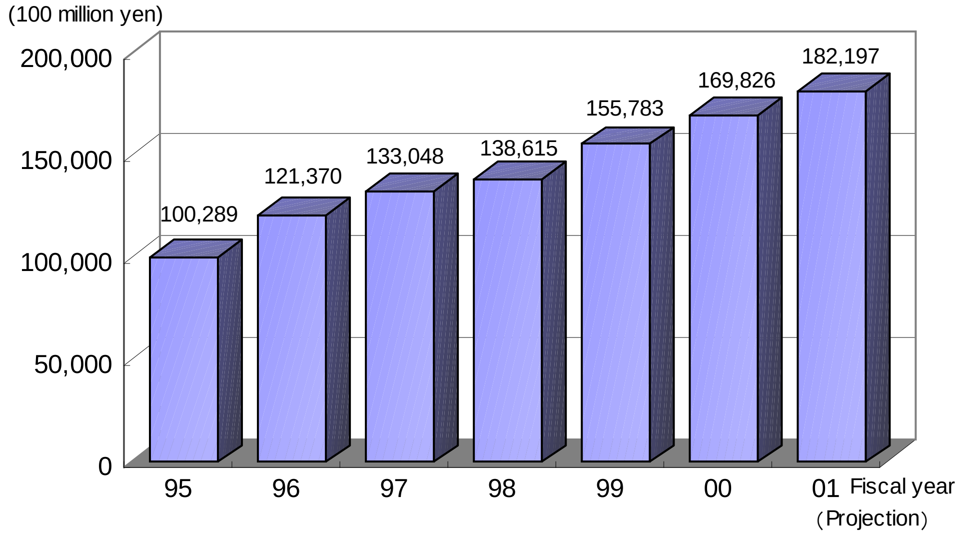
Carrier	Foreign capital ratio	Major foreign investors
IBM Japan, Ltd.	100.00%	IBM WTC (U.S.A)
Information Service International-Dentsu, Ltd.	34.00%	GE Information Service (U.S.A)
Xpedite	100.00%	Xpedite Systems Inc. (U.S.A)
Compaq Computer K.K.	100.00%	Digital Equipment Corp. (U.S.A)
Cable & Wireless Japan Ltd.	85.80%	Cable & Wireless plc. (U.K.)
Concert Global Network Japan	100.00%	Concert Global Networks (U.S.A) Inc.
Deutsche Telecom K.K.	100.00%	Deutsche Telekom AG (Germany)
Reach Holdings Singapore Japan	100.00%	Reach Ltd. (Hong Kong)
Saiki-Tech Communications Japan Co., Ltd.	100.00%	SAIKI TECH INVESTMENT HOUSE (ISRAEL) LTD.
TMI Telemedia International Hong Kong Ltd.	100.00%	TMI Telemedia International Hong Kong Ltd.(Hong Kong)
IXnet Japan Co., Ltd.	100.00%	Saturn Global Network Holding Ltd. (U.K.)
UUNet Japan Co., Ltd.	100.00%	UUNet Technologies Inc. (U.S.A)
MCI International (Japan) Co., Ltd.	100.00%	MCI International, Inc. (U.S.A)
AT & T Communications Service Japan Ltd.	100.00%	AT & T Corp. (U.S.A)
MCI WorldCom Communications Japan Ltd.	100.00%	MCI WorldCom, Inc. (U.S.A)
Far East Data Ltd.	90.00%	Far East Enterprises, Ltd. (U.S.A)
DoCoMo AOL, Inc.	40.30%	America Online, Inc. (U.S.A)
PSINet Japan Inc.	100.00%	PSINet Inc. (U.S.A)
Coyote Network Systems, Inc.	100.00%	Coyote Network, Systems, Inc. (U.S.A)
Magde Web Japan Co., Ltd.	100.00%	Tullett & Tokyo Forex Europe B.V.(the Netherlands)
Equant Co., Ltd.	100.00%	EGN B.V. (the Netherlands)
Primus Telecommunications K.K.	100.00%	Primus Telecommunications International, Inc. (U.S.A)
City Telecom (Japan) Co., Ltd.	100.00%	City Telecom (H.K.) Ltd. (Hong Kong)
Telegroup Japan, Inc.	100.00%	Telegroup, Inc. (U.S.A)
RSL COM Japan, K.K.	100.00%	RSL Communications Ltd. (U.S.A)
Teleglobe Services Japan, Inc.	100.00%	Teleglobe International Corp. (U.S.A)
Pacific Gateway Exchange Japan Inc.	100.00%	Pacific Gateway Exchange Inc. (U.S.A)
GINGA Communications International, Inc.	100.00%	Unitrendix Corp. (U.S.A)
Singapore Telecom Japan Co., Ltd.	100.00%	Singapore Telecommunications Ltd. (Singapre)
Nippon WorldxChange Ltd.	100.00%	WorldxChange Communications (U.S.A)
Genuity International Inc. (Japan)	100.00%	Genuity International Inc. (U.S.A)
AIC Telecom (Japan) Ltd.	100.00%	AIC (Asia Pacific) Ltd. (Hong Kong)
i-Tel Corp.	100.00%	Impact Telecommunications, Inc. (U.S.A)
AT & T Global Network Services Japan LLC	85.00%	AT & T Corp. (U.S.A)
Verizon Global Solutions Holdings Limited	100.00%	Verizon International Holdings Limited (Bermuda (U.K. territory))
Cignal Telecommunications Japan K.K.	100.00%	Cignal Global Communications Holding B.V. (the Netherlands)
Korea Telecom Japan K.K.	100.00%	Korea Telecom (South Korea)
REUTERS Japan Ltd.	100.00%	Reuters Group PLC (U.K.)
Telecom New Zealand Japan K.K.	100.00%	Telecom New Zealand International Ltd. (New Zealand)
Wherever Japan K.K.	100.00%	Wherever Technology Corp. (Taiwan)
At Home Japan Ltd.	57.2%	At Home Corp. (U.S.A)
KPN Japan, Ltd.	100.00%	Royal KPN N.V. (the Netherlands)
Nittan Telecom (Japan) Ltd.	100.00%	Nittan Telecom Ltd. (Hong Kong)
Global Crossing Japan Corp.	100.00%	Asia Global Crossing (U.S.A)
M3Com (Japan) K.K.	100.00%	Millenium 3 Communications, Inc. (U.S.A)
AboveNet Japan KK	40.0%	AboveNet Communications, Inc. (U.S.A)
Savvis Japan Ltd.	100.00%	Savvis Communications, Inc. (U.S.A)
Bazillion Inc.	90.0%	Bazillion Inc. (U.S.A)
WAM!NET Holding Japan KK	100.00%	WAMNET Inc. (U.S.A)
Hewlett-Packard Japan, Ltd.	100.00%	Hewlett-Packard Company (U.S.A)
At Network Japan KK	100.00%	Network Inc. (U.S.A)
Streamscape	99.00%	Streamscape Network Inc. (U.S.A)
Enron Broadband Services Network	100.00%	Enron Corporation (U.S.A)
QoS Network Services Japan	100.00%	QoS Network Services Ltd. (Ireland)
Sprint International Holding, Inc.	100.00%	Sprint International Holding, Inc. (U.S.A)
Angstrom Network Japan	100.00%	Angstrom Networks Ltd. (U.S.A)
iBasis Japan Co., Ltd.	100.00%	iBasis Global, Inc. (U.S.A)
XA Aliance Co., Ltd.	100.00%	OMM Holdings Limited (Cayman Islands (U. K. territory))
Infoserve Technology Co., Ltd	100.00%	Infoserve Tech Corp. (U.S.A)
BELGACOM Japan Co., Ltd	100.00%	BELGACOM S.A. (Bergen)
PCCW Communications Japan Co., Ltd	100.00%	PCCW Holdings Limited (Cayman Islands (U. K. territory))
SK Cyberpass Co., Ltd.	100.00%	SK Telink (Korea)
Chinalink Networks Co., Ltd.	99.8%	Chinalink Networks Limited

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

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

① The market size (combined sales) of type 1 carriers in fiscal 2000 was 16, 982.6 billion yen (up 9.0 percent from the previous year)

② Supported by the growth of the mobile communications business, the combined sales surged from the previous year.

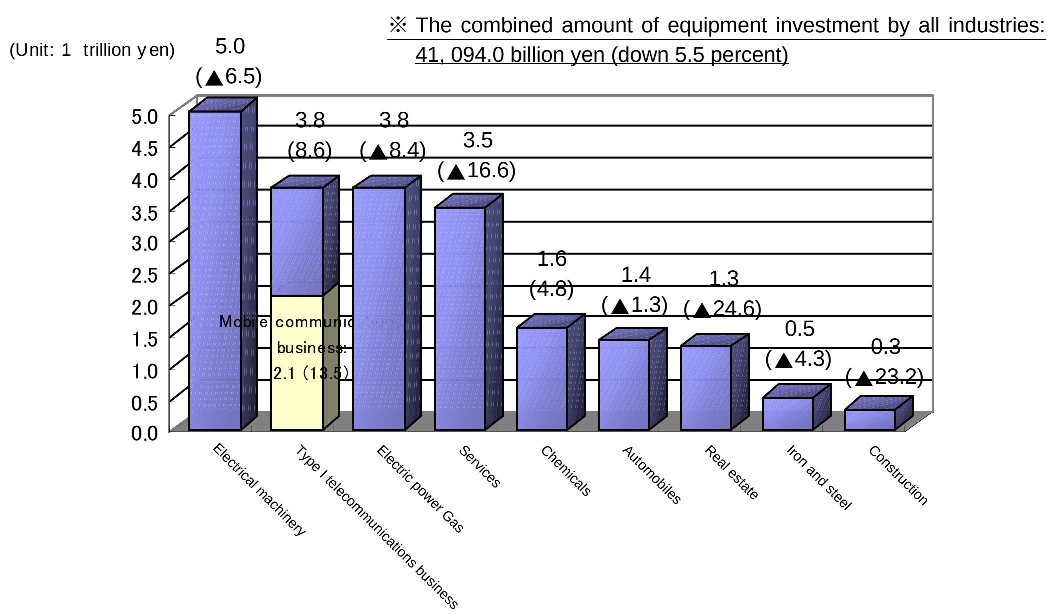


(2) Equipment investment by type-1 carriers (Plans for fiscal 2001)

① The total amount of equipment investment projected for fiscal 2001 is 3,847.4 billion yen (up 8.6 percent from the previous year's total)

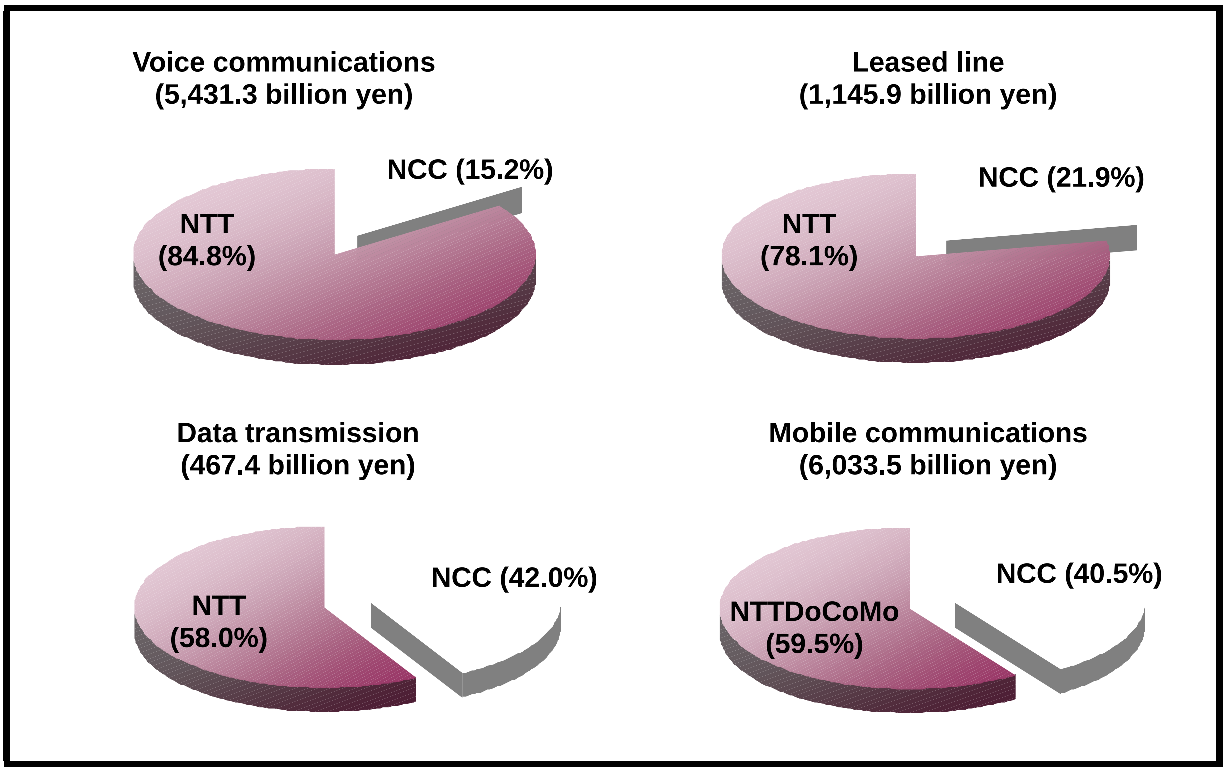
② This accounts for about 10 percent of the combined amount of equipment investment projected by all industries (41,094.0 billion yen)

③ The equipment investment by type-1 carriers is the second largest, next to that of the electric machinery industry.



4. Shares of NTT and NCC

(1) Sales of NTT-Group companies in each type of service (FY2000)

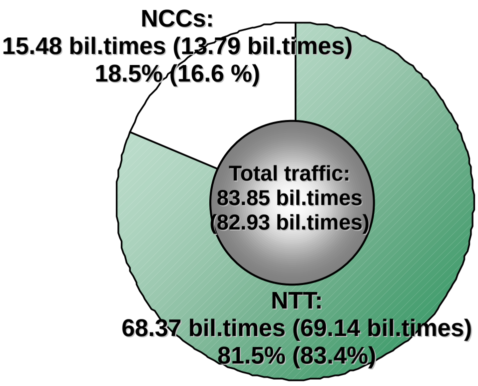


Note:
1. "NTT" indicates the combined sales of NTT East, NTT West, and NTT Communications.
2. The figures in the charts of voice communications, leased line, and data transmission services are those of the fixed telephone service providers.
3. The figure for mobile communication indicates the combined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

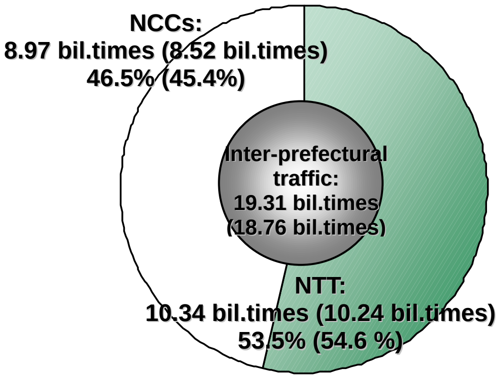
(2) Telephone (Subscriber Telephone + ISDN) Market Share of NTT and NCCs

(Share of traffic in FY1999)

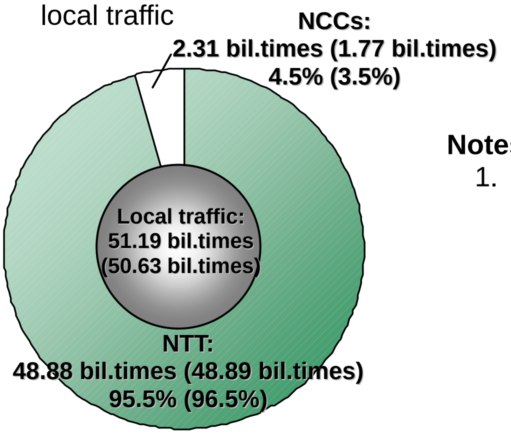
(1) Share of NTT and NCCs in all traffic



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



(3) Share of NTT and NCCs in local traffic

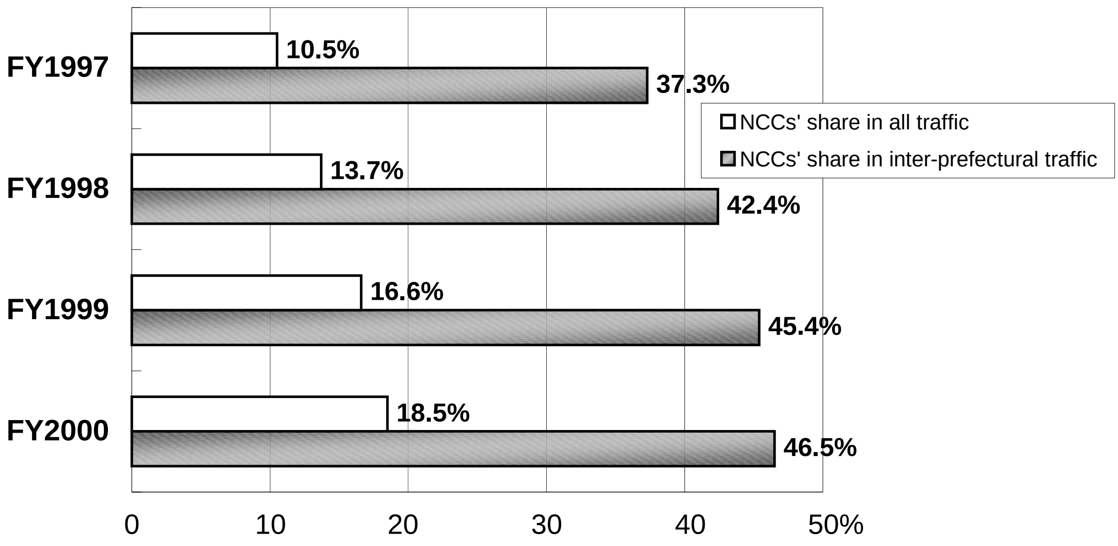


Figures in parenthesis represent the share of traffic in FY 1999.

Notes:

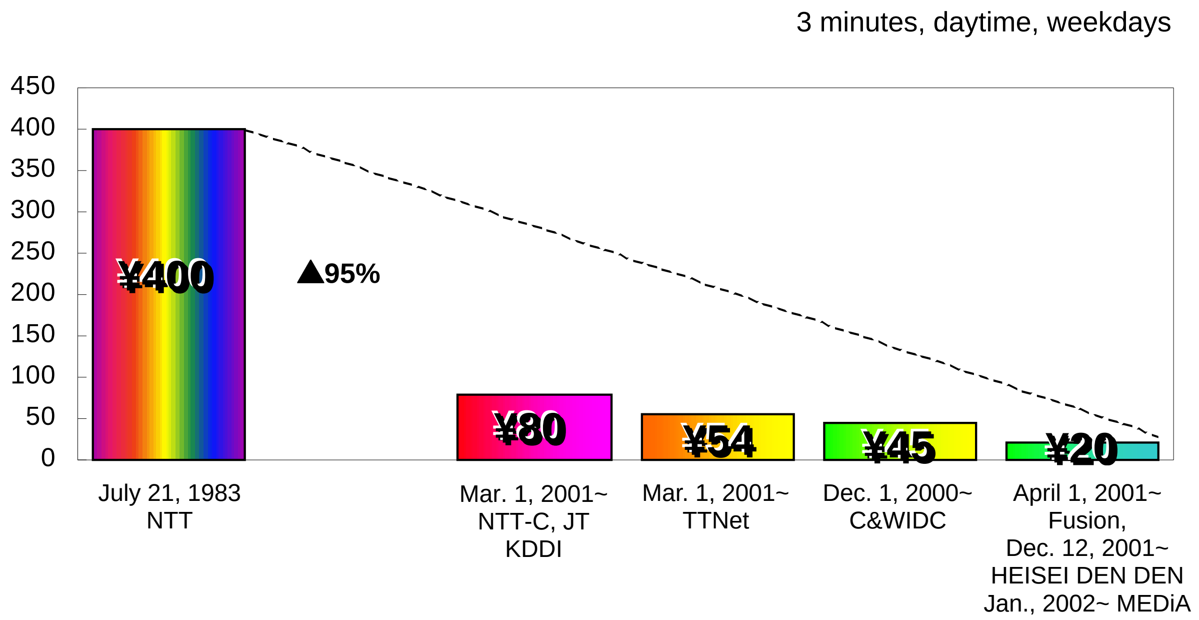
1. Figures for NCCs include those of KDDI Corp., Japan Telecom Co., Ltd., J-COM Tokyo, JCOM East Communications, Corp., MCIWC, C&W IDC and 8 power-utility-company-based NCCs (HOTnet, TOHKnet, HTnet, CTC, OMP, CTNet, STNet and QTNet).

(3) Changes of NCCs' share in all traffic

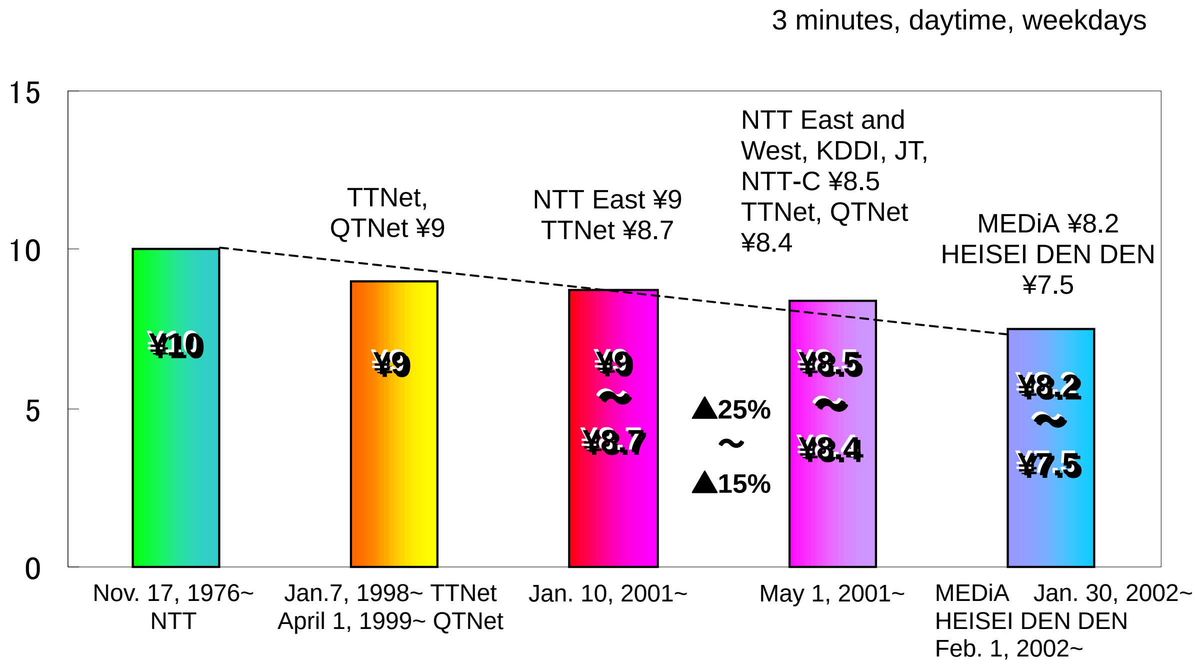


5. Current Status of Rate Reductions

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

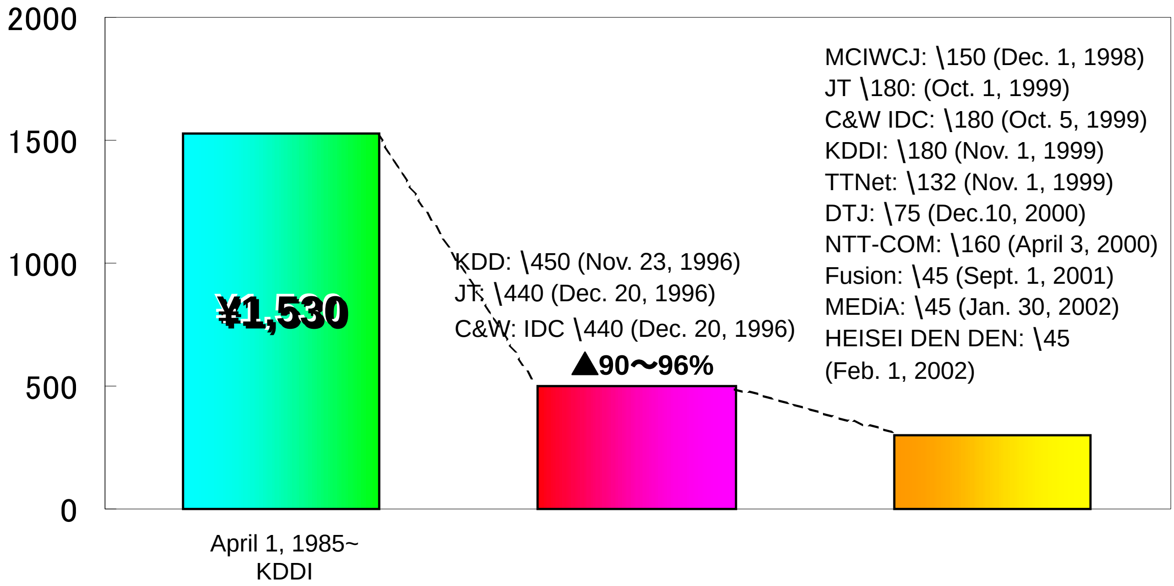


(2) Local call



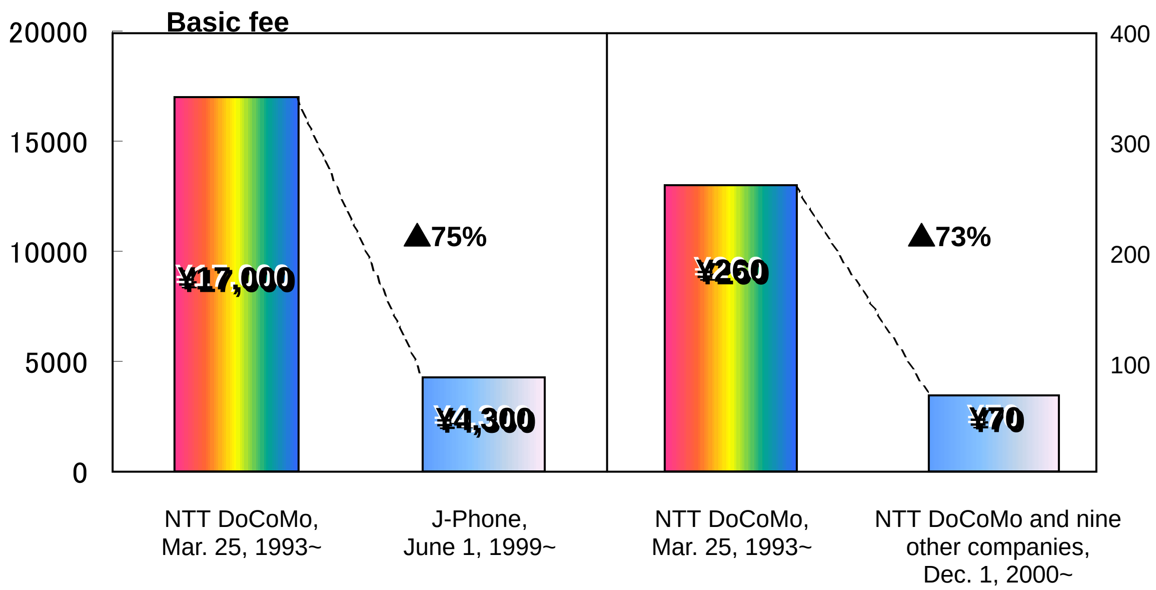
(3) International call (Japan-U.S.A)

3 minutes, daytime, weekdays



(4) Cellular phone (800Mhz digital system)

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

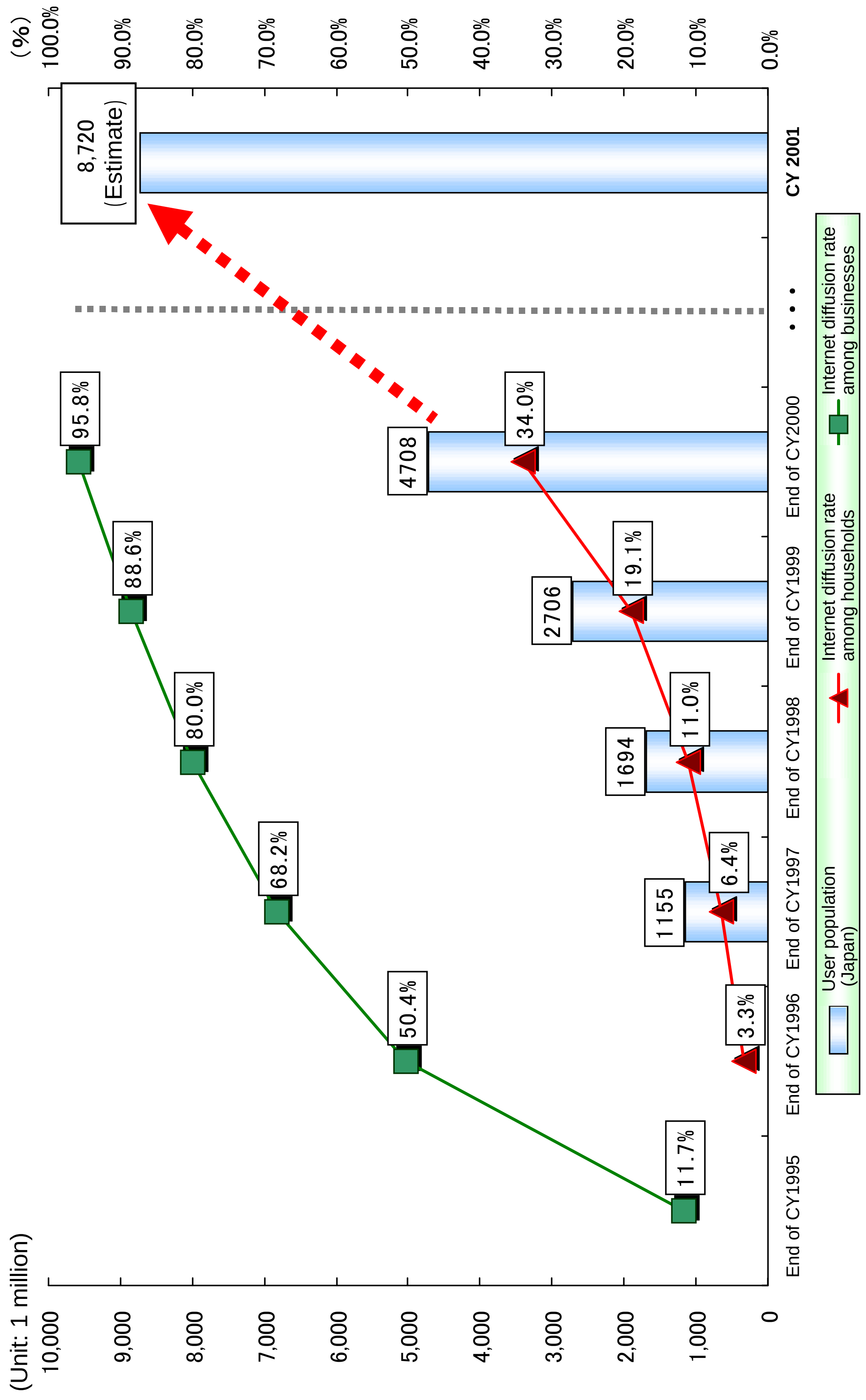


Note: On March 25, 1993, the "800MHz digital cellular phone service" started.
NTT DoCoMo reduced the basic charge to 4,500 yen (including a free call allowance worth 200) in June 2000.

III. Internet

1. Total Internet user population and Internet diffusion rate

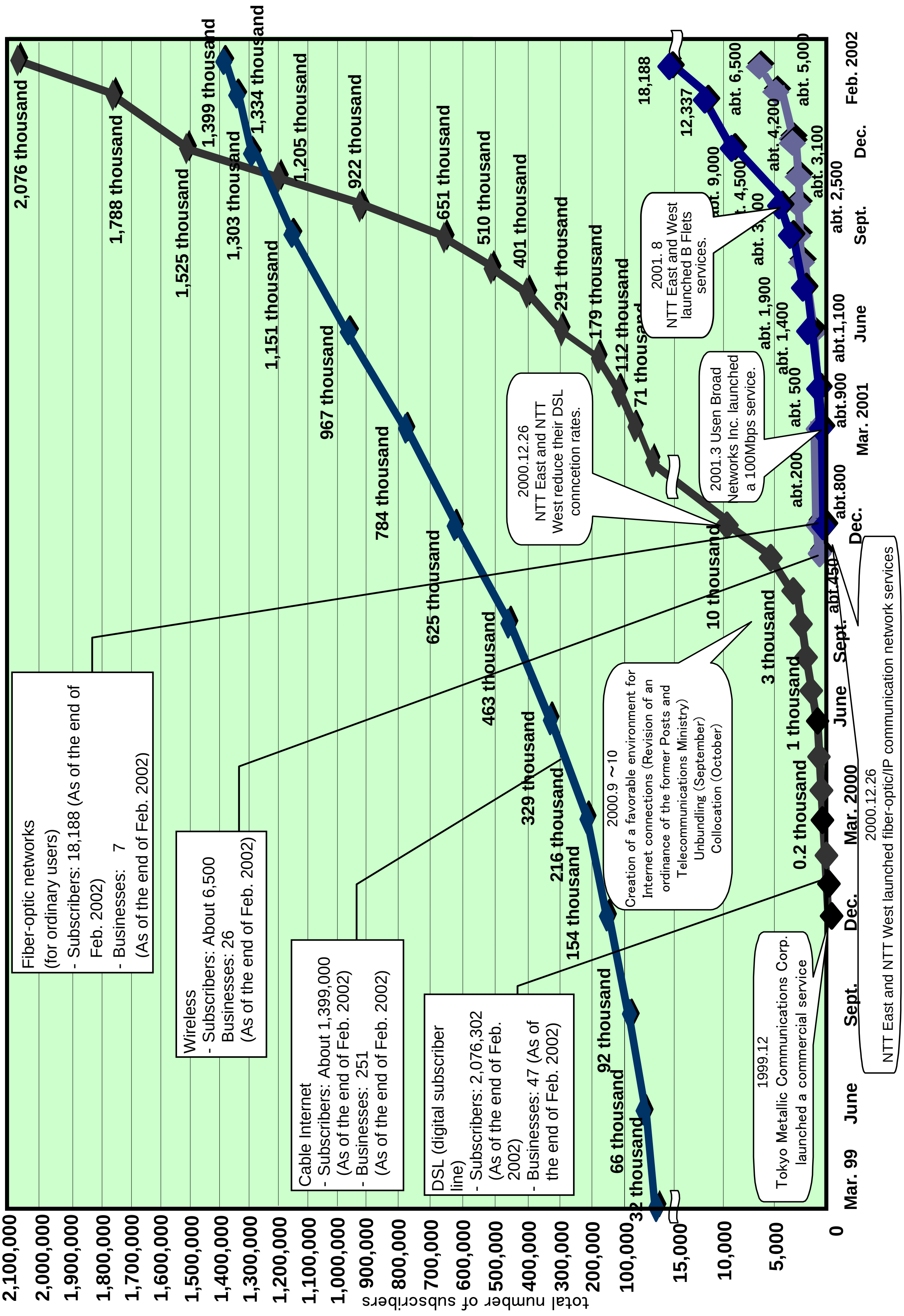
(1) Environment surrounding telecommunications business



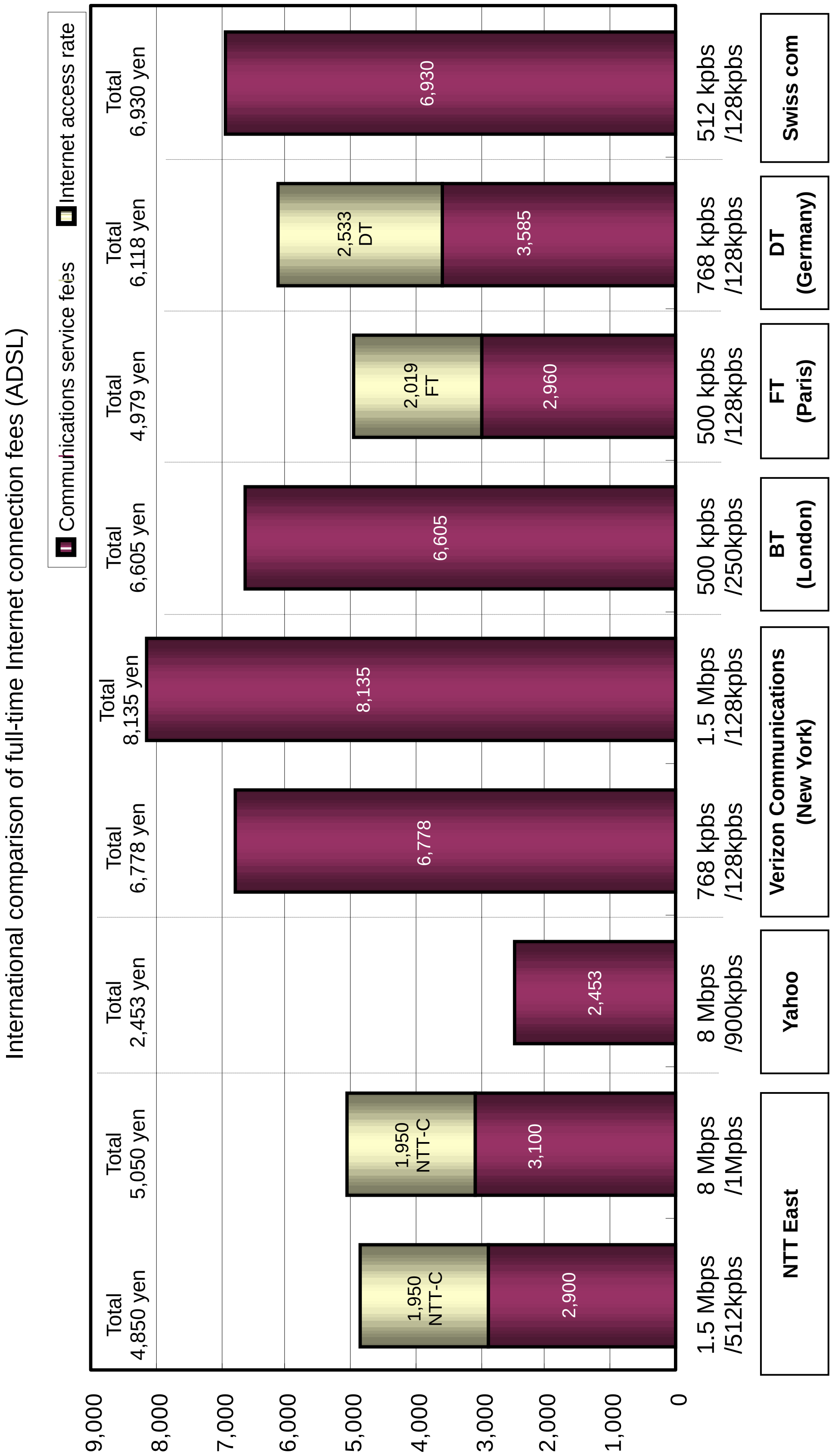
※ Businesses are those having more than 300 workers on their payrolls, and are located in Japan (excluding businesses in the agriculture, forestry, fisheries and mining industries).

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**



2. International comparison of full-time Internet connection fees



Note:
1. The rate was calculated on the assumption that the user connects to the Internet 24 hours a day for 30 days per month.
2. The figures for foreign countries are those as of February 2002. Foreign exchange rates were calculated on the basis of the TTS (Telegraphic Transfers Selling) rate on February 1, 2002, which was 135.70 yen to the US dollar, 194.10 yen to the British pound, 117.30 yen to the Euro, and 79.25 yen to the Swiss franc.

3. Construction of fiber-optic networks

(1) Installation condition in terms of cable length used

(As of the end of FY2000; unit: 1,000km)

Item	Cable length	Fiber-optic cable
Transit System	274	245
Subscriber Loop System	1,276	242
Total	1,551	487

(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
Transit System	36.4	42.1	48.0	55.4	60.3	65.8	70.9	78.1	86.0	89.4
Subscriber Loop System	2.3	2.9	3.8	4.7	6.4	9.7	13.2	15.2	17.7	19.0
Total	8.6	10.1	12.4	15.1	17.3	21.4	25.1	27.7	32.6	31.4

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
Transit System	3,414	2,972	3,387	3,446	2,247	2,859	2,037
Subscriber Loop System	1,299	2,447	3,315	3,033	2,415	2,774	2,052
Total	4,713	5,419	6,702	6,479	4,662	5,633	4,089

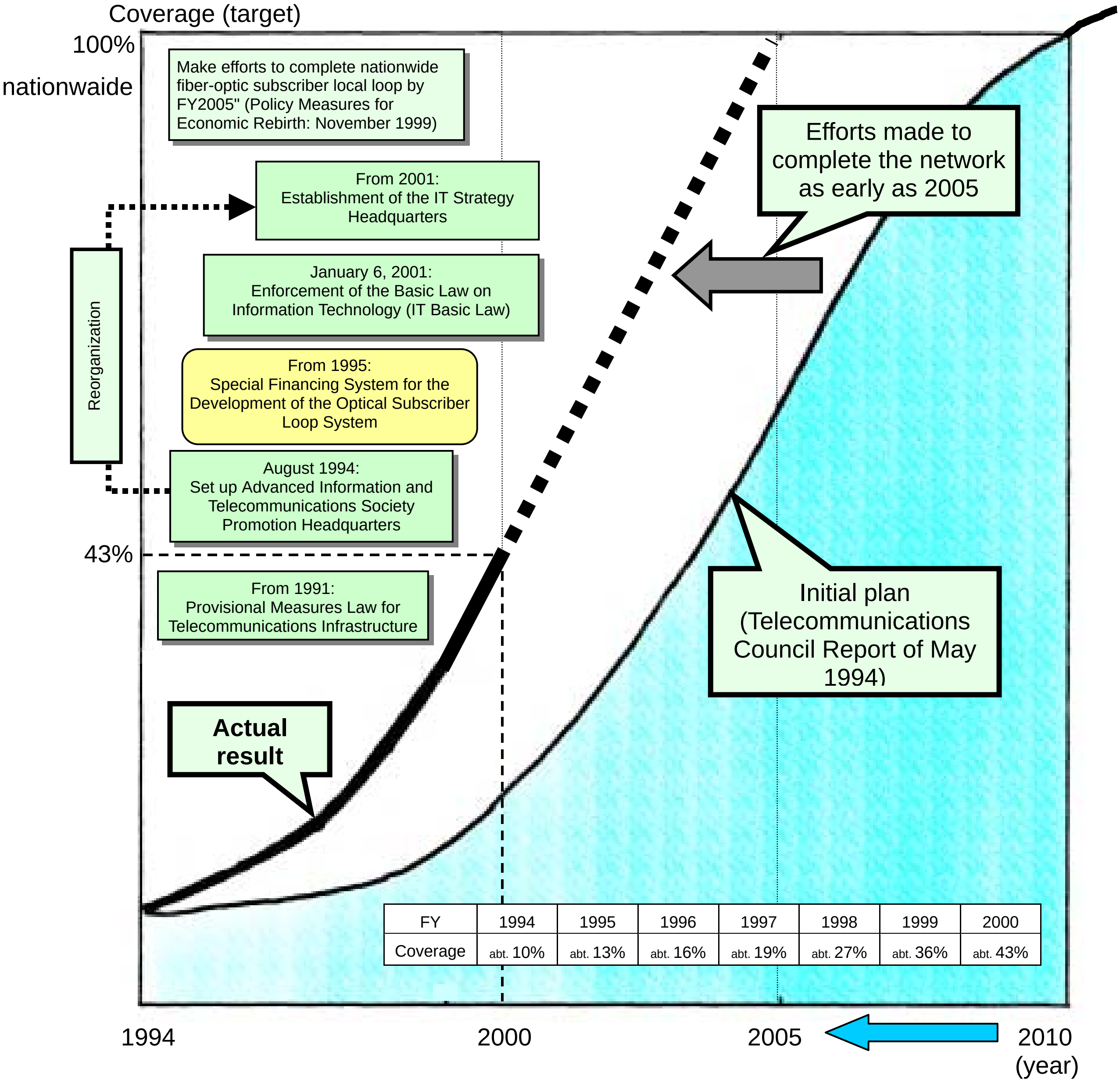
4. Schedule for Construction of Optical Subscriber Loop System

(1) Schedule for construction of fiber-optic networks for transit system and subscriber loop system (cable length base)

(As of the end of FY2000; unit: 1,000km)

Item	Cable length	Fiber-optic cable	Percentage of fiber-optic cable
Transit System	274	245	89.4
Subscriber Loop System	1,276	242	19.0
Total	1,551	487	31.4

(2) Schedule for Construction of Optical Subscriber Loop System (point of feeder line)



5. Major support systems for fiber-optic networks and broadband subscriber network

Financing Systems

- **Financing system based on the Law for Development of Social Infrastructure**

  Telecommunications carriers can obtain a no-interest or low-interest loan from the Development Bank of Japan and other financial institutions in accordance with the Special Measures Law for Development of Social Infrastructure to raise funds for establishing fiber-optic networks and broadband subscriber line network.

  - No-interest loan (NTT-C / the Third Sector)
  - Low-interest loan (NTT-C' / Private Sector Firms)

- **Special Financing System for the Development of Subscriber Fiber-Optic Network and Broadband Subscriber Line Network (ultra low interest)**

  Type I telecommunications carriers and cable TV operators are eligible for NTT-C' loan to gain funds for establishing the subscriber fiber-optic network and broadband subscriber line network. The Telecommunications Advancement Organization of Japan (TAO) provides these carriers and operators with subsidies for the loan interest. The subsidies will cover an interests of two percent or higher (1.6 percent or higher in depopulated areas and other areas) in the first five years. After the period, the subsidies will cover an interests of 2.5 percent or higher (2.1 percent or higher in depopulated areas and other areas).

Tax incentives

- **Corporate tax**

  Benefits of special depreciation for the corporate tax (7%~18% in FY2001) can be applied for by telecommunications carriers intending to deploy subscriber fiber-optic networks and broadband subscriber line networks.

- **Fixed property tax**

  Reduction of the standard of assessment for fixed property tax (3/4 reduction in FY 2001; (4/5 for multiplex digital transmission equipment?) in FY 2001) can be applied for by telecommunications carriers intending to deploy subscriber optical fiber networks and broadband subscriber line networks.

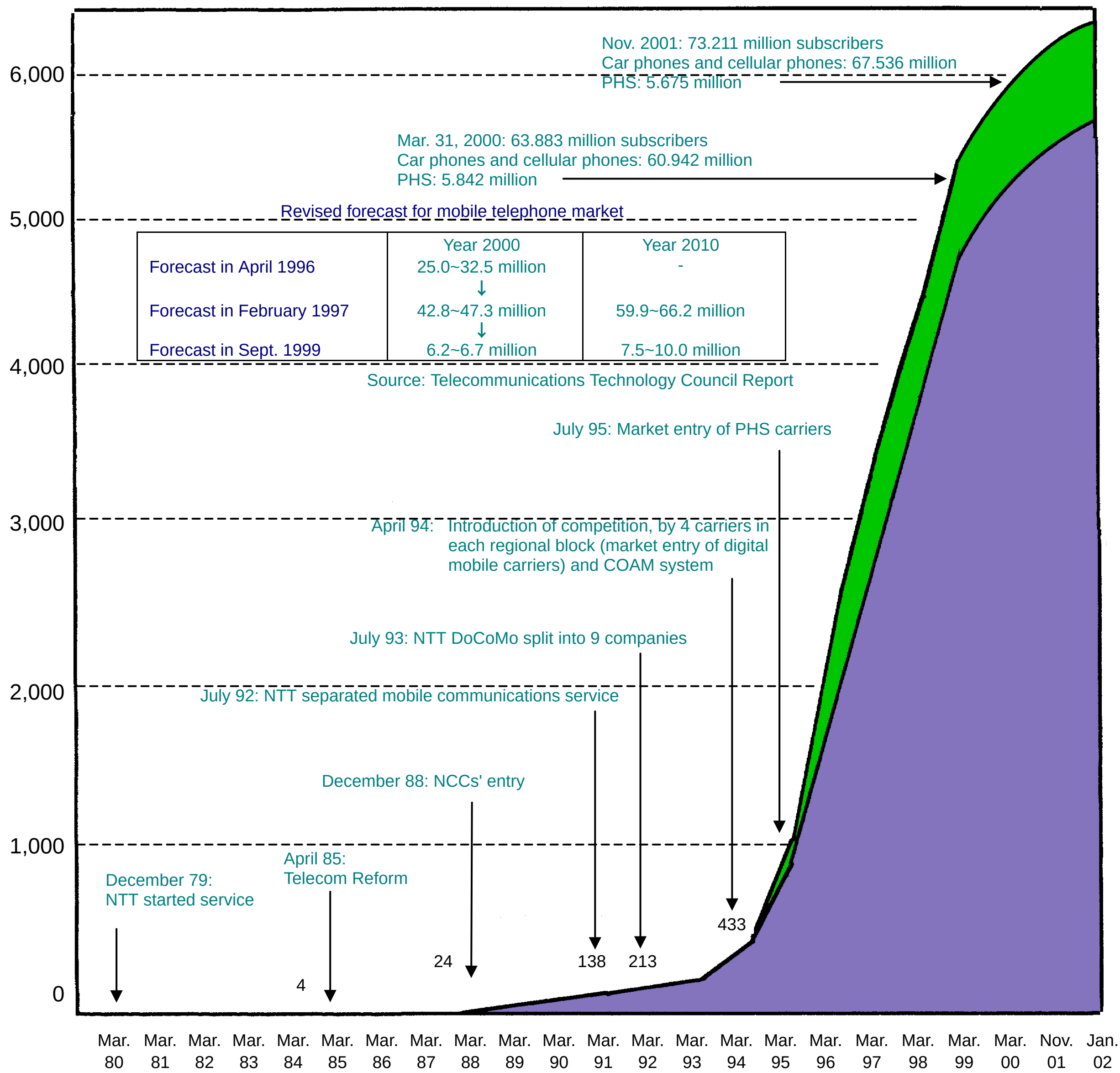
Guarantee of obligation

TAO guarantees the loans and others that type I telecommunications carriers and cable TV operators received from private-sector financial institutions to establish the subscriber fiber-optic network and broadband subscriber line network.

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

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 (Analog) (800MHz, digital) ¥8,800 → ¥6,800 → ¥4,900 → ¥4,500
Call charge (3 minutes)	¥280 → ¥260 → ¥230→¥200→¥150→¥ Abolished (Analog) (800MHz, digital) ¥260 → ¥200→¥180→¥110→¥80→¥70 (Dec. 2000)

Note: Figures are cellular phone rates of NTT Mobile Communications Network, Inc. (3 minutes, daytime of weekdays, intraprefectural rates)

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) → 73.21 million (FY2001) (Cellular phone: 67.54 million, PHS: 5.68 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.

◎ In June 2000, the government granted a business permit and preliminary radio-station license to three business groups.

- 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-Phone Group ············· This group plans to start the service in June 2002. (Japan/European system)
- KDDI Group ················ This group plans to launch the service in September 2002. (North American system)

～Existing mobile communications system～

◆The first-generation mobile telephone (analogue system)

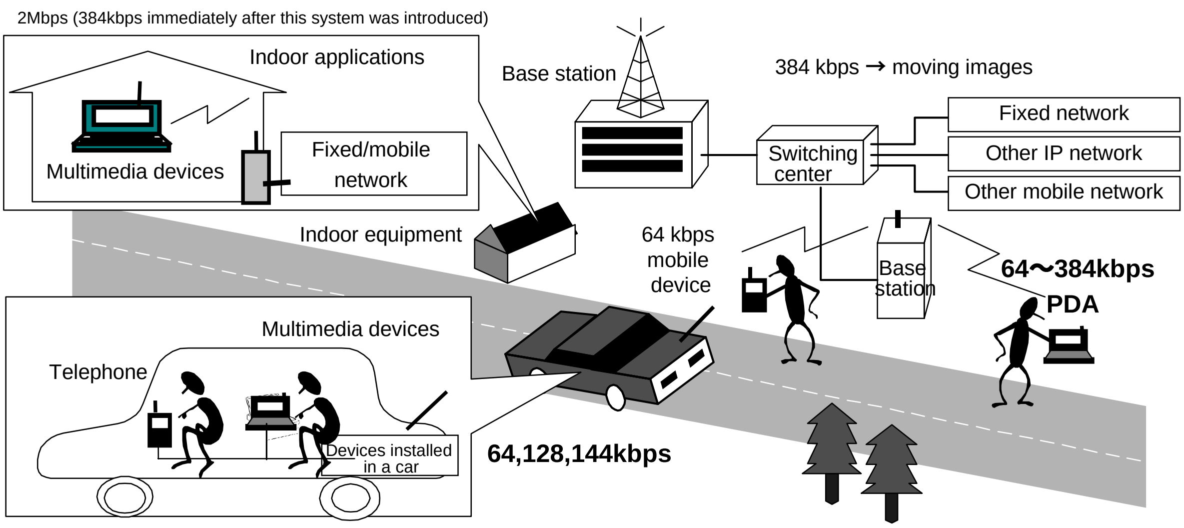
This system was launched in 1979, using the frequency band of 800MHz. Voice communications service only.

◆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 – 64 kbps)



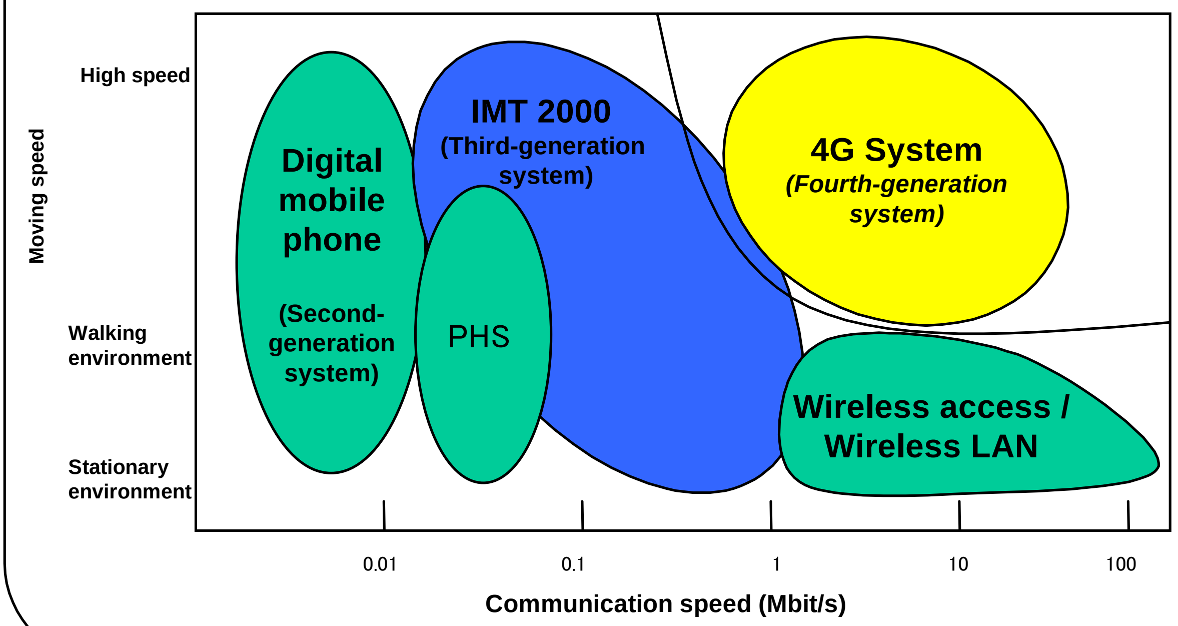
2. The fourth-generation mobile communications system

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)

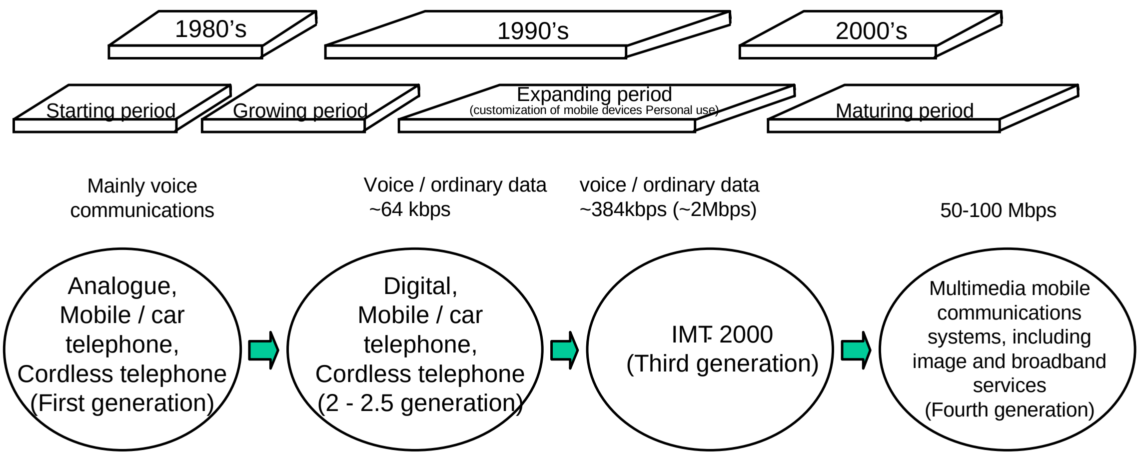
Classification of mobile communications systems



Future 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
2005 :	Improvements and sophistication of the existing systems Establishment of the technology required for the fourth-generation mobile communication system
Around 2006:	International allocation of the frequency bands for the fourth- generation mobile communications system (WRC-2006?)
By 2010:	To put the fourth-generation mobile communications system into practical use

Trends of mobile communications



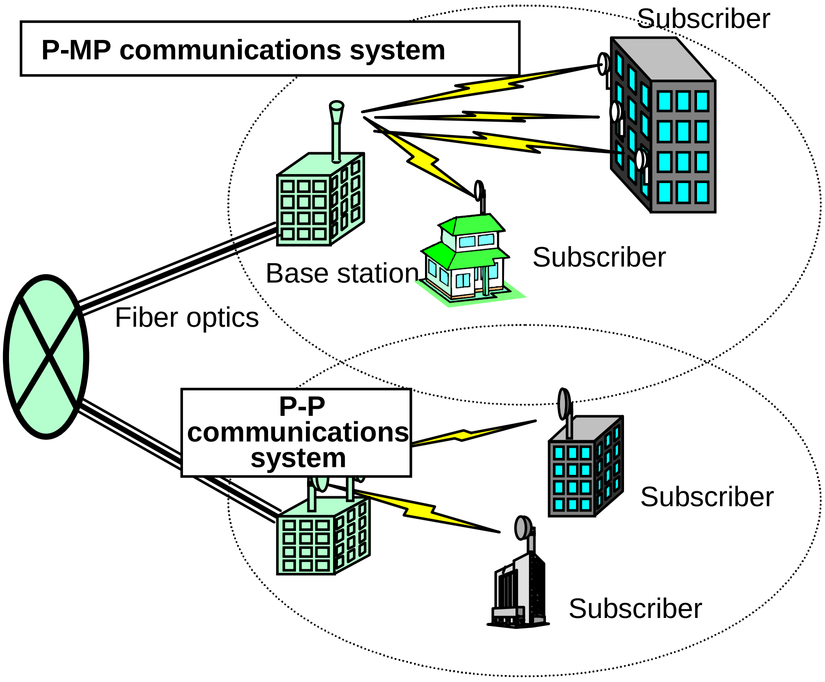
3. Wireless access system

○ 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.

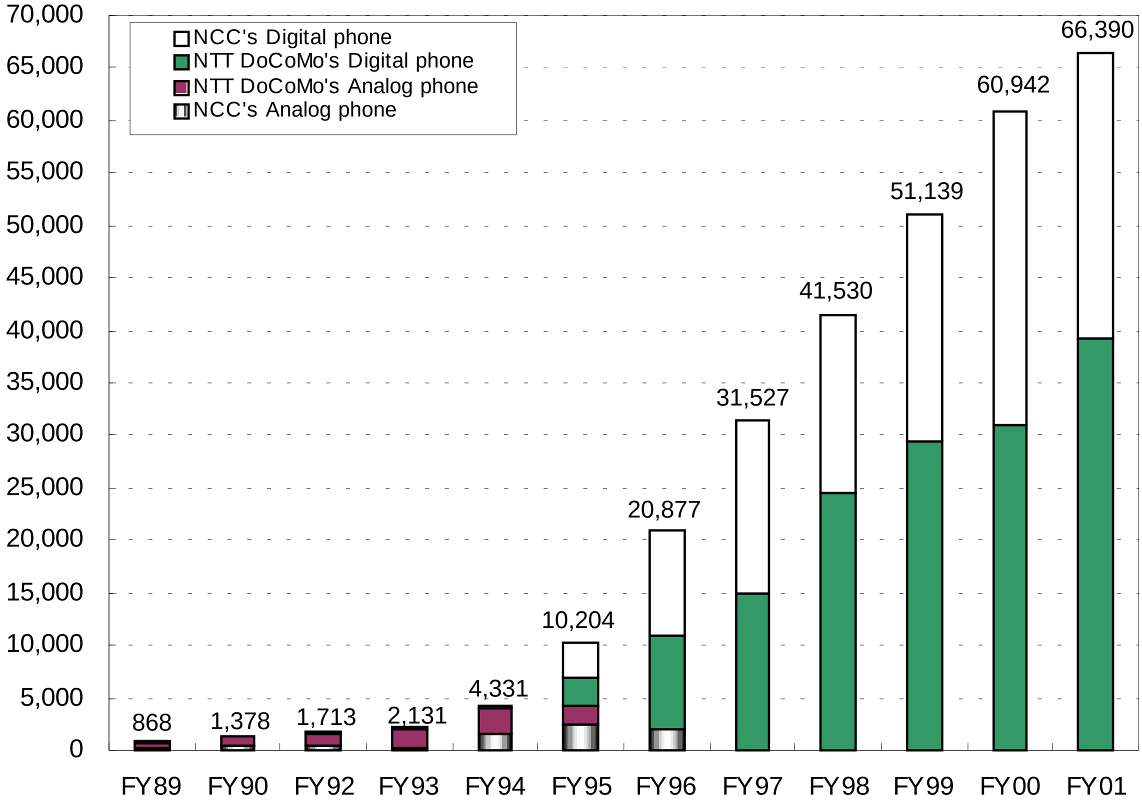
Frequency bands	System	Maximum transmission speed	Transmission distance	Institutionalization	Number of companies entered
2.4 GHz band	Point-to-Point (P-P)[※1]	Around 10Mbps (An increase of the speed of up to 20 Mbps is planned.)	Around 5km[※2]	1999.10	9
	Point-to-multipoint (P-MP)[※1]	Around 2 Mbps	Around 400m[※2]		
22/26/38 GHz band	Point-to-Point (P-P)	Around 156 Mbps	Around 4km	1998.12	11[※3]
26/38 GHz band	Point-to-multipoint (P-MP)	Around 10 Mbps	Around (radius) 1km		11[※3]
Quasi millimeter wave (Near the 25 GHz band)	Point-to-Point Point-to-multipoint	Around 100 Mbps	Around 100m	Scheduled for the spring of 2002	——

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. Some companies use both systems. As a result, the number of the companies in this market totaled 16.



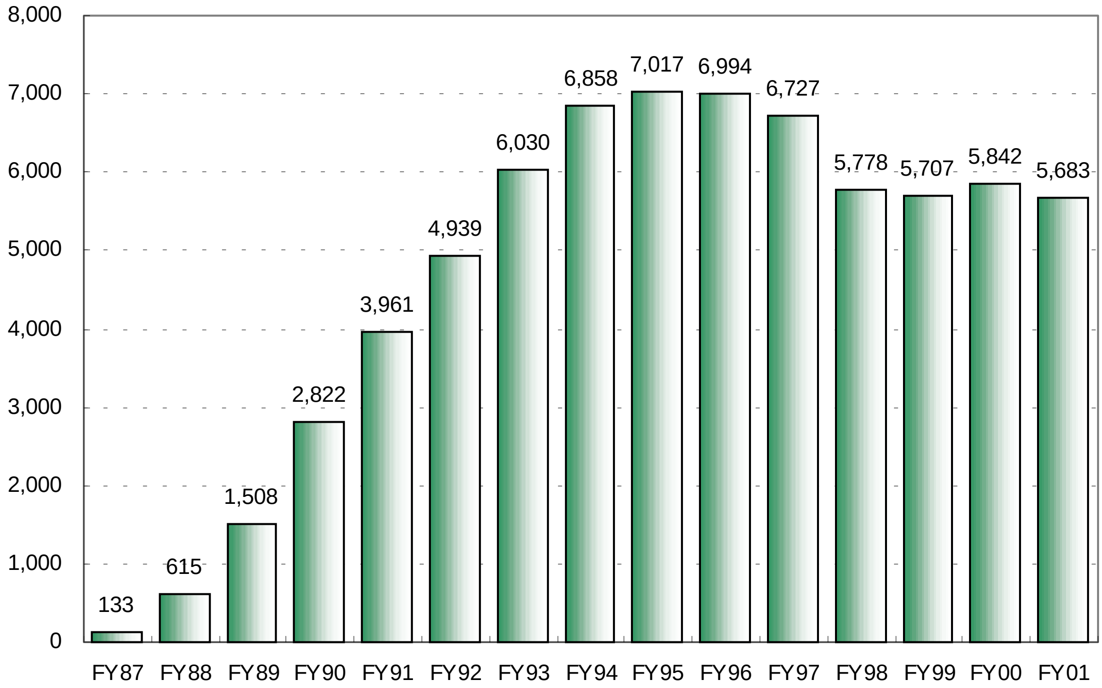
VI. Diffusion of major radio stations

1. Transition in the Number of Cellular Phones

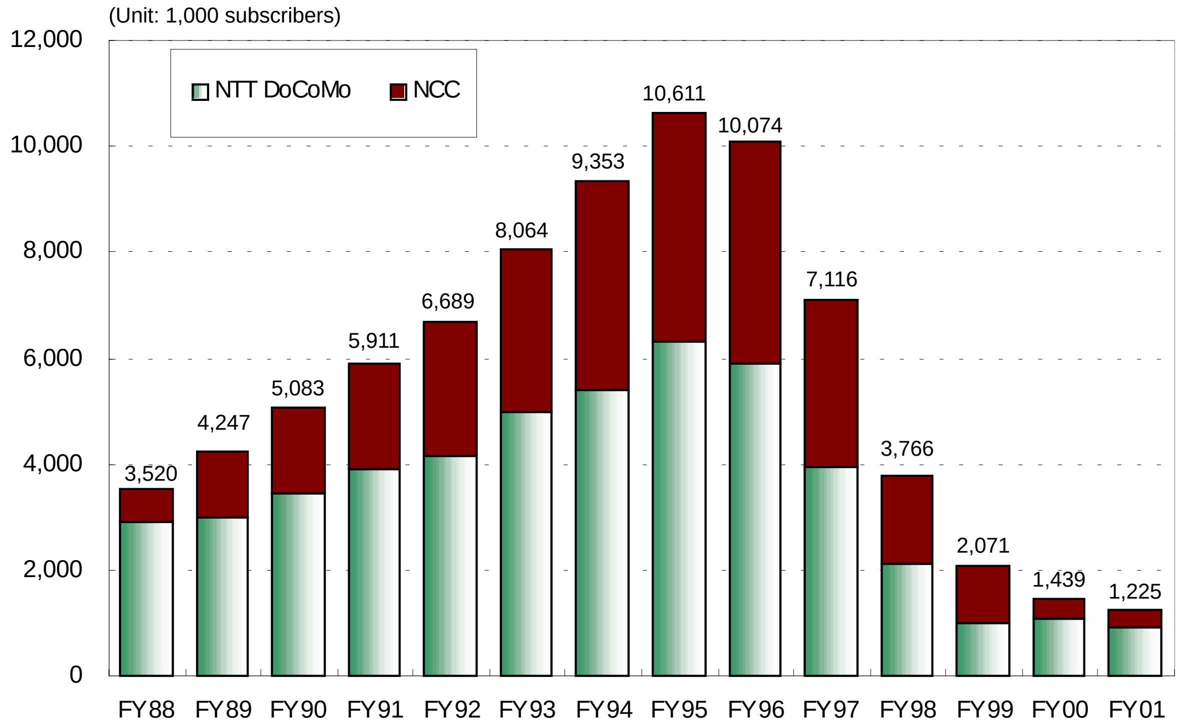


2. Transition in the Number of PHS Subscribers

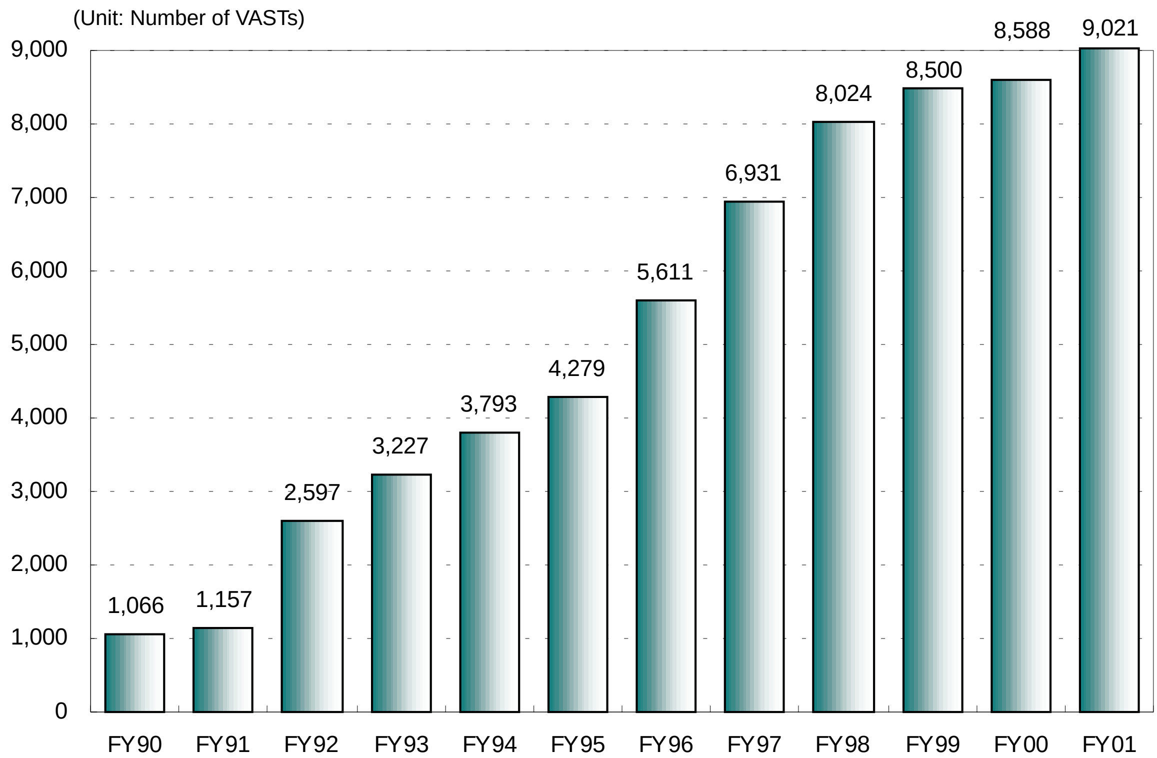
(Unit: 1,000 terminals)



3. Transition in the Number of Radio Pagers



4. Transition in the Number of SA Earth Stations



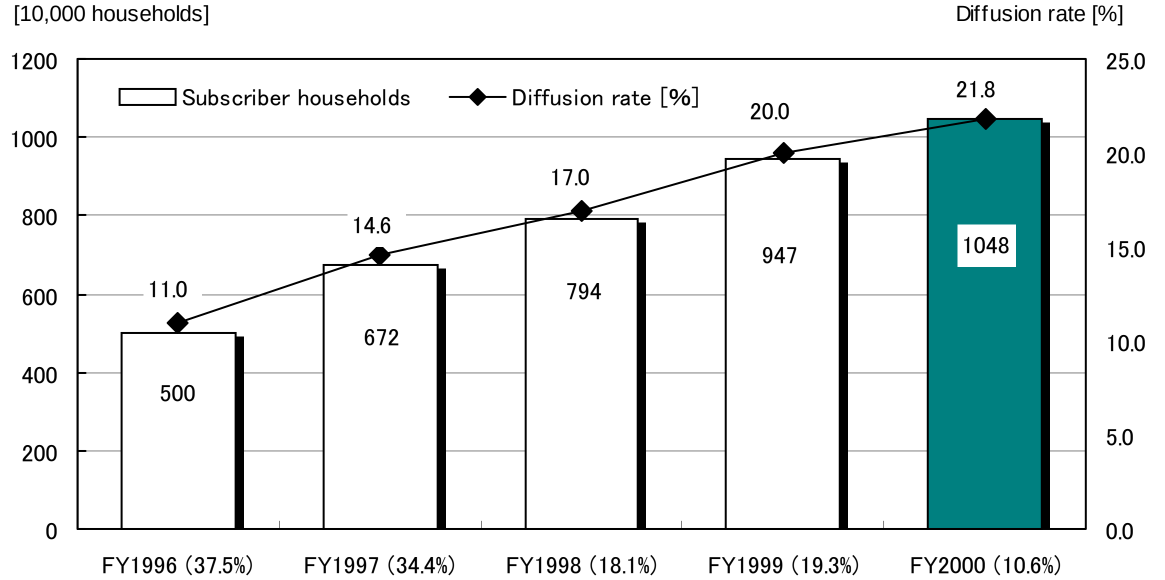
References

Reference I. Status of diffusion of cable television

Reference II. Current Status of Broadcasting Business in Japan

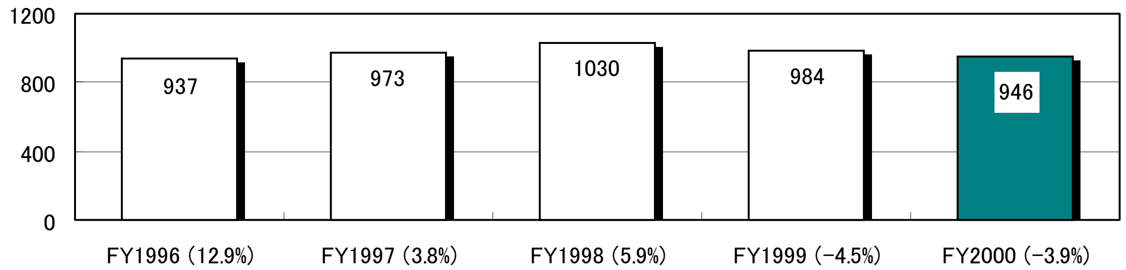
Reference I.　Status of diffusion of cable television

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



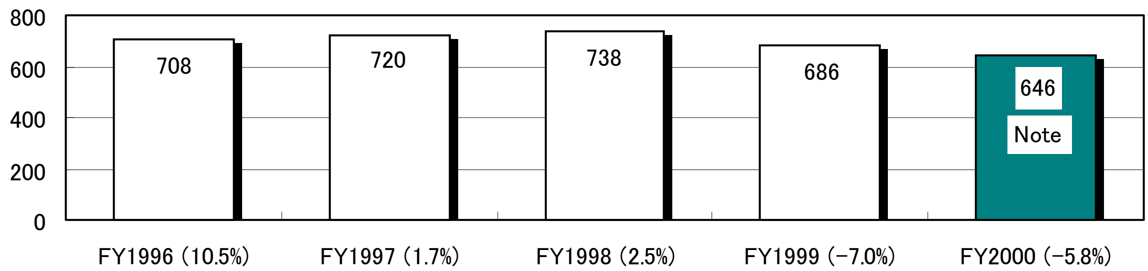
※ The data are as of the end of each fiscal year. The figures in the parenthesis are the rate of year-to-year increase in the total number of subscriber households. The diffusion rate was calculated using official family register data as of the end of each fiscal year.

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

	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	Aug. 2001	Oct. 2001	Dec. 2001	Feb. 2002
AM broadcasters	**48**	**48**	**48**	**48**	**48**	**48**	**48**	**48**	**48**	**48**	**48**	**48**	**48**
Shortwave broadcasters	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**-**	**-**	**-**	**-**
FM broadcasters	42	46	46	49	51	51	52	53	55	-	-	-	-
FM sound multiplex broadcasters	1	1	1	1					0	-	-	-	-
FM teletext multiplex broadcasters				37	40	40	40	41	44	-	-	-	-
Community broadcasters	1	6	16	30	68	93	118	128	139	-	-	150	152
FM teletext multiplex broadcasts by community broadcasters							3	3	1	-	-	1	1
TV broadcasters	**119**	**122**	**123**	**125**	**128**	**128**	**129**	**129**	**129**	**-**	**-**	**-**	**-**
TV sound multiplex broadcasters	113	116	119	122	126	68	28	28	28	-	-	-	-
TV teletext multiplex broadcasters	25	25	25	24	25	24	23	21	19	-	-	-	-
TV data multiplex broadcasters					2	13	16	17	18	-	-	-	-
TV teletext multiplex and TV data multiplex broadcasters						16	16	15	15	-	-	-	-
BS analog TV broadcasters	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
BS analog sound multiplex broadcasters	3	3	3	3	3	2	2	2	2	2	2	2	2
BS analog data multiplex broadcasters			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)**
BS digital radio broadcasters									1(10)	1(10)	1(10)	1(10)	1(10)
BS digital data broadcasters									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)**
CS digital radio broadcasters					1(6)	2(8)	2(11)	2(11)	2(8)	2(8)	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)
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)
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)
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)
CS analog TV broadcasters	2(6)	2(9)	2(10)	2(13)	2(13)	2(13)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
CS-PCM sound multiplex broadcasters	**2(6)**	**1(4)**	**1(3)**	**1(2)**	**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).

2. Diffusion of Terrestrial Broadcasting

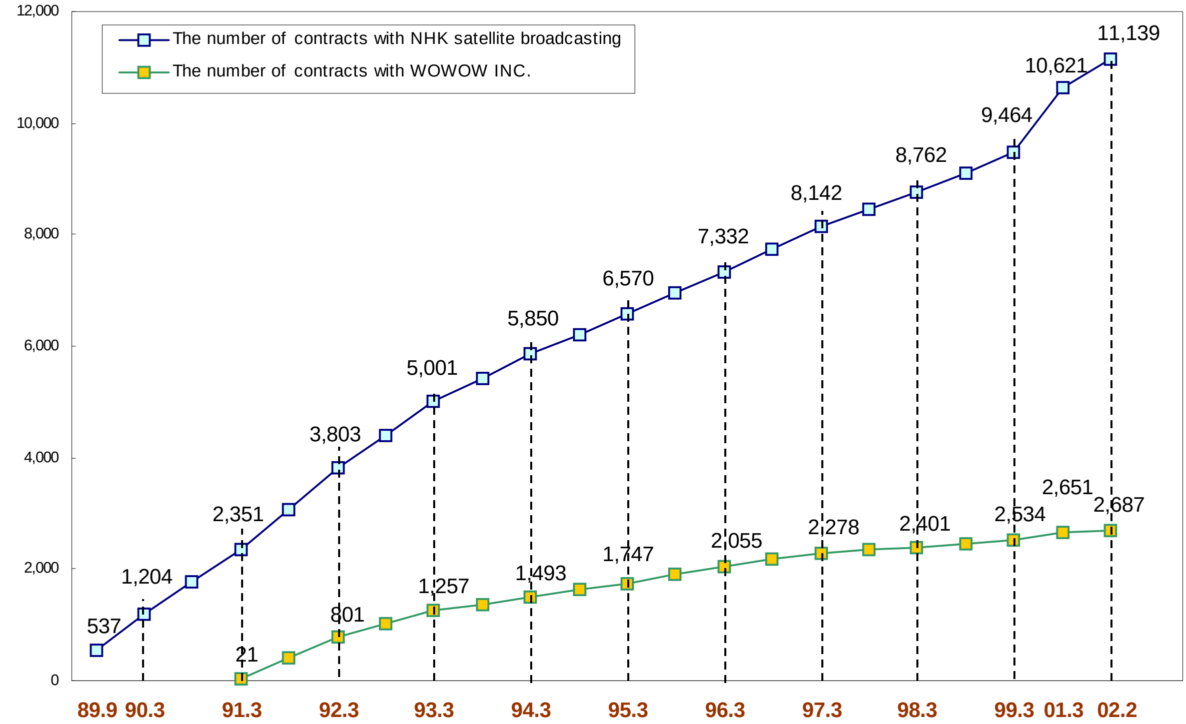
	Commercial broadcasters	NHK
TV Broadcasting	Available nationwide. Four to six broadcast channels are viewable in approx. 90% of total household.	One general and one education channel are broadcast nationwide.
AM Broadcasting	Available nationwide. In major areas, two to four channels are broadcast.	Radio 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



(2) DBS via Communication Satellites

1) Transition of receiver's contract

(Unit: 1000 cases)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	Jul., 2001	Feb., 2002
CS TV (Digital)	-	-	-	236	631	1,373	2,248	2,618	2,761	3,011

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	1

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	58	112
	FM broadcasting	5[*1]	103
	Data broadcasting	2[*2]	24
JSAT (JCSAT-4)	Standard definition TV broadcasting	61	75
	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
SSC (N-SAT-110)	- High-definition TV broadcasting	1[*1]	2
	- Standard TV broadcasting	8	24
	- FM broadcasting	1[*2]	20
	- Data broadcasting	5[*3]	7
JSAT (N-SAT-110)	- Standard TV broadcasting	7	37
	- Data broadcasting	3[*4]	3

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.