

Outline of the Telecommunications Business in Japan



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

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I. Significance of Liberalization of Telecommunications Markets

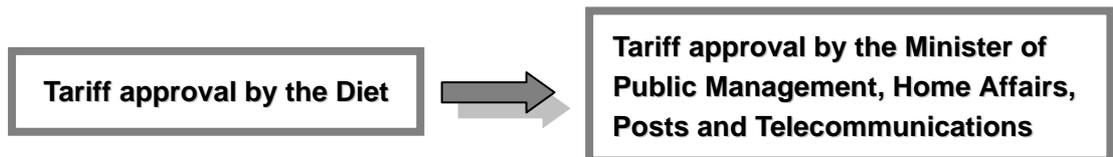
Major Points of the 1985 Telecommunications Reform (the First Info-communications Reform)

1. From Monopoly to Competition

- (1) Introduction of the principle of competition to services for which carriers establish their own telecommunications facilities
(Classified as Type I carriers)
- (2) Liberalization of circuit usage
(Classified as Type II carriers)
- (3) Deregulation of terminal equipment
(Liberalization of sales of telephone sets)

2. Deregulation of NTT's Activities by Introduction of Principle of Competition

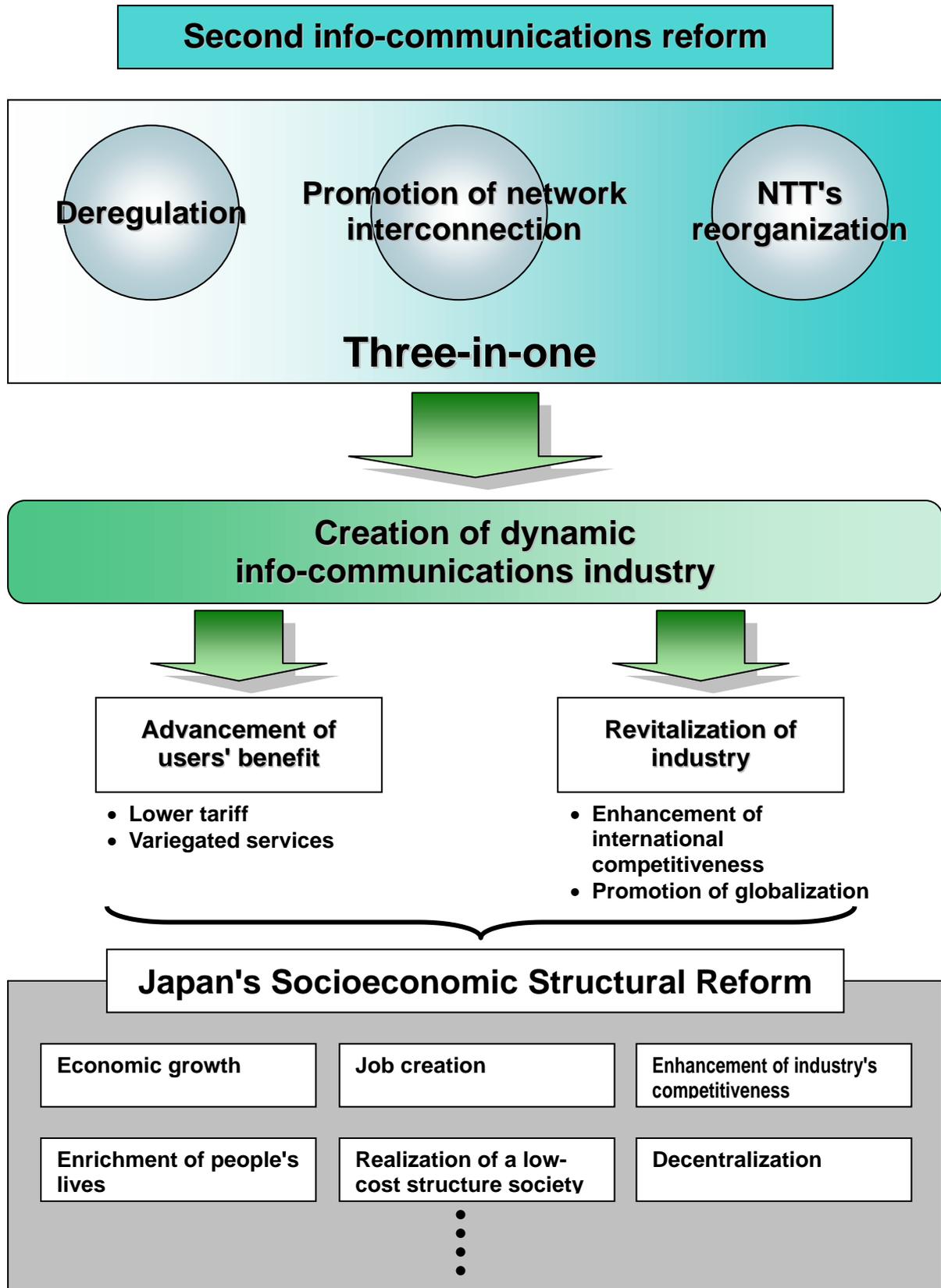
- (1) Abolition of the principle that tariffs should be approved by the Diet



- (2) Abolition of the principle that budgets should be approved by the Diet
- (3) Abolition of the regulation of NTT's investment

II. Second Info-Communications Reform (~1999)

1. Japan's Socioeconomic Structural Reform and Info-Communications Reform



2. Deregulation

Former MPT is now implementing items listed in the "Three-Year Program for the Promotion of Deregulation" (determined at the cabinet meeting held on March 31, 1998, then revised on March 30, 1999: amended on March 31, 2000), and are continuing to review regulations aimed at promoting Japan's socioeconomic structural reform.

1. The "Three-Year Program for the Promotion of Deregulation"(determined at the cabinet meeting held on March 31, 1998, then revised on March 30, 1999: amended on March 31, 2000)

Related Laws on the Rationalization of Regulatory Frameworks in the Telecommunications Field" (promulgated on May 8, 1998)

(1) Deregulation of telecommunications charges

The requirement for authorization of end-user charges was abolished and replaced, in principle, by a notification system. A price-cap regulation was applied to end-user charges for subscriber telephone and other basic telecommunications services in the regional telecommunications market. (Enacted on November 1, 1998)

(2) Requirements for service entrustment

The subjects for which the Type I telecommunications carrier has to obtain approval when it begins to entrust its telecommunications services will be limited to cases that use the telecommunications circuit facilities established by other entities.

(3) Facilities installation by Type II business

Type II telecommunications carriers will be permitted to establish access line facilities that will connect single user facilities.

(4) Scope of Special Type II telecommunications business

Special Type II telecommunications business will be limited to Type II telecommunications businesses offering international telecommunications services and those offering voice services to many unspecified users through the interconnection of both ends of leased circuits with public switched networks. Those telecommunications businesses that do not come under this category will be reclassified as General Type II telecommunications businesses.

(5) KDD regulations

The Kokusai Denshin Denwa Co., Ltd. (KDD) Law was abolished, and KDD Corp. was completely privatized. (Enacted on July 30, 1998)

(6) Amendment to systems for certification of conformity with technical regulations for radio equipment and terminal equipment

Regarding the System for Certification of Conformity with Technical Regulations (CCTR) for radio equipment and terminal equipment, former MPT will establish a system to utilize Recognized Private Inspectors (RPIs) and Recognized Foreign Certification Bodies (RFCBs), regardless of nationality, in the CCTR system.

Others

(1) Regulations on the interconnection of networks

To maintain the transparency of the conditions for interconnection and to promote various forms of interconnection between telecommunications carriers, improvements will continue to be made in accordance with the report on the "Basic Rules for Interconnection" submitted by the Telecommunications Council in December 1996, and the entire system will be reviewed toward the end of FY 2000. (The Telecommunications Council is reviewing the entire system.)

The following measures will be taken for the time being.

-
- (i) To facilitate the introduction of Long-run Incremental Cost (LRIC) model to interconnection charges as early as possible, Japan intends to submit a bill to amend the Telecommunications Business Law to the ordinary Diet session in spring 2000. (The Government submitted the bill to amend the Telecommunications Business Law to the 147th ordinary Diet session in March 2000. The bill passed through the Diet in May 2000. Enforced in November 2000.)
 - (ii) Former MPT will take necessary measures to introduce the number portability system. (The system enables subscribers to use the same phone number even if they change the carrier they subscribe to.)
 - (iii) Former MPT will take necessary measures for introducing dialing parity. (To be introduced on May 1, 2001.)
- (2) Communications charge for accessing the Internet
- Former MPT will take the following measures in response to demands for lower Internet access tariffs including a flat-rate system among others:
- (i) In order to promote introduction of various access channel technologies such as wireless local loop, cable TV circuits, satellite and DSL (digital subscriber line) using conventional telephone lines, former MPT will examine the feasibility of those technologies to put into practical use.
 - (ii) Former MPT amended ministerial ordinances, stipulating the unbundling of networks and fair interconnection requirements, that will lead to an increase in the number of new carriers through a smoother introduction of DSL.
- (3) Regulation on the construction of network by telecommunications carriers
- In order to increase flexibility upon construction of networks by telecommunications carriers, the following items will be considered for taking necessary measures:
- (i) Introduction of line resale by Type I telecommunications carriers

Type I telecommunications carriers will be allowed to use line facilities obtained on a user tariff basis from other telecommunications carriers as part of their own networks, and operate the entire network as Type I telecommunications carriers. (Enforced on November 24, 2000.)

 - (ii) Abolition of Separate Company Regulations for Type I and Type II Telecommunications Businesses

Formerly there had been regulations that a separate company be formed when Type I and Type II telecommunications businesses are carried out as independent enterprises by a single company. (Enacted on September 1, 2000.)
- (4) Regulation on international transmission line setting
- Regarding international traffic routing by Type I telecommunications carriers, providing international telecommunications services, restrictions on third country traffic routing in cases where the number of destinations is no more than 100 was abolished by the end of June 1998 (abolished on June 18, 1998), following a study of the impact of such an action on international telecommunications businesses.
- (5) The status of NTT
- The reorganization of NTT will be steadily implemented. While the focus is on the progress of competition between NTT East regional company and NTT West regional company, effective measures will, if necessary, be taken to realize substantial competition by introducing such firewalls as personnel exchanges.
- (6) Rights-of-way
- (i) Completion of a study by the end of 1998 on current conditions in Japan governing access to poles, conduits, ducts and rights-of-way, with a view to proposing measures to improve the ability of cable TV operators and telecommunications carriers to obtain timely, nondiscriminatory and transparent access to such resources. (Study results were made open to the public on December 5, 1998.)

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- (ii) The Interagency Review Group of relevant ministries receives complaints on the rights-of-way from telecommunications carriers, then the Group conducts necessary investigations including the fact, etc., and after due procedures and deliberations, the Group makes replies to carriers involved. The Interagency Review Group reviewed the complaint procedure, taking into account complaints from carriers and opinions from parties involved. (Results of the review were made public on March 27, 2000.)
 - (iii) Taking the review of March 27, 2000 into account, while the Interagency Review Group will continue to receive complaints on the rights-of-way from telecommunications carriers, the Group will make efforts to facilitate laying of cables by telecommunications carriers and cable TV operators, paying due considerations on complaints from carriers and opinions from parties involved. (On October 31, 2000, a progress report as of September 2000 was made public on improvement measures voluntarily taken by telecommunications carriers, etc. described in the review of March 2000.)
 - (iv) In November 2000, at the Joint Meeting of the IT Strategy Council and the IT Strategy Headquarters, the direction, "promotion of just and fair use of such existing facilities as utility poles, ducts, conduits, etc.," was reported as one of the governmental actions. In line with the direction, as regards the right-of-way on use of such existing facilities as utility poles, ducts, conduits, etc., the government will take necessary measures including the establishment within FY2000 of the guideline stipulating procedures concerning applications for leasing of such facilities and rejection of the applications.

2. Recent deregulation in the telecommunications field

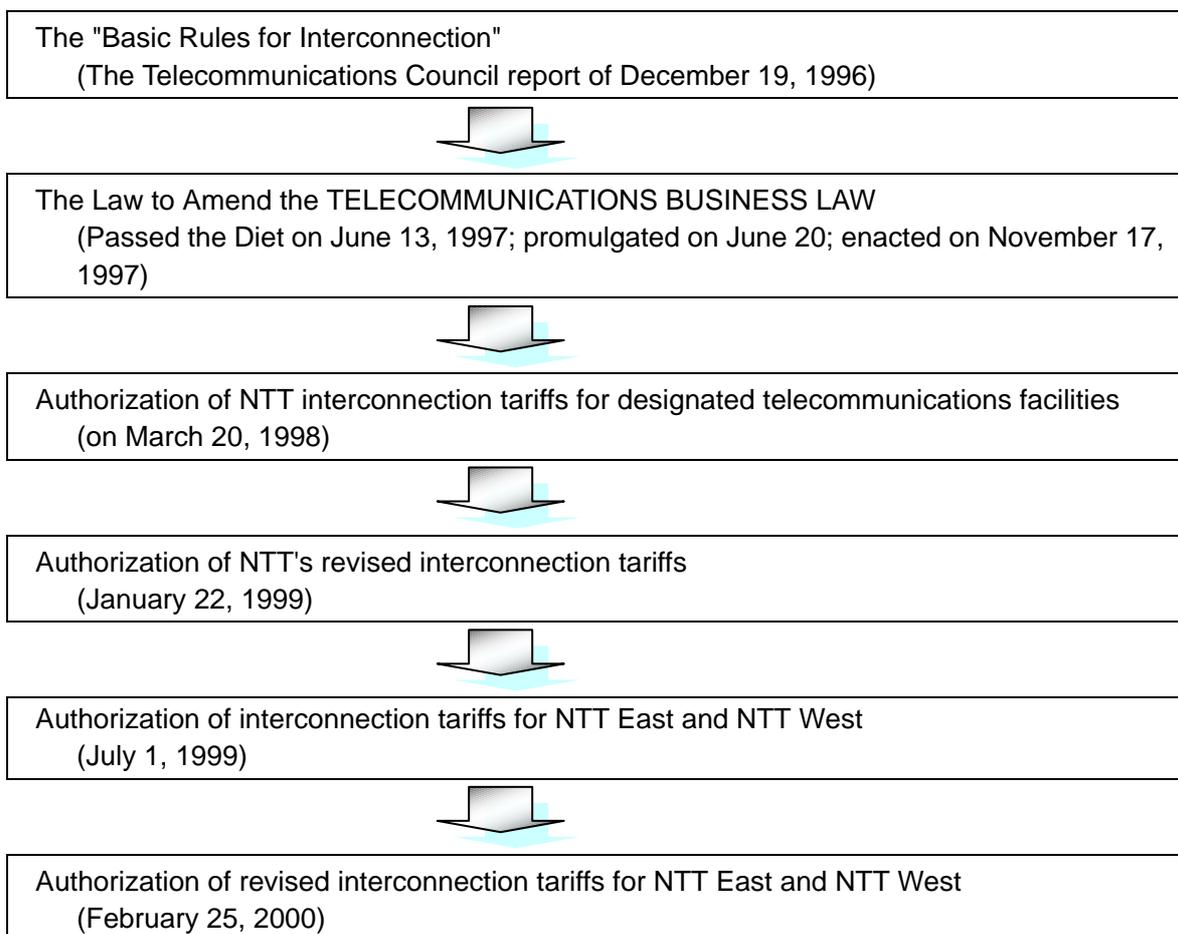
- (1) Deregulation of market entry into Japanese telecommunications business
 - A bill to repeal the clause on prevention of excess facilities, etc. (Article 10 (i) and (ii) of the Telecommunications Business Law) was passed by the Diet in June 1997. This revision was enacted in November 1997 following the preparation of related ministerial ordinances.
- (2) Full-scale liberalization of leased circuit usage
 - (i) Interconnection of both ends of domestic leased circuits with public switched networks for voice services was fully liberalized in October 1996.
 - (ii) International Internet telephony services were liberalized in August 1997. The provision of basic voice services through the interconnection of both ends of international leased circuits with public switched networks was made possible in December 1997.
- (3) Lifting of restrictions on foreign capital investment
 - In line with the agreement reached at the WTO Negotiations in February 1997, bills to revise the Telecommunications Business Law and the Radio Law were passed by the Diet in June 1997. The new laws will remove all limitations on foreign investment in Type I telecommunications carriers, including those for radio station licenses, except for NTT and KDD. The revised clauses were enforced on February 5, 1998 after the enactment of the Fourth Protocol to the General Agreement on Trade in Services. (There are no restrictions on foreign capital investment in KDD in line with the abolishment of the KDD Law.)
- (4) Introduction of blanket licensing system
 - In October 1997, a blanket licensing system was introduced to eliminate the need for applicants to obtain individual licenses for each mobile specified radio station. Applicants are permitted to establish more than one radio station of the same type with

a single blanket license. The transborder use of overseas mobile specified radio stations is authorized if the blanket license holder has additional operational permission.

(5) Efforts to maintain the transparency of regulations

Publication of the "Manual for Market Entry into Japanese Telecommunications Business" (January 1996); official announcement of the "Determination of Standard Tariff for Radio Paging" published in the "Official Government Gazette Kampo" (July 1996). In conformance with the "Examination Standards Regarding the Telecommunications Business Law" and the "Examination Standards Regarding the Radio Law" instituted in September 1994, former MPT has been processing applications for permission, as required by the related laws, within the standard processing period.

3. Promotion of Interconnection Policies



1. Amendment of Laws

- (1) The Telecommunications Council reported on the "Basic Rules for Interconnection" to former MPT in December 1996. To establish interconnection rules by taking this report into account, a bill of amendments to the Telecommunications Business Law was passed by the Diet in June 1997, and enacted in November 1997.
- (2) The revised law stipulates that former MPT may designate telecommunications facilities with a considerable number of subscriber lines. To assure timely, nondiscriminatory and transparent interconnection between the Type 1 telecommunications carriers that own designated facilities and other carriers, the following obligations are imposed on the designated carriers:

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-
- (i) Creation of an interconnection tariff system that includes interconnection charges and technical requirements
 - (ii) Preparation and disclosure of accounting reports concerning interconnection with designated telecommunications facilities; and
 - (iii) Preparation and disclosure of plans to revise or expand functions of designated facilities

2. Amendments and ruling of ministerial ordinances

- (1) Amendments of the Regulations for Enforcement of the Telecommunications Business Law (promulgated and enacted on November 17, 1997)
Amendments and rulings established are as follows:
 - Justifiable reasons for refusing application for interconnection to telecommunications facilities
 - Standards for designated telecommunications facilities, etc.
 - Standards for granting authorization for interconnection tariffs for designated telecommunications facilities
 - Notification of plans to revise facility features or other functions for designated telecommunications facilities.
- (2) Establishment of the Regulations for Interconnection Accounting (promulgated and enacted on December 19, 1997)
 - The Regulations for Interconnection Accounting stipulate accounting separation between the department that manages and operates designated telecommunications facilities and the department that uses the facilities for provision of services.
- (3) Establishment of the Regulations for Cost Calculation concerning charges for connecting with designated facilities (promulgated and enacted on December 19, 1997)
 - Adequate cost calculation method based on the Regulations for Interconnection Accounting

3. Designated telecommunications facilities

In December 1997, former MPT designated NTT's local communications networks as designated telecommunications facilities which are indispensable for other carriers to interconnect, and obliged NTT to introduce an interconnection tariff system including interconnection charges and accounting system concerning interconnection.

4. Interconnection tariffs

- (1) On January 30, 1998, NTT filed an application for interconnection tariffs for designated telecommunications facilities that was authorized by former MPT on March 20, 1998, in line with the recommendation by the Telecommunications Council that had deliberated on the application in response to the Minister's inquiry of February 4.
 - Until FY 1996, interconnection charges that were included in interconnection agreements were concluded through individual negotiations between NTT and NCCs. On the introduction of new rules of FY 1997, NTT interconnection charges are to be authorized by former MPT.
 - Under the new rules, interconnection charges are calculated based only on the costs needed for the management and operation of the local communications network (in principle, operating expenses and costs not relating to interconnection such as purely basic R&D expenditures are excluded).
- (2) On January 22, 1999, former MPT authorized revisions to NTT interconnection tariffs for reducing interconnection charges.
 - Interconnection charges have been decreasing every year.

Trends in interconnection charges (within prefecture)

	FY	1996	1997	1998	1999
Telephone	Charge (180 sec.)	¥14.48	¥12.93	¥11.98	10.64
	Decrease (%)		- 10.8	- 7.3	-11.2
ISDN	Charge (180 sec.)	¥25.99	¥25.99	¥17.84	¥12.94
	Decrease (%)		- 1.5	-30.3	-27.5

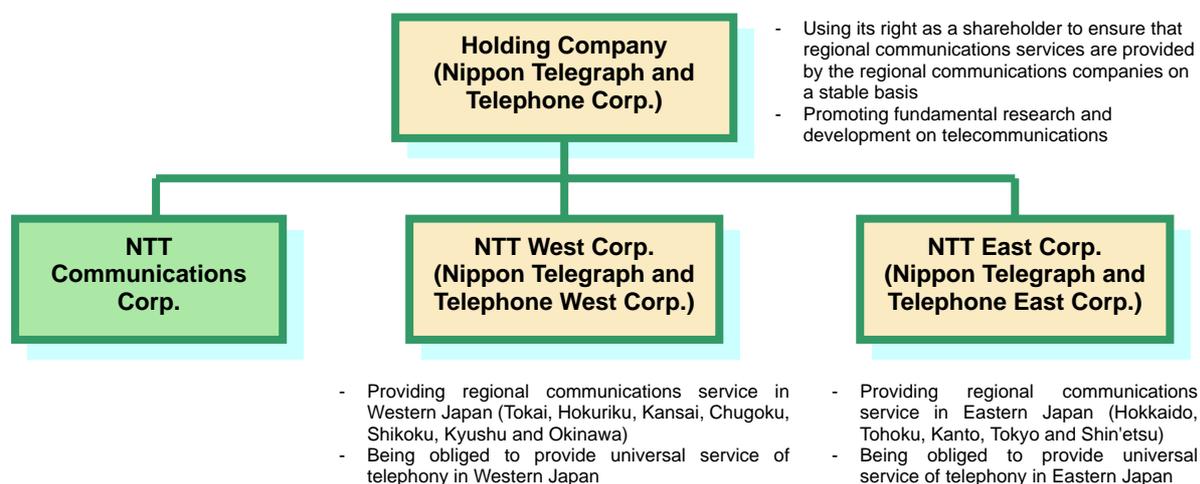
Notes: 1. Telephone: in FY 1996, ¥1.65/call + ¥0.0713/sec; in FY 1997, ¥1.28/call + ¥0.0647/sec; in FY 1998, ¥1.27/call + ¥0.0595/sec; in FY 1999, ¥1.24/call + ¥0.0522/sec
 2. ISDN: in FY 1996, ¥2.61/call + ¥0.1299/sec; in FY 1997, ¥3.67/call + ¥0.1218/sec; in FY 1998, ¥2.59/call + ¥0.0847/sec; in FY 1999, ¥1.85/call + ¥0.0616/sec

- (3) On July 1, 1999, NTT East and NTT West filed applications for interconnection tariffs that were authorized by former MPT on the same day in response to the reorganization of NTT.
- (4) NTT East and NTT West filed applications for lowered interconnection tariffs that were authorized by former MPT on February 25, 2000.

5. Council

- (1) Establishment of the Interconnection Subcommittee (July 1997)
The Interconnection Subcommittee was established to research on interconnection.
- (2) Formulation of Rules for Proceedings (July 1997)
Rules for Proceedings in the Telecommunications Working Group were adopted that stipulate methods for inviting opinions and detailed procedures for deliberating on interconnection.

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. It also holds all shares of NTT Communications Corp. for the time being.

III. The Third Info-communications Reform (1999~)

- Info-communications reform in the 21st century -

1. Further pro-competitive policies

- (i) Promote further competition in the regional communications market
- (ii) Create environment for international competition
- (iii) Further implementation of the second info-communications reform

2. Enhanced, broader Internet access

- (i) Introduction of the flat-rate and reduction leased-circuit rate
- (ii) Legislation on electronic signature and authentication
- (iii) Promotion of IP network
- (iv) International coordination

3. Improvement in the environment of info-communications

- (i) Implementation of policies for protecting personal data
- (ii) Administration of public information
- (iii) Measures against unauthorized access

4. Advancement and enhancement of radio utilization

- (i) Improvement of the regulatory framework
- (ii) Development of new systems
- (iii) International harmonization of radio spectrum
- (iv) Securing trouble-free use of radio spectrum

IV. Current Status of New Telecommunications Market Entry

1. Number of Telecommunications Carriers

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mar 1, 2001
Type I Carriers	7	12	36	44	62	68	70	80	86	111	126	138	153	178	249	320
NTT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Note 3	3
NTT DoCoMo, Inc. and its group companies	-	-	-	-	-	-	-	1	9	9	9	9	9	9	9	9
KDD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-
New Type I Carriers	5	10	3	42	60	66	68	77	75	100	115	127	142	167	236	308
Long-distance/International Carriers	3	3	5	5	5	5	5	5	5	5	5	5	6	12	21	30
Regional Carriers	-	3	4	4	7	7	7	8	10	11	16	28	47	77	159	252
Satellite Carriers	2	2	2	2	2	2	3	3	2	2	4	4	5	6	5	5
Mobile Communications	-	2	23	31	46	52	53	61	58	82	90	90	84	72	51	21
Portable/Car Phones	-	-	2	4	8	8	9	15	15	17	21	21	21	21	21	8
Radio Paging	-	2	20	26	33	35	36	36	31	31	31	31	31	31	19	4
PHS	-	-	-	-	-	-	-	-	-	23	28	28	28	18	9	6
(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
Data communications	-	-	-	-	1	1	1	1	1	1	2	2	2	-	-	-
Others	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-
Type II Carriers	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
Special Type II Carriers	9	10	18	25	28	31	36	36	39	44	50	78	95	88	101	113
General Type II 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
Total	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	8,969

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 Mar 1, 2001)

Carrier	Foreign capital ratio	Major foreign investors
Cable & Wireless IDC	97.73%	Cable & Wireless plc (C&W), etc.
TITUS Communications Corp.	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.
KDDI WinStar Corp.	35.00%	Winster International
KVH Telecom Co., Ltd.	100.00%	KVH Telecom Holding SCDRL
Hutchison Corporate Access Pte Ltd.	100.00%	Hutchison Telecommunications Ltd.
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. Teleglobe 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.
Telstra Japan K.K.	100.00%	Telstra Singapore Pte Ltd.
PSI Networks Japan Inc.	100.00%	PSINet Inc.
Ixnet Telecommunications Japan K.K.	100.00%	IXnet, 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 Telekom 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
Cable and Wireless HKT Pacific Japan	100.00%	C&W HKT
Dacom Japan	100.00%	Dacom Corporation
Circle Asia	50.00%	Circle International Communications Inc.
Star Telecom Japan K.K.	51.00%	Star Telecommunications, Inc.
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.
Jupitar Gunma	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

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

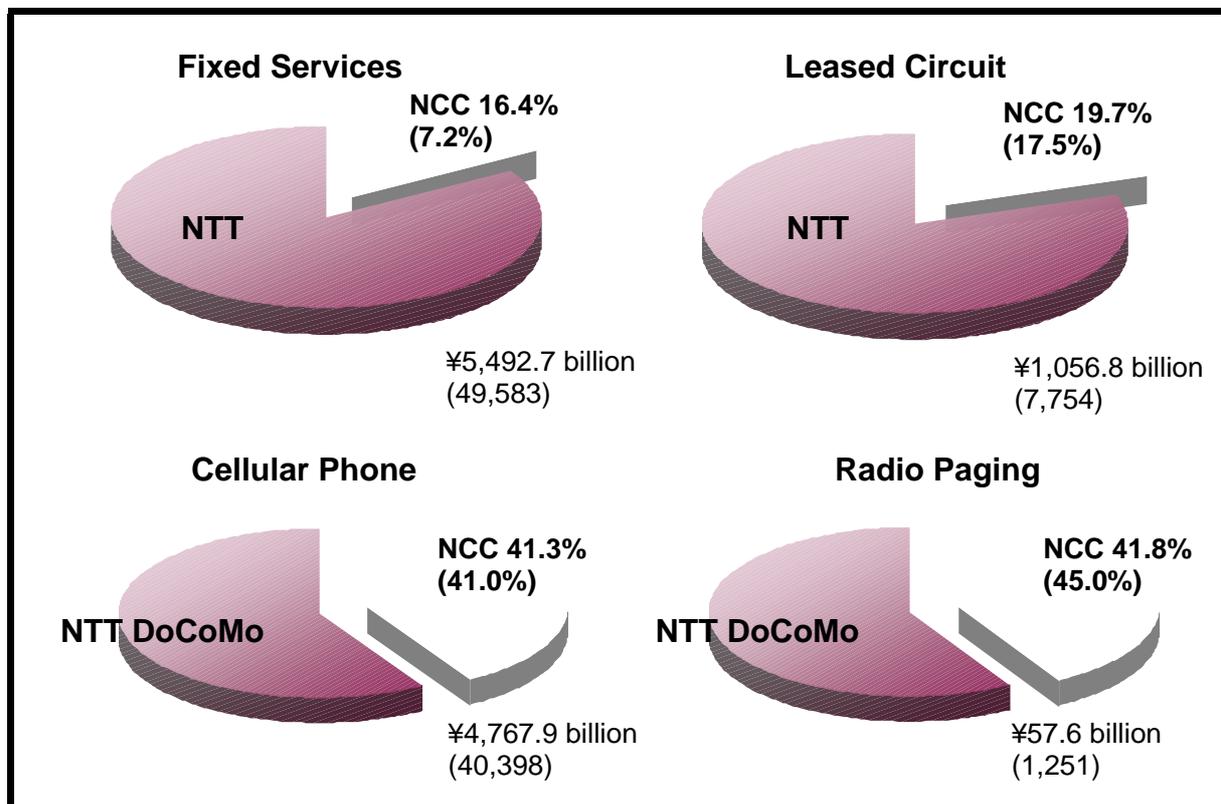
(2) Special Type II telecommunications carriers (As of Mar 1, 2001)

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)
Global One Communications Inc.	100.00%	Global One Communications L.L.C. (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)
Telstra Singapre Pte Ltd.		Telstra Singapore Pte Ltd.
Saiki-Tech Communications Japan Co., Ltd.	100.00%	SAIKI TECH INVESTMENT HOUSE (ISRAEL) LTD.
TMI Telemedia International Hong Kong Ltd.		TMI Telemedia International Hong Kong Ltd.(Hong Kong)
IXnet Japan Co., Ltd.	100.00%	Saturn Global Service Europe (U.K.) IPC Communications, Inc. (U.S.A)
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.		Coyote Network, Systems, Inc. (U.S.A)
Magde Web Japan Co., Ltd.	100.00%	Tullett & Tokyo Forex Europe B.V.(the Netherlands)
Equant Network Service Private Limited		Equant Network Service Private Limited (Singapre)
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.		Pacific Gateway Exchange Japan 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.		GTE Internetworking International Corp. (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		AT & T Global Network Services Japan LLC (U.S.A)
GTE Far East (Services) Ltd.		GTE Far East (Services) Ltd. (Hong Kong)
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.		Sprint International Holding, Inc. (U.S.A)
Angstrom Network Japan	100.00%	Angstrom Networks Ltd. (U.S.A)

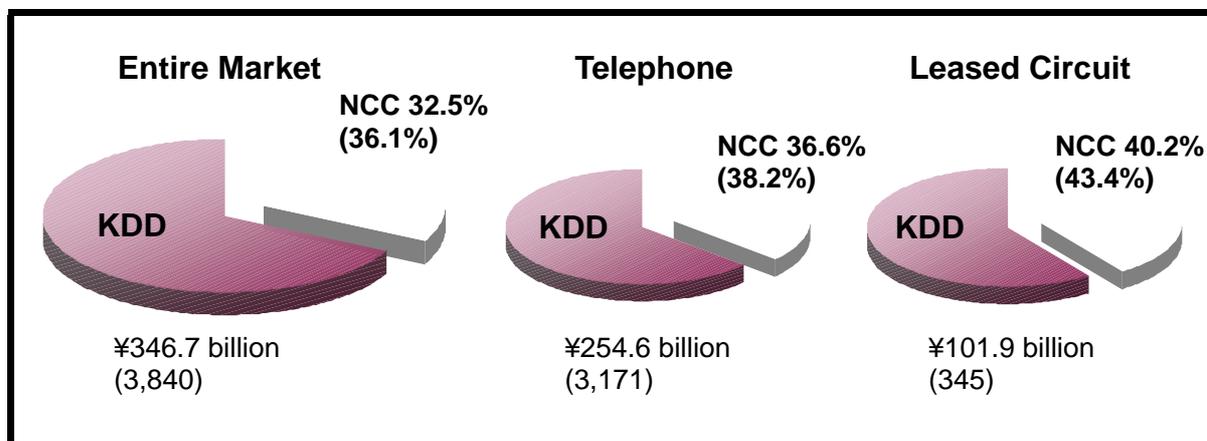
V. Overview of Type I Telecommunications Carriers Market

1. Market Share of NTT, KDD and NCCs (FY1999 Revenues)

(1) Domestic Telecommunications



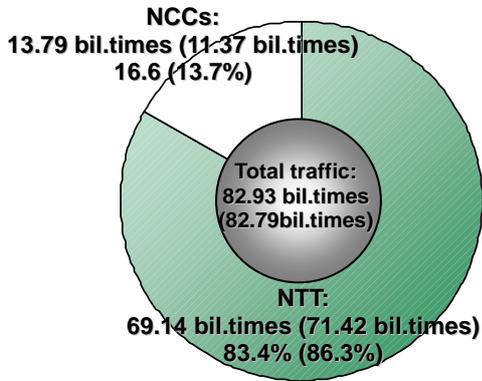
(2) International Telecommunications



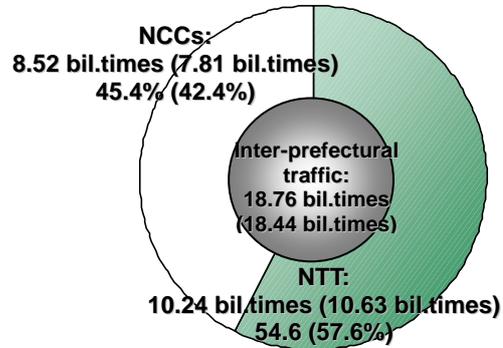
Notes: Figures in parenthesis represent the data for FY 1998.

2. Telephone (Subscriber Telephone + ISDN) Market Share of NTT and NCCs (Share of traffic in FY1999)

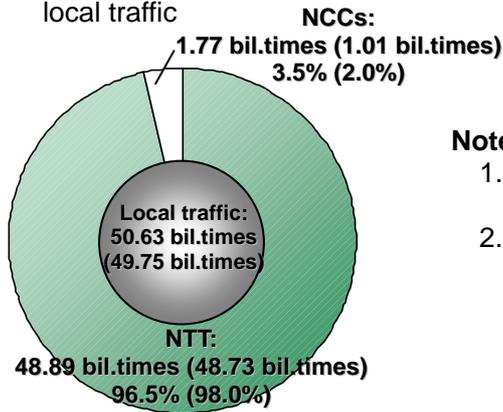
(1) Share of NTT and NCCs in all traffic



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



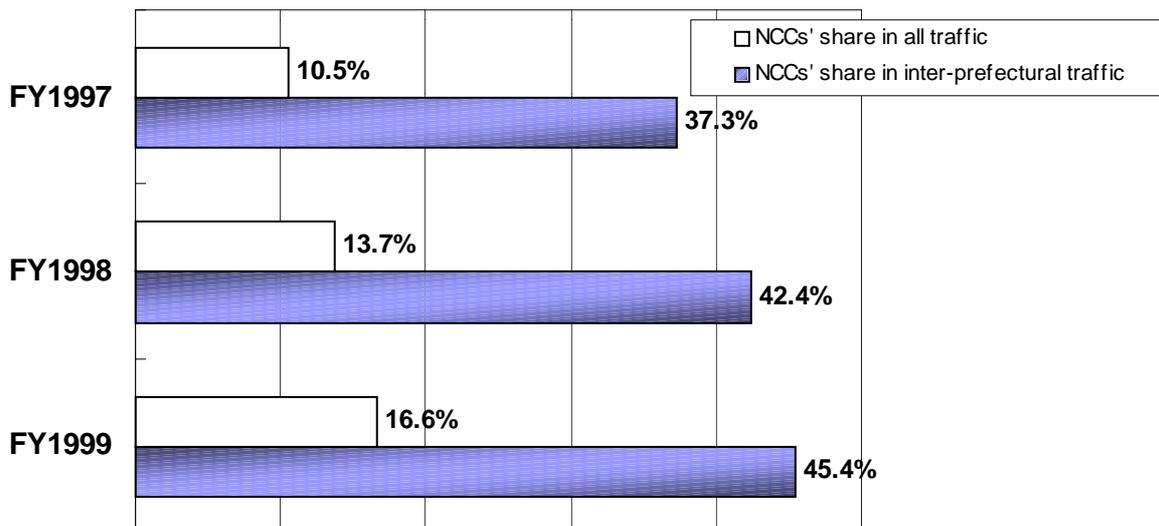
(3) Share of NTT and NCCs in local traffic



Notes:

1. Figures in parenthesis represent the share of traffic in FY 1998.
2. Figures for NCCs include those of KDD Corp., DDI Corp., Japan Telecom Co., Ltd., J-COM Tolyo, TITUS Communications, Corp., MCIWC and 9 power-utility-company-based NCCs (TTNet, HOTnet, TOHKnet, HTnet, CTC, OMP, CTNet, STNet and QTNet).

(4) Changes of NCCs' share in all traffic

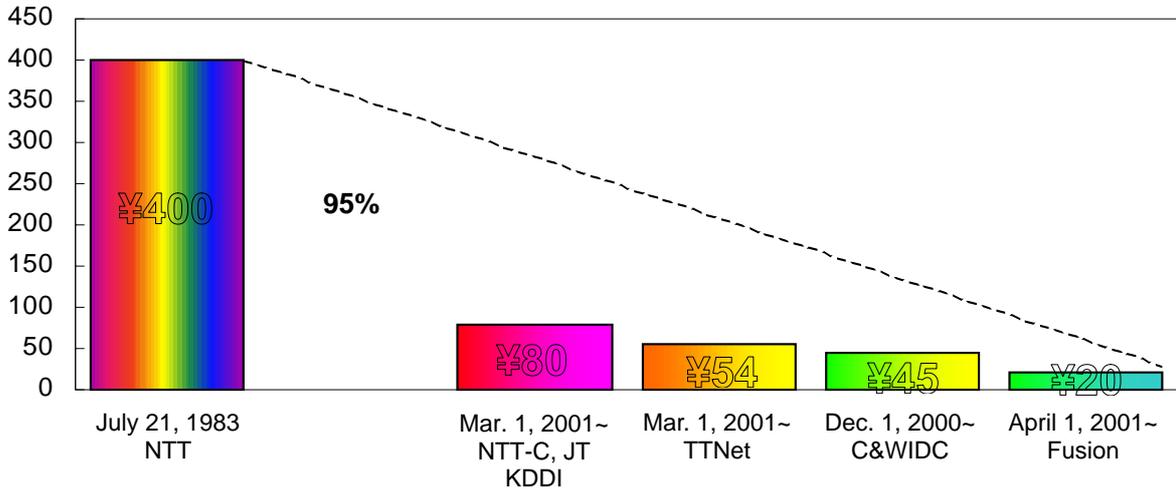


VI. Rate Reductions

1. Current Status of Rate Reductions

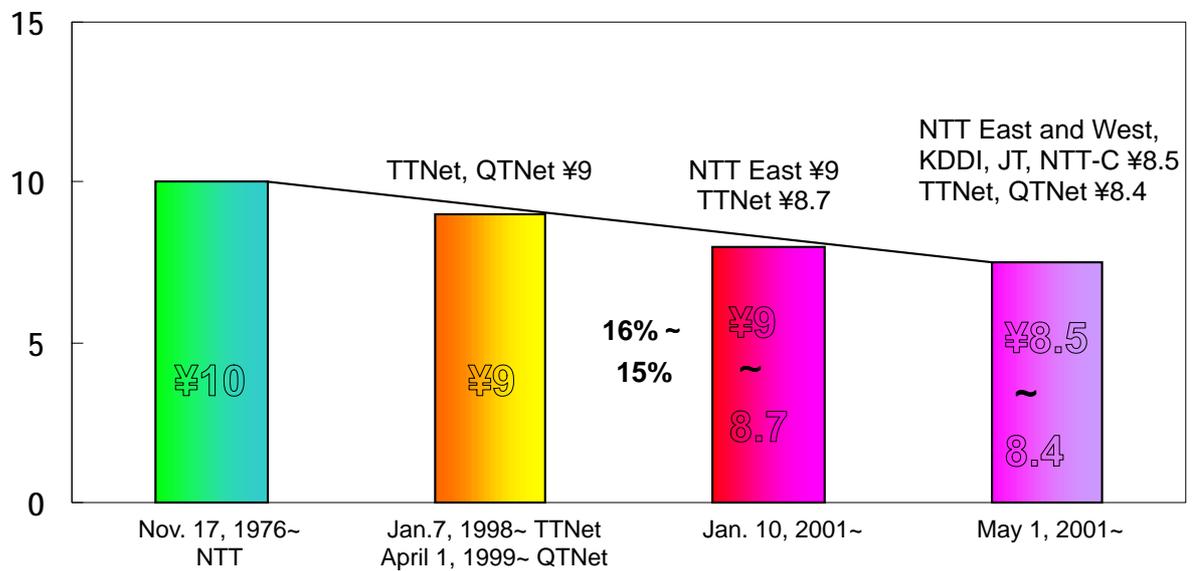
(1) Long-distance call (Tokyo-Osaka)

3 minutes, daytime, weekdays



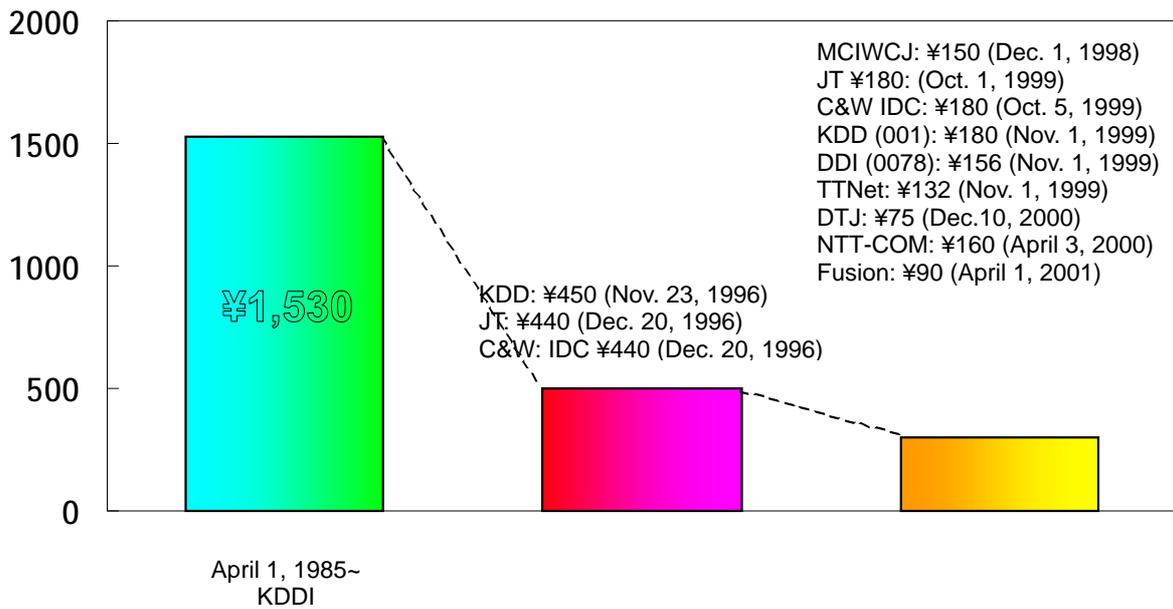
(2) Local call

3 minutes, daytime, weekdays



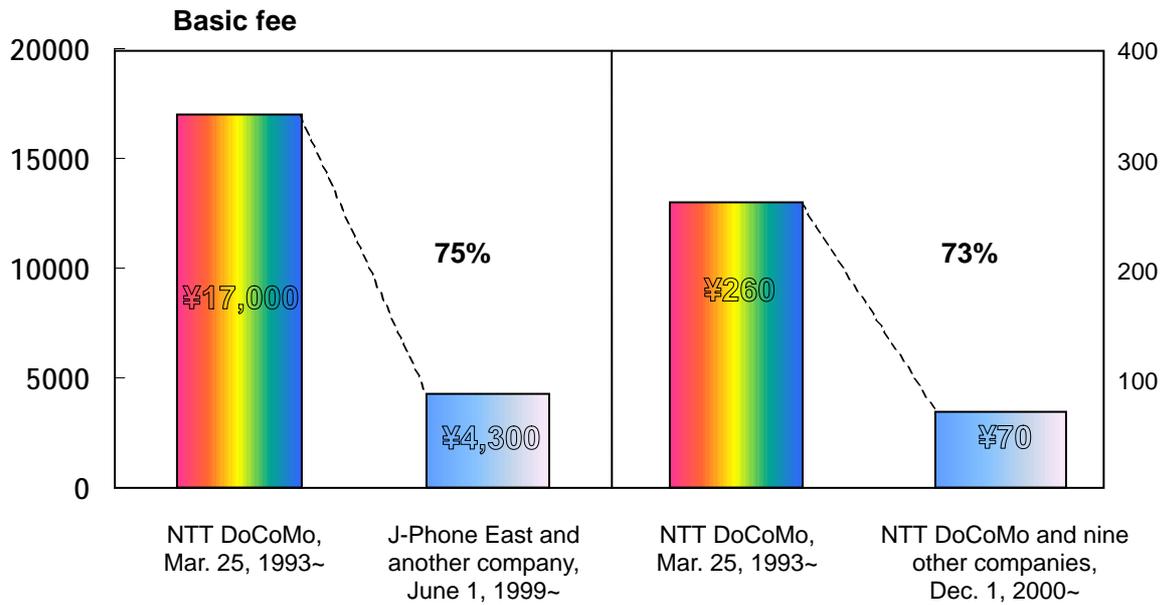
(3) International call (Japan-U.S.A)

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.

2. Current Status of Tariffs and Services Diversification

(1) Diversification of services and tariffs

(i) Diversification of services

Services	Service providers	Starting date
Telephone service	NTT, long-distance, regional, international, cellular and PHS carriers	
Leased circuit service	NTT, long-distance, regional and international carriers	
Telegraph, Telegram and 11 other services	NTT	
ISDN service	NTT, long-distance, regional and international carriers	April 1988
Frame-Relay service	NTT, long-distance, regional and international carriers	November 1994
Internet access service	NTT, long-distance, regional, international, cellular and PHS carriers	October 1996
Cell-relay and three other services		

(ii) Diversified telephone service functions

Functions	Service providers	Start date
Push-phone (Touch-tone) connection	NTT, regional carriers (cellular and PHS carriers dealing with touch-tone only)	May 1969
Call-waiting service	NTT, long-distance, regional and cellular carriers	November 1970
15 other services		
Number information sending function (Direct dialing-in service)	NTT, long-distance, regional, international and cellular carriers	November 1985
Called party billing service (Toll-free number service)	NTT, long-distance, regional, international and cellular carriers	December 1985
Message dial service	NTT, cellular and PHS carriers	November 1986
Incoming call abbreviated dialing service	NTT, long-distance, regional, international and cellular carriers	December 1989
Caller line indication (Caller ID display/announcement service)	NTT, cellular and PHS carriers	May 1993
Number-of-calls counting	NTT	November 1993
Virtual Private Network Service	NTT, long-distance, regional, international and cellular carriers	February 1994
Nuisance call blocking service (Malicious calls blocking service)	NTT and cellular carriers	August 1994
Character display service (P-Mail)	Cellular and PHS carriers	April 1996
Called party limitation use	PHS carriers	April 1998
Location information service	PHS carriers	May 1998
24 other functions		

(iii) Diversified leased circuit services

Services	Service providers	Starting date
General leased circuit service	NTT, long-distance, regional and international carriers	
High-speed digital transmission service	NTT, long-distance, regional and international carriers	November 1984
ATM leased circuit service	NTT, long-distance, and regional carriers	April 1997
Integrated leased circuit service	NTT and long-distance carriers	August 1997

(2) Diversification of tariffs

(i) Diversified telephone service tariffs

Services	Service providers	Starting date
Discount services for nighttime and holidays	NTT, long-distance, regional, international, cellular and PHS carriers	April 1992
Discount services regardless of calling hours and date	NTT, long-distance, regional, international, and cellular carriers	November 1993
Time limitation discount services (Evenings, weekends and holidays)	Cellular carriers	May 1994
Discount service for specified destination	Long-distance, international and cellular carriers	May 1994
Discount service for specified area code	NTT, and long-distance carriers	March 1995
Late night + early morning flat-rate service	NTT	August 1995
Volume-sensitive type large-volume discount service	International, cellular and PHS carriers	June 1996
Long-term contract discount service	Cellular and PHS carriers	July 1996
Non-voice communications discount services	Cellular and PHS carriers	February 1997
Multiple-circuits contract discount services	Cellular and PHS carriers	April 1997
Monthly basic charge with free calls	Cellular and PHS carriers	April 1997
Time contract discount service	Cellular and PHS carriers	July 1997
Discount services for specified destination (regardless of calling hours)	PHS carriers	July 1997
Specified date discount services (regardless of calling hours)	Cellular carriers	August 1997
Short call-duration charge	Cellular and PHS carriers	August 1997
Discount service for domestic/international combined rate	International and long-distance carriers	October 1997
Extended-area local calling plan	NTT	December 1997
Non-voice communications discount service	PHS and cellular carriers	January 1998
Reduced rates for local long duration calls	NTT	February 1998
Discount service for combined multiple services	Cellular and PHS carriers	December 1998

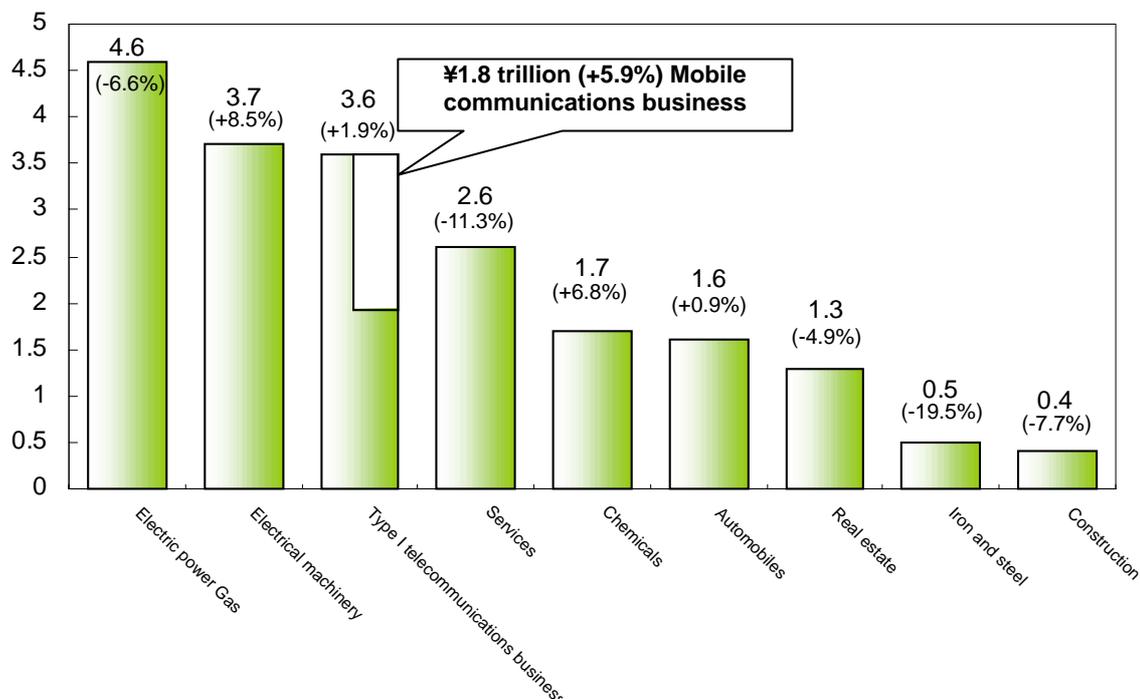
(ii) Diversified leased circuit tariffs

Services	Service providers	Starting date
Long-term contract discount service	NTT, long-distance, regional and international carriers	March 1991
Large-volume discount service	NTT and regional carriers	October 1992
Bulk-circuit discount service	Regional and international carriers	February 1993

VII. Current Status of Info-Communications Industries

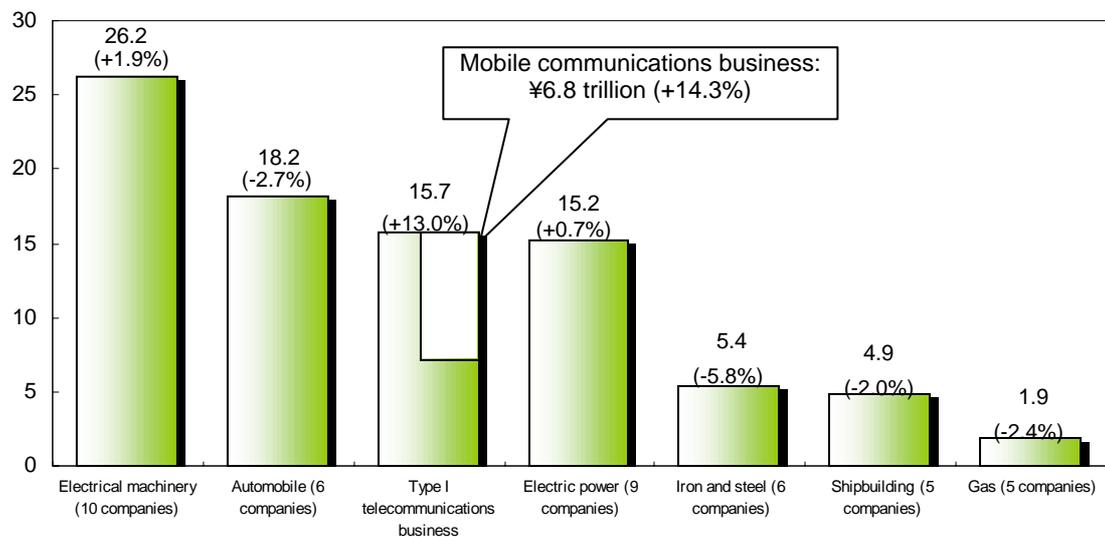
1. Facilities Investment by Type I Telecommunications Business (FY2000 plans)

(Unit: ¥1 trillion) **Total investments by all industries: ¥38,635.3 billion (-4.7%)**



2. Market Size of Type I Telecommunications Business (FY1999 financial results)

(Unit: ¥1 trillion) **Total sales by all industries: ¥1,307,192.1 billion (-5.4%)**



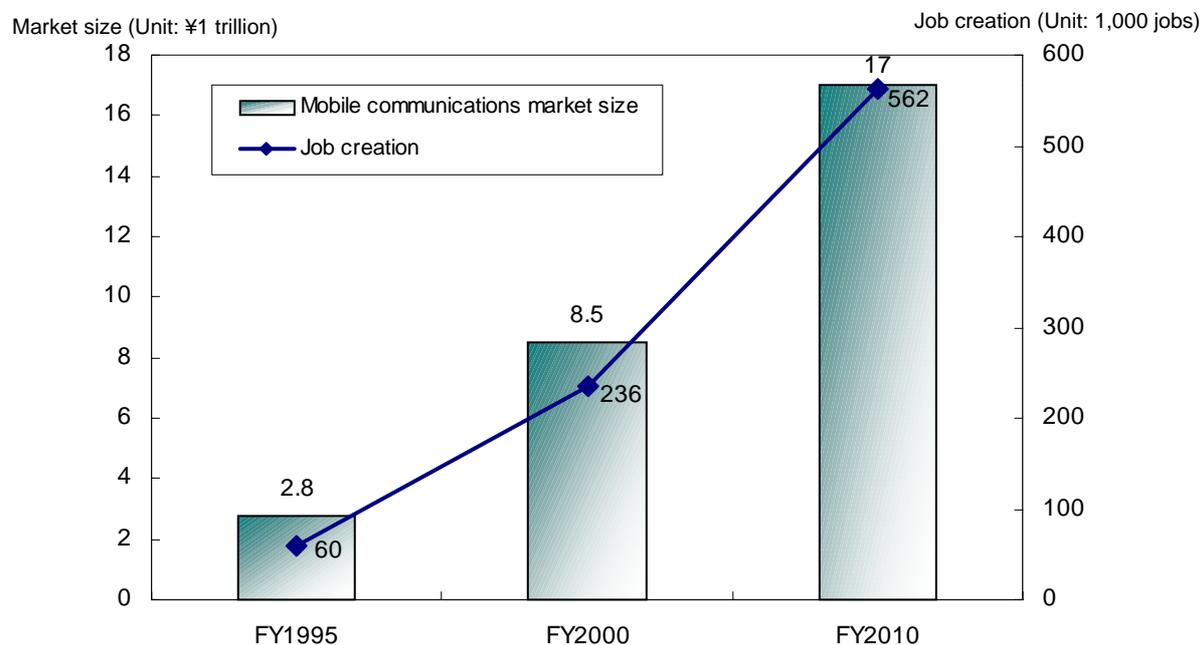
VIII. Mobile Communications Market

1. Forecast for Mobile Communications Market

Revised Forecast for Mobile Communications Markets

	Forecast in June 1994	Forecast in April 1995	Forecast in May 1996
Market size in FY2010	¥11.0 trillion	¥15.7 trillion	¥17.0 trillion
Job creation in FY2010	327,000	524,000	562,000

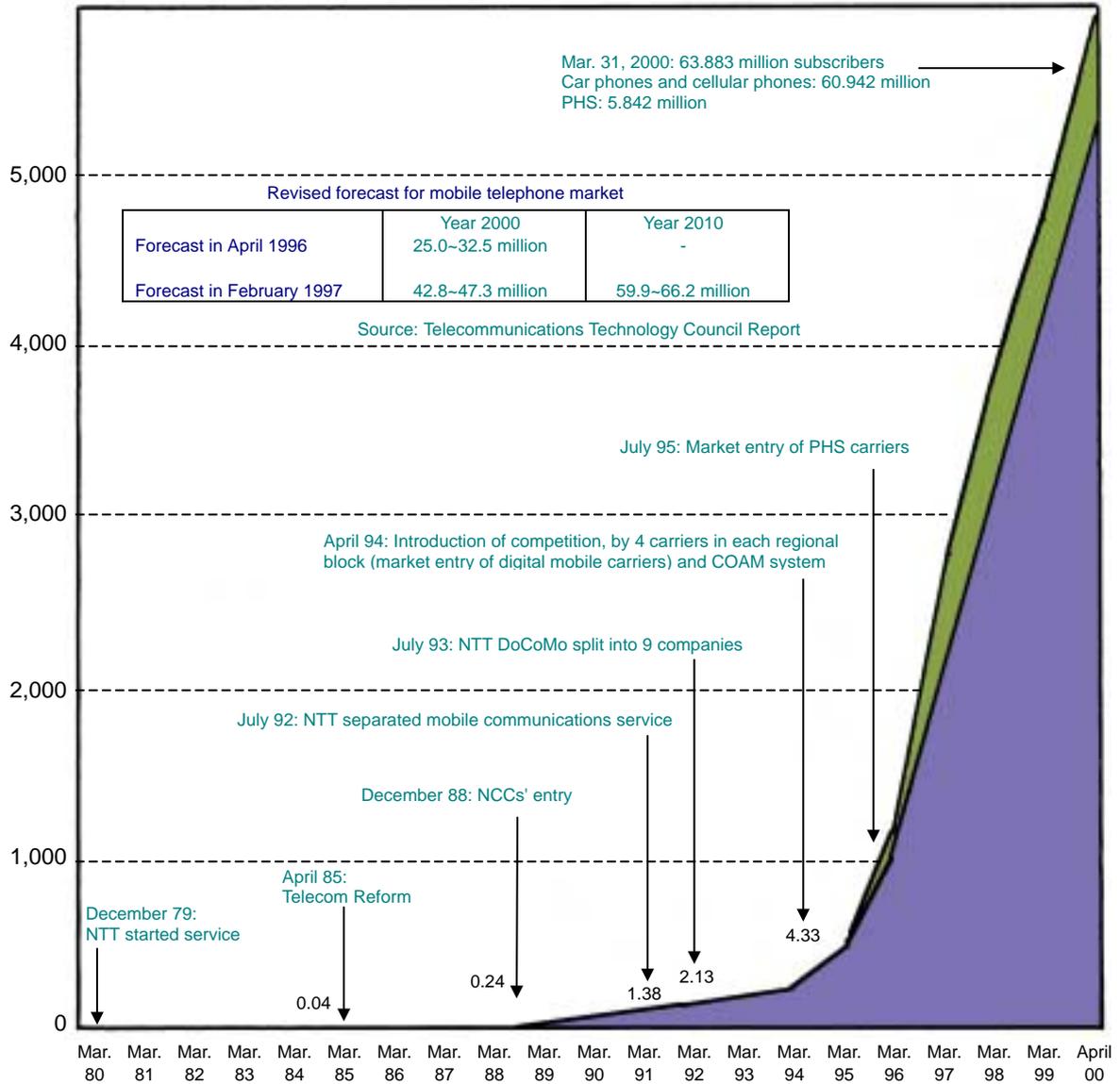
Latest Market Forecast for Mobile Communications Markets (Forecast in May 1996)



Forecast in May 1996	FY1995	FY2000	FY2010
Mobile communications market size	¥2.8 tril.	¥8.5 tril.	¥17.0 tril.
Job creation	60,000	236,000	562,000

2. Status of Mobile Phone Market in Japan

(Unit: million)



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 (Analog) → ¥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 Mobile Communications Network, Inc. (3 minutes, daytime of weekdays, intraprefectural rates)

3. 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)

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

Pro-competition policy

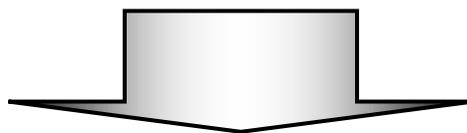
- Realization of fair and competitive markets containing six carriers in each market

- (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



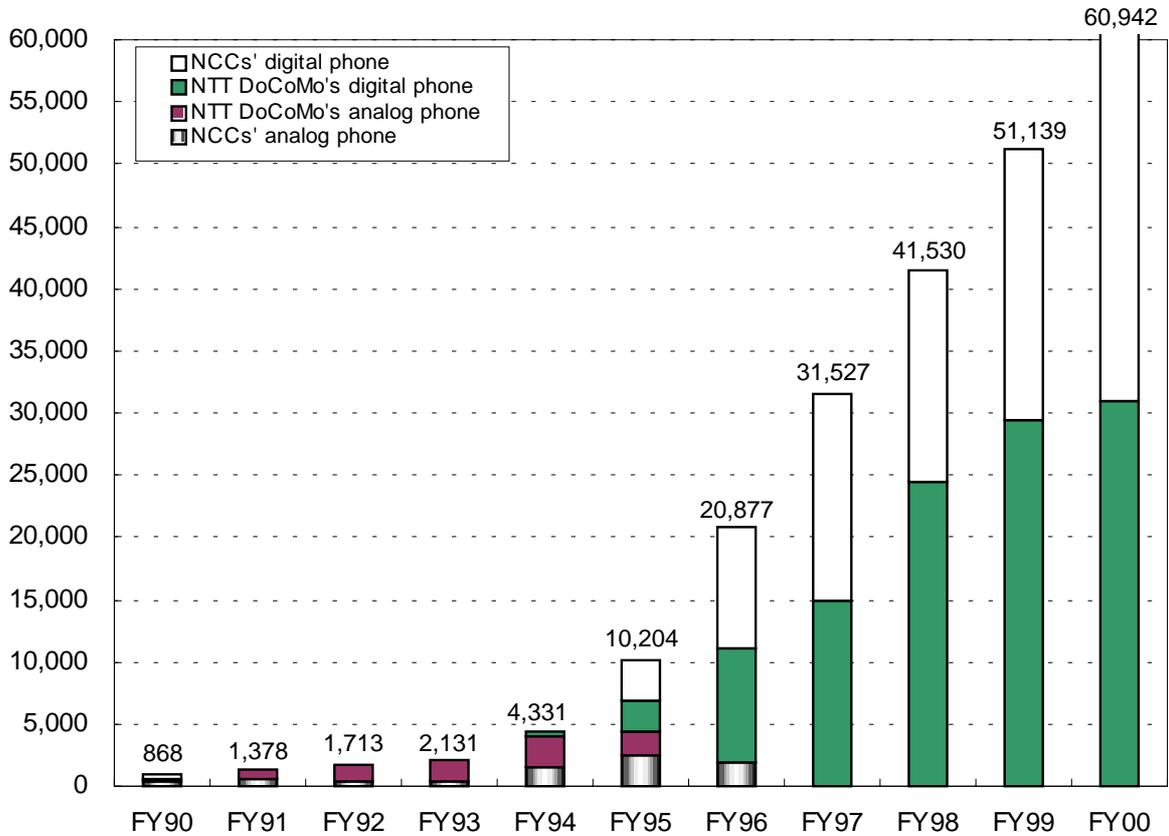
Rate reduction and diversification

- Rapid reduction and diversification of rates

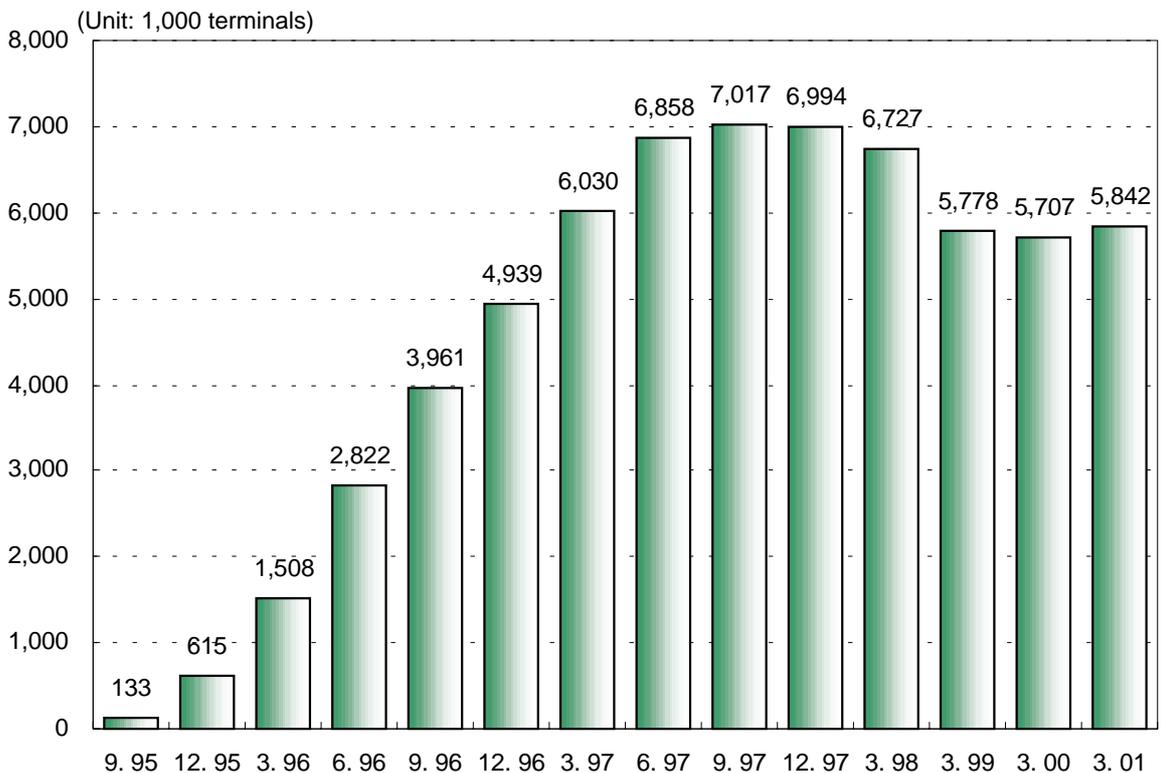
- (1) As a result of pro-competition policy and technological innovation, NTT DoCoMo abolished its initial subscription fee, reduced basic monthly charges 22% and reduced airtime charges 36% over the past 5 years.
- (2) April 1994: Introduction of "Low-volume call rate" tariff opened market to personal users.
- (3) April 1995: NTT DoCoMo introduced "Area-by-area call rate" tariff (3 min. ¥70: 800MHz, digital).

IX. Current Status of Major Radio Station Diffusion

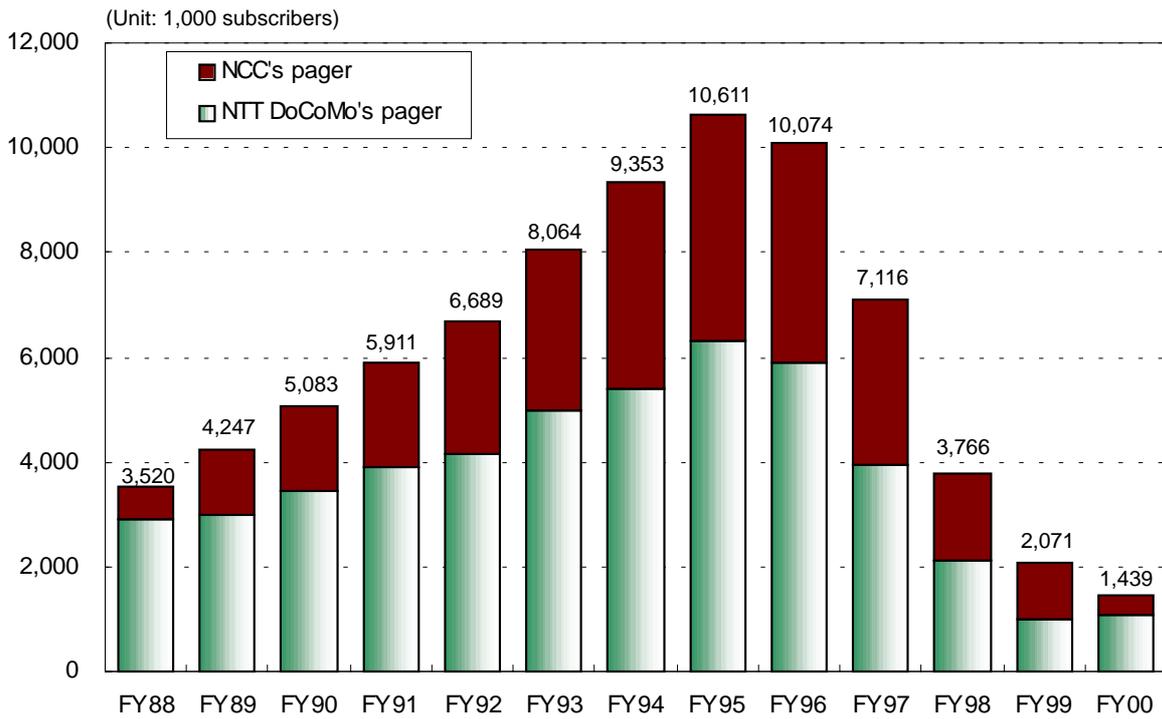
1. Transition in the Number of Cellular Phones



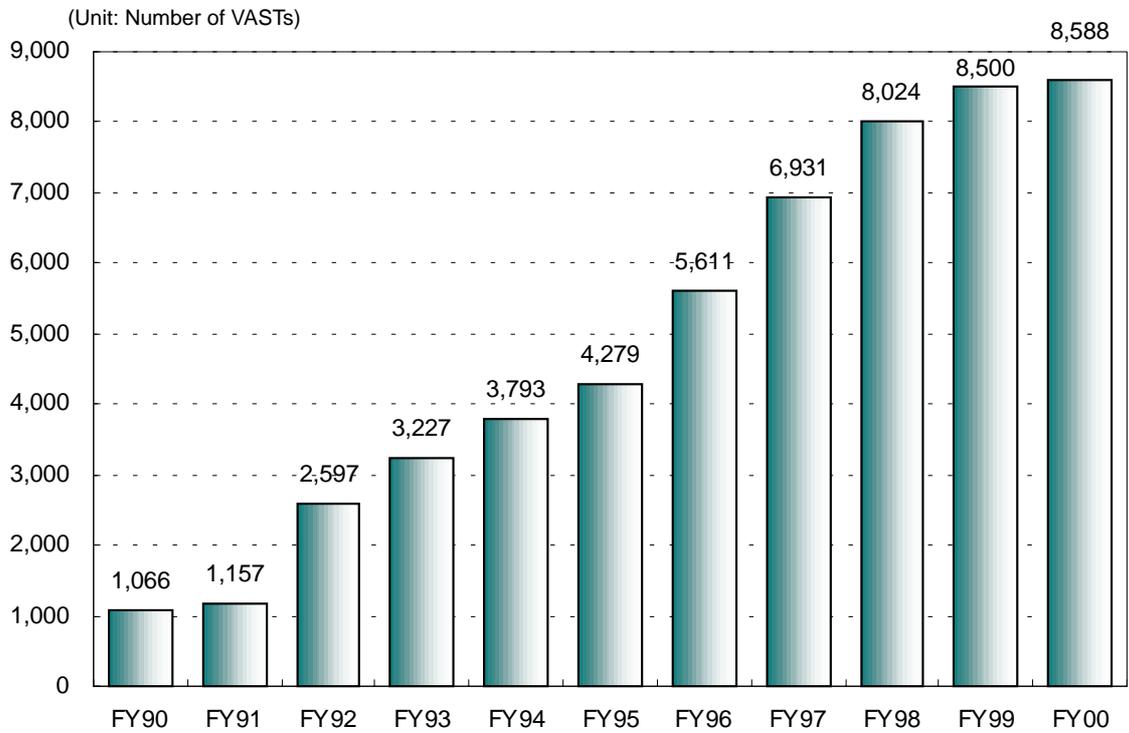
2. Transition in the Number of PHS Subscribers



3. Transition in the Number of Radio Pagers



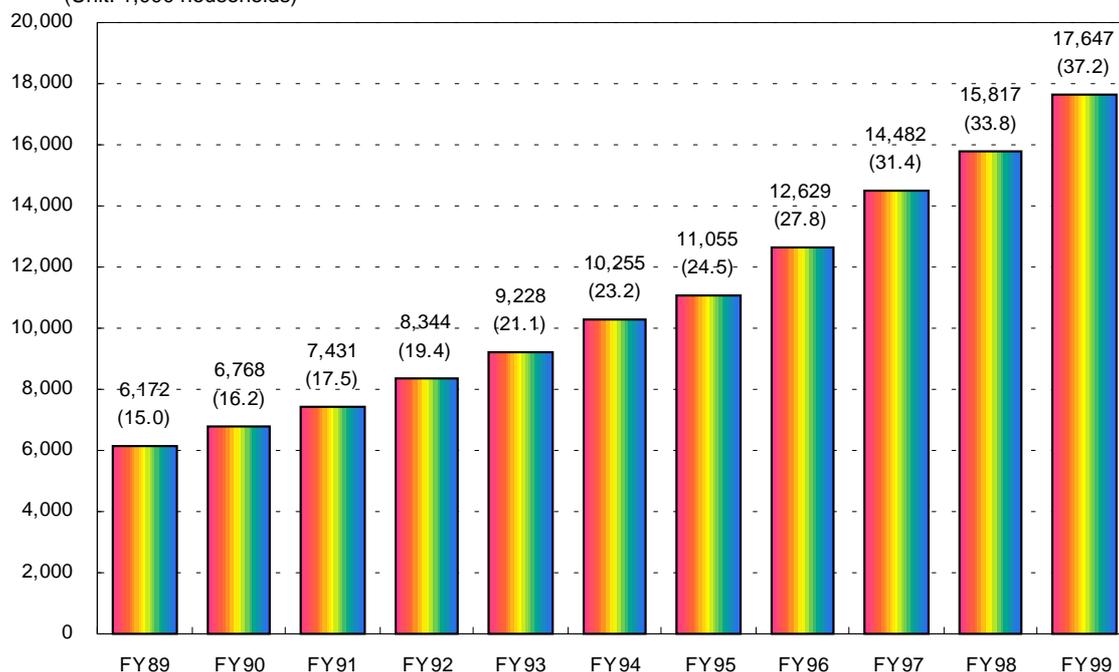
4. Transition in the Number of VAST Earth Stations



X. Current Status of Diffusion of Cable TV

1 Changes in the Number of Household Subscription of Cable TV

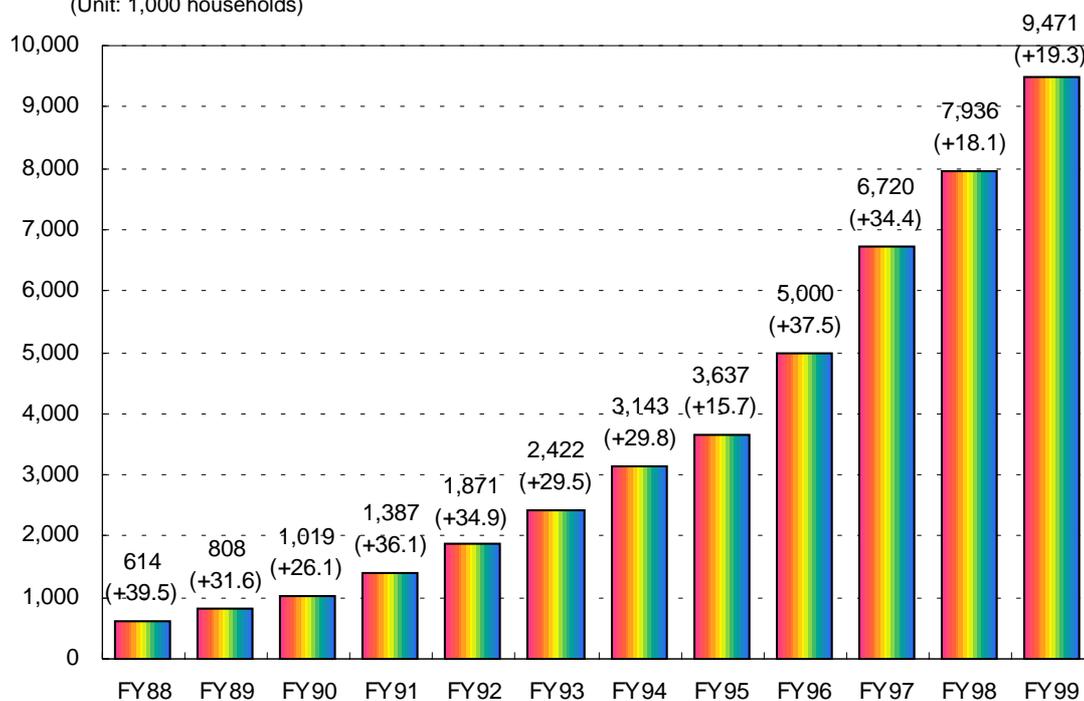
(Unit: 1,000 households)



- Notes:
1. Figures indicate date at the end of each fiscal year.
 2. Figures in brackets indicate the household penetration rate of cable TV.
 3. Penetration Rates are calculated based on the number of households in the Basic Residential Resisters.
 4. The total number of cable TV facilities as of the end of FY1999:70562

2. Changes in Number of Household Subscriptions (Facilities engaged in self-originated broadcasting)

(Unit: 1,000 households)



- Note:
1. Figures indicate date at the end of each fiscal year.
 2. Number in bracket indicate growth rates of the number of household subscriptions over fiscal year.

References

- Reference I.** Construction of Fiber-optic Networks
- Reference II.** Schedule for Construction of Optical Subscriber Loop System
- Reference III.** Support for Deployment of Fiber-optic Network
- Reference IV.** Trends in Technology Trade
- Reference V.** Current Status of Broadcasting Business in Japan

Reference I. Construction of Fiber-optic Networks

1. Installation condition in terms of cable length used

(As of the end of FY1999; unit: 1,000km)

Item	Cable length	Fiber-optic cable
Transit System	347	299
Subscriber Loop System	1,247	220
Total	1,594	519

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

3. Trends in actual investment in fiber-optic networks

(Unit: ¥1 billion)

End of Fiscal Year	FY1994	FY1995	FY1996	FY1997	FY1998	FY1999
Transit System	341.4	297.2	338.7	344.6	224.7	285.9
Subscriber Loop System	129.9	244.7	331.5	303.3	241.5	277.4
Total	471.3	541.9	670.2	647.9	466.2	563.3

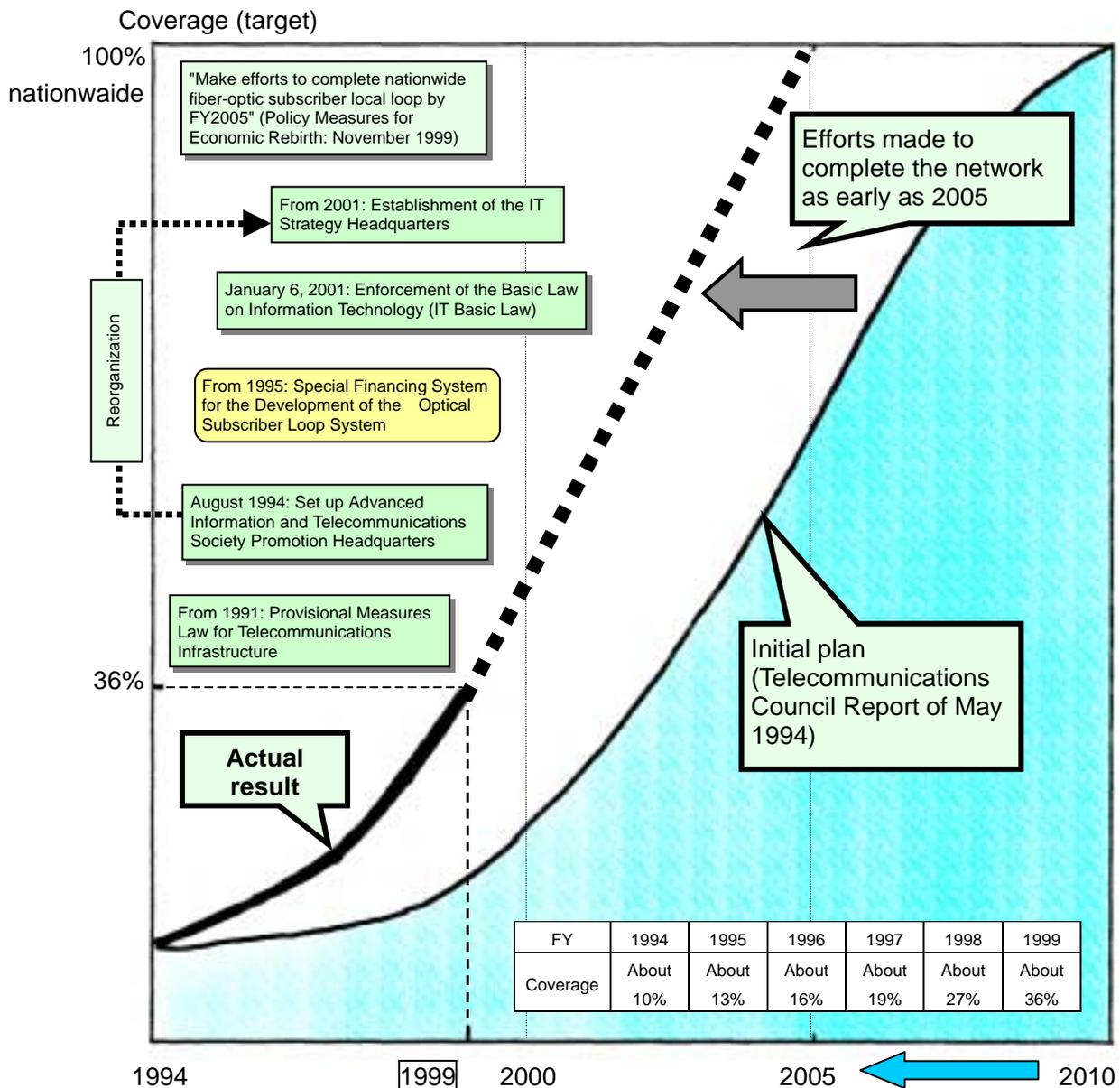
Reference II. Schedule for Construction of Optical Subscriber Loop System

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

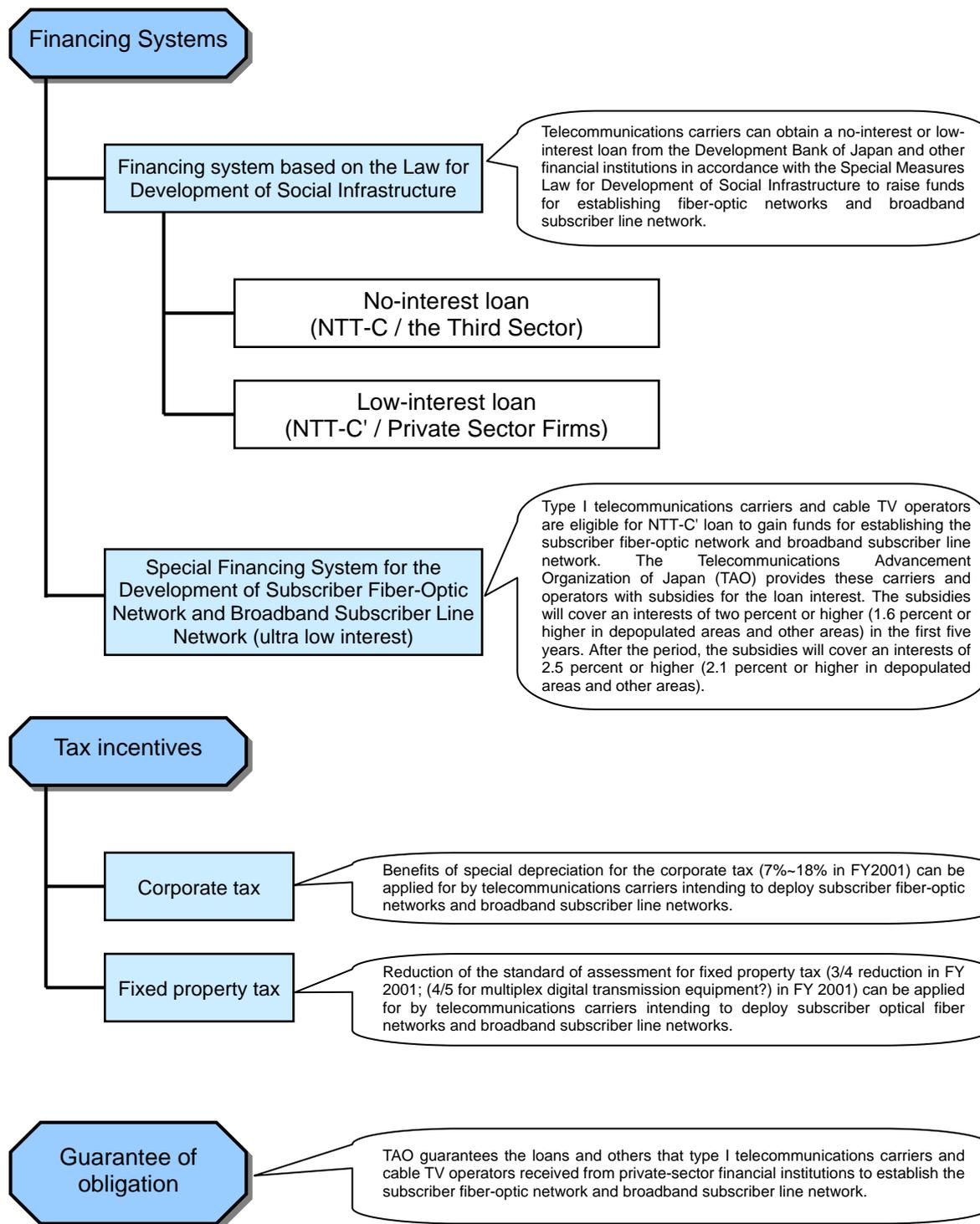
(As of the end of FY1999; unit: 1,000km)

Item	Cable length	Fiber-optic cable	Percentage of fiber-optic cable
Transit System	347	299	86.0%
Subscriber Loop System	1,247	220	17.7%
Total	1,594	519	32.6%

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



Reference III. Support for Deployment of Fiber-optic Network



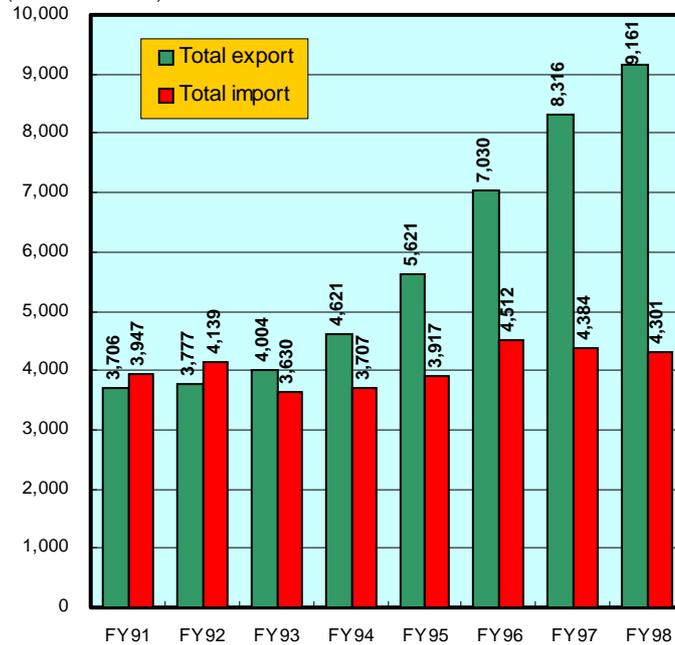
To receive the following support, applicants should obtain authorization of deployment plans from former MPT in line with the Provisional Measures Law for Telecommunications Infrastructure.

Reference IV. Trends in Technology Trade

【All industries in Japan】

Total export > Total import

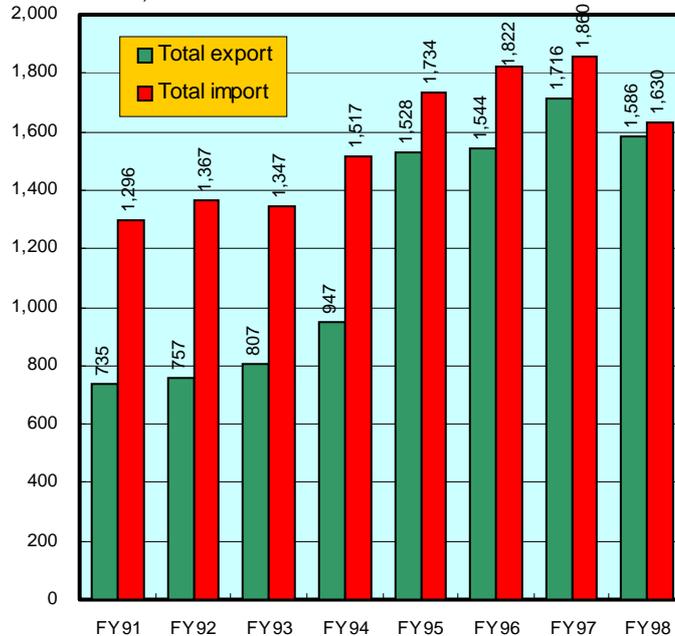
(Unit: ¥100 million)



【Communications, electronics and measuring instrument industries in Japan】

Total export Total import

(Unit: ¥100 million)



Source: "Study Report on Science and Technology," the Ministry of Public Management, Home Affairs, Posts and Telecommunications (formerly Management and Coordination Agency)

Reference V. Current Status of Broadcasting Business in Japan

1. Operating Status of Broadcasters

	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00
AM broadcasters	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
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
FM teletext multiplex broadcasts by community broadcasters							3	3	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
BS analog sound multiplex broadcasters	3	3	3	3	3	2	2	2	2
BS analog data multiplex broadcasters			1	1	1	1	1	1	1
BS digital TV broadcasters									1(8)
BS digital radio broadcasters									1(10)
BS digital data broadcasters									1(9)
CS digital TV broadcasters					1(56)	2(71)	2(115)	2(120)	2(113)
CS digital radio broadcasters					1(6)	2(8)	2(11)	2(11)	2(8)
CS digital data broadcasters					1(1)	2(2)	2(4)	2(4)	2(2)
CS analog TV broadcasters	2(6)	2(9)	2(10)	2(13)	2(13)	2(13)	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)

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.)

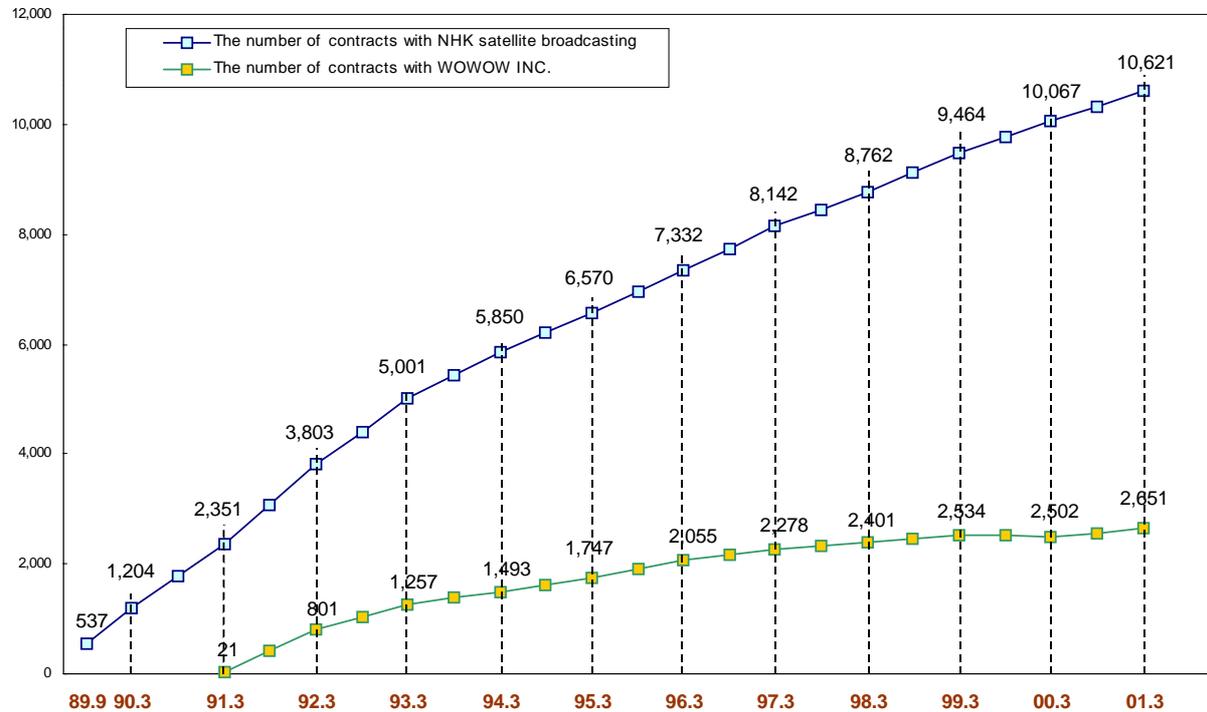
Note: In addition to the above, the University of the Air Foundation broadcasts one TV and one FM channel, targeting a major part of the Kanto Region as its coverage area.

3. Current Status of DBS in Japan

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

Unit: 1,000 households

Transition of the number of household receivers



2) DBS via Communication Satellites

(1) Transition of receiver's contract

(Unit: 1,000)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00
CS digital TV broadcasting	-	-	-	236	631	1,373	2,248	2,618

(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	
	- 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 (simultcast) 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

Broadcasting Satellite	Type of broadcasting	Number of licensees	Number of channels
JSAT (JCSAT-3)	Standard definition TV broadcasting	59	109
	FM broadcasting	7 ^{*1}	105
	Data broadcasting	1 ^{*2}	21
JSAT (JCSAT-4)	Standard definition TV broadcasting	62	80
	Data broadcasting	1 ^{*2}	16
SCC (SUPERBIRD-C)	FM broadcasting	1	402
	Data broadcasting	1 ^{*3}	2

Notes:

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