Annex

Competition Review in the Telecommunications Business Field of FY 2009

January 2010

Ministry of Internal Affairs and Communications

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Summary of Assessment Results

“Competition Review in the Telecommunications Business Field of FY 2009” Summary of Assessment Results and Future Prospects

1. Purpose and Significance

The Ministry of Internal Affairs and Communications commenced upon a “Competition Review in the Telecommunications Business Field” (hereinafter referred to as the “Competition Review”) in FY 2003 in assessing/analysing the status with competition in the communications market and for reflection in policy developments. In the Competition Review information was collected from both the demand side and the supply side with consideration given to the “Basic Policies” that include medium-term assessment principles and “Implementation Details”, a “market delimitation” implemented in determining the scope of the markets to be included as subjects of an assessment based on that information, and then the status with competition in the market analyzed in preparing assessment results on those markets, including identifying any business operators with market dominance, etc.

In addition, four domains were selected as subjects of a “fixed point assessment”, namely “Fixed telephones”, “mobile communications”, “internet connections”, and “corporate network services”, in an annual fixed point observation that has taken place since FY 2006, with a “strategic assessment” that will be newly created in analysis with attention paid to themes of great political need or concern.

The “Competition Review in the Telecommunications Business Field of FY 2009” (hereinafter referred to as the “Competition Review 2009”) featured “quantitative analysis of the economic impact of past competition policies concerning the dissemination of mobile and broadband services” and “sequential analysis of changes in consumer preferences with telecommunications services” as strategic assessments in view of summarizing the efforts of the Competition Review made to date and reflecting them in strategic assessments to be made next fiscal year after taking into consideration that six years has passed since a Competition Review was conducted and that the major themes had already been addressed and a certain amount of data collected, etc.

2. Points of the Report

Chapter I through Chapter IV of this report concerns fixed point observation analysis on the subjects of fixed point assessments, namely fixed telephones, mobile communications, internet connections, and corporate network services, and an assessment of market dominance that was conducted in revealing the status with competition in the respective markets. Chapter V through VI summarizes the strategic assessments.

The results of the fixed point assessments and strategic assessment of Competition Review 2009 are summarized below.

2.1. Points of Fixed Point Assessments

(1) Market concentration and share

Figure 1 shows the Herfindahl-Hirschman Index (HHI) [1] that indicates the market concentration and share of the NTT Group in major markets within the four domains which are the subjects of the fixed point assessments. The national level HHI was calculated by adding up the shares of the multiple business operators when necessary, including regarding NTT East and West as one company.

[Figure 1 Market concentration and share of NTT Group in major markets within four domains subject to fixed point assessment]

Domain	Major delimited markets (including sub-markets)		Review results of FY 2009	
			Market concentration (HHI)	Share of NTT Group
Fixed telephones	Fixed telephones (NTT subscriber telephones, direct access telephones, CATV telephones, 0ABJ-IP telephones)		6,951 ↓	82.9% ↓
		Relay telephones	Local 2,433 ↓	Local 75.3% →
			In-prefecture long distance 2,301 ↓	In-prefecture long distance 73.5% →
			Out-of-prefecture 3,574 ↓	Out-of-prefecture 72.5% →
			International 2,870 ↓	International 66.4% ↑
		050-IP telephones	3,168 →	35.1% ↑
Mobile communications	Mobile phones/PHS		3,461 →	48.2% →
Internet connections	Broadband		3,048 ↑	52.7% ↑
		ADSL	3,263 ↑	34.8% →
		FTTH	5,836 ↑	74.4% →
		Cable internet	1,483 ↑	--
	ISP		1,557 →	31.9% →
Corporate network services	WAN services		2,173 →	67.5% ↓
	Leased circuit services		8,354 →	94.6% →

(Note 1) In calculating the "market concentration (HHI)" at the national level NTT East and West were regarded as one company while other companies of the NTT Group were regarded as different companies (SoftBank Group, J:COM Group, JCN Group, and electrical power-related business operators of broadband/ISP, J:COM Group and JCN Group with CATV internet, and electrical power-related business operators of FTTH were regarded as one company, respectively). With the "share of NTT Group" the share of 050-IP telephones is that of NTT Communications while the share of ADSL/FTTH is that of NTT East and West. The figures for fixed telephones, mobile communications, internet connections, and WAN services are as of March 2010 and the figures for leased circuit services as of March 2009.

[1] HHI (Herfindahl-Hirschman Index) is an index used to measure market dominance that is calculated by adding the square of the share of each business operator in the market. HHI totals the squares of each individual market share, and hence changes in the share of business operators with large shares have a greater impact. Conversely the impact of changes in the share of business operators with a small share is limited. A characteristic of HHI is that a lack of information on small-scale business operators does not significantly affect the effectiveness of the index.

(Note 2) The arrows (↓, ↑, →) in the table indicate ups and downs from the "Competition Review 2008" by100 or more for HHI and 1 point or more for the share.

HHI values vary from 0 (perfect competition) to 10,000 (perfect dominance), with values close to 10,000 indicating a higher market concentration. With evaluations made using the index an HHI of less than 1,000 is deemed acceptable for mergers by the EU Directorate General for Competition. In addition, the US Department of Justice and Federal Trade Commission set the standard of regarding a post-merger HHI of [1] less than 1,000 as no concentration, [2] between 1,000 to 1,800 as a medium concentration, and [3] over 1,800 a high concentration.

However, the "Guidelines on Application of the Antimonopoly Act Concerning Review of Business Combinations" (revised in January 2010) published by the Japan Fair Trade Commission provides for post-merger shares being less than 10% or an HHI of 2,500 or less (and a share of 25% or less) as "usually not considered substantial enough to restrain competition" and an HHI of 2,500 (and a market share of 35% or less) as "the possibility of being a restraint to competition is usually considered low"[2]. An HHI or market share of no more than a certain level merely indicates the possibility of a restraint on competition being low and that of a certain level or higher does not necessarily mean it is a restraint to competition. It should be determined on a case-by-case basis with consideration also given to the advantage of scale, etc.

Using these values as reference reveals the majority of the communications market to be oligopolistic. With the fixed telephone, 050-IP telephone, mobile communication, ADSL, FTTH, and leased circuit service markets the HHI exceeds 3,000 and the concentration considered extremely high. The FTTH market growing and at the same time the concentration being on an upward trend is particularly characteristic.

The share of the NTT Group exceeds 50% in every market, excluding 050-IP telephones[3], mobile communications, ADSL, and ISP. In addition, the share of the NTT Group tends to be high in many of the markets with a high market concentration.

(2) Existence and exercising of market dominance

Figure 2 shows the results of assessing market dominance from two points of view, the existence of market dominance and the exercising of market dominance in major markets within the four domains subject to the fixed point assessment[4].

[2] The standard used for horizontal mergers differs from the cited standard used for vertical mergers.
[3] 050-IP telephones refer to IP telephones that are assigned 050 numbers that have no relevance to geographical attributes. The quality of 050-IP telephones is not as high as that of 0ABJ-IP telephones, but they are mainly provided at a low price as a service available with an internet connection.
[4] In the Competition Review it is deemed that "market dominance exists" if there is a possibility of one or more business operators existing that are in the position of being capable of exercising market dominance with consideration given to quantitative/qualitative analysis of the market structure and the status with

[Figure 2 Summary of results of assessment of market dominance]

Domain	Major delimited markets (including sub-markets)		Review results of FY 2009	
			Existence of market dominance	Exercising of market dominance
Fixed telephones	Fixed telephones		● (independent)	▲ (concern over leveraging broadband)
		Relay telephones	○ (independent/cooperative)	x (low)
		050-IP telephones	▲ (cooperative only)	x (low)
Mobile communications	Mobile phones/PHS		○ (independent/cooperative)	x (observe securement of price transparency, platform interoperability)
Internet connections	Broadband		○ (independent/cooperative)	▲ (observe compliance status of competition rules)
		ADSL	○ (independent/cooperative)	x (low)
		FTTH	○ (independent/cooperative)	▲ (concern over leveraging fixed telephones)
		Cable internet	x (independent/cooperative)	- (non-existent)
	ISP		x (independent/cooperative)	- (non-existent)
Corporate network services	WAN services		▲ (cooperative only)	x (low)
	Leased circuit services		● (independent)	x (low)

(Note) ● indicates “strongly exists”, ○ “exists”, ▲ “cooperative only” or “with some concerns”, and x “low possibility”.

With regard to the existence of market dominance it was deemed that some business operators with market dominance were either independent or cooperative in markets excluding cable internet and ISP as a result of comprehensive consideration given to various factors, including market share/market concentration of respective markets, number of business operators, and changes in prices, etc. (dominance in markets of both 050-IP telephones and WAN services is by

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competition between business operators. Whether the possibility of market dominance actually being exercised exists or not is then analyzed, and if there is a possibility it is deemed that “market dominance may possibly be exercised”. It differs from the approach of the Antimonopoly Act in that normative assessment of the existence of market dominance is made. It aims to deepen understanding of the market’s structure that could be the source of market dominance, political measures against it, and the relationship with the status with actual competition and contribute to regular market analysis and policy making. Refer to page 24 of the “Basic Policies on Competition Review in the Telecommunications Business Field” (published in December 2009).

cooperative multiple business operators only)

Exercising of market dominance was deemed to be restrained in each market due to the existence of regulations, etc.

In the mobile communications market, however, securing price transparency and the interoperability of platform functions were pointed out as issues in consideration of the point of view of the benefit of consumers. In addition, the ADSL market is shrinking and migration to FTTH progressing, although now both somewhat slowly. There is a possibility therefore that market dominance of the fixed telephone market could be used as a “lever” in impacting adjacent markets, including the FTTH market, etc. A concern over leveraging was therefore pointed out in the relevant markets (fixed telephone market, broadband market, and FTTH market), as in 2008.

In addition, an order to improve their business activities was issued to NTT West for the handling of information obtained from other telecommunications carriers as part of its business connected to telecommunications facilities in February 2010. It was therefore pointed out that the status with compliance of competition rules will need to be more closely observed in the future.

(3) Summary of results of analysis in respective domains

I. Market Analysis in Fixed Telephone Domain

1) Fixed telephone market

The number of subscriptions within the overall fixed telephone market has been decreasing and was 57.87 million as of March 2010. The number of NTT East and West subscribers has been decreasing while that of 0ABJ-IP telephones is increasing. The share of NTT East and West in the fixed telephone market (total of subscriber telephones and 0ABJ-IP telephones) was 82.9% as of the end of March 2010. And although that share is on a downward trend it still remains at a high level.

With the regard to market dominance, NTT East and West control bottleneck facilities and are thus in the position of being able to independently exercise market dominance. However, the possibility of market dominance actually being exercised is low because of the existence of regulations concerning type 1 designated telecommunications facilities and competition rules.

The significant growth of 0ABJ-IP telephones, however, gives rise to the concern that market dominance in the fixed telephone market could be used in leveraging an impact on adjacent markets (especially the broadband markets, although mainly FTTH) and hence close observation is needed.

2) Relay telephone market (sub-market)

Although the HHI is on a downward trend the share of the NTT Group has remained at the same level of 75.3% for local calls, 73.5% for in-prefecture calls, and 72.5% for out-of-prefecture calls, while that of international calls is on an upward trend at 66.4%. Taking its share and other determining factors into account however reveals that although the NTT Group is in the position of being able to exercise market dominance independently or cooperatively at present the possibility of it actually dominating the market dominance is considered quite low.

3) 050-IP telephone market (sub-market)

The shares of highly ranked business operators are basically the same and it is deemed that new entries can be easily made. No business operator has any independent market dominance but the market concentration is high as the share of the top three business operators was 84.3% as of the end of March 2010. The possibility does exist that multiple business operators could exercise market dominance through cooperating with each other. However, 050-IP telephones being provided as an additional service to broadband at a discount price, including free calls between subscribers, etc., have been established, thus making the possibility of market dominance actually being exercised low.

II. Market Analysis in Mobile Communications Domain

The share of NTT DOCOMO was 48.2% as of the end of March 2010 and the diversity of the share of NTT DOCOMO and other competing business operators of the market still quite large. Because of the oligopolistic market structure NTT DOCOMO is in the position, however, of being able to exercise market dominance. In addition, although no significant changes can be seen in the shares of the business operators, the share of the top three business operators was extremely high at 94.4%, and thus multiple business operators are in the position of being able to exercise market dominance through cooperating with each other.

However, the possibility of market dominance actually being exercised either independently or cooperatively is low because of the existence of regulations concerning type 2 designated telecommunications facilities and competition rules.

In addition, new developments, including market creation by MVNO, diverse services, commencement of LTE services, and dissemination of smart phone handsets, may have a large impact on the market. Future market trends therefore need to be closely observed.

III. Market Analysis in Internet Connection Domain

1) Broadband market

In the broadband market the number of subscribers of broadband services was 31.88 million as of the end of March 2010, and is still increasing.

The share of NTT East and West of the number of subscribers in the broadband market was 52.2% as of the end of March 2010, and is still rising. In addition, and with regard to the infrastructure, the share of NTT East and West of total subscriber networks[5] was also high at 87.9%. NTT East and West can therefore deemed to be in a position of being able to independently exercise market dominance.

Although measures to restrain/check any exercising of market dominance, including regulations on connections, actions, and services in accordance with the type 1 designated telecommunications facility system, are in place, an order to improve their business activities was issued to NTT West on the handling of information obtained from other telecommunications carriers as part of its business in connection to telecommunications facilities in February 2010. The status with compliance of competition rules therefore will need to be closely observed in the future.

In addition, it was pointed out that impact of the dissemination of new services, including wireless broadband such as NGN and BWA, etc., on the broadband market, etc. would also need to be closely observed.

2) ADSL market

The ADSL market has shrunk by more than 30% when compared to March 2006 when the number of subscription was the largest. As of the end of March 2010 SoftBank had the highest share at 38.7%, followed by NTT East and West at 34.8%. The difference increased when compared to that of at the end of March 2009.

The provision of ADSL services by competing business operators largely depends on open access to the subscriber networks of NTT East and West, and hence even SoftBank, the business operator with the top share, would find it difficult to provide consistent services without certain competition rules.

With the subscriber network share[6] (metal cables only) NTT East and West had a share of 99.9% as of the end of March 2010, and also control bottleneck facilities. NTT East and West are therefore deemed to be in the position of being capable of exercising market dominance.

However, the possibility of market dominance actually being exercised is low because of the implementation of regulations concerning type 1 designated telecommunications facilities, etc. In consideration of the shrinkage of ADSL market, however, the possibility of future cooperation

[5] Subscriber networks here include not only those used for broadband services but also those used for PSTN (Public Switched Telephone Networks) and corporation networks, etc. For the sake of reference the share was 90.0% (total of optical fiber and metal cables) as of the end of March 2009.
[6] Refer to footnote 5. For the sake of reference the share was 99.8% (metal cables only) as of the end of March 2009.

between business operators should continue to be closely observed.

3) FTTH market

With the FTTH market the share of NTT East and West of the number of subscriptions was 74.4% as of the end of March 2010. In addition, their share of optical fiber networks[7] also remained at the high level at 77.3%. NTT East and West are therefore deemed to be in the position of being capable of exercising market dominance.

Although the open access obligation, etc. in accordance with the type 1 designated telecommunications facility system is restraining market dominance from being exercised an order to improve their business activities was issued to NTT West on handling of information obtained from other telecommunications carriers as part of their business in connection to telecommunications facilities in February 2010. The status of compliance with competition rules therefore needs to be closely observed in the future with consideration given to the prospect that FTTH will be the main broadband service in the future.

However, the possibility of market dominance actually being exercised is quite low because of the existence of competition pressure from cable internet.

In addition, a concern that NTT East and West may leverage their dominance in the fixed telephone market in increasing their dominance in the FTTH market and the impact of dissemination of NGN on the market, etc. were pointed out as issues that will need to continue to be closely observed.

4) Cable internet market

With the cable internet market the number of subscriptions is still on an increasing trend. The share of the top three business operators in cable internet market rose to 49.4% as of the end of March 2010 due to mergers, etc.

No business operator is deemed to have any market dominance either independently or cooperatively because of the existence of competition pressure from FTTH, etc. and the share and HHI of the top three business operators not being very high when compared to other services, including FTTH and ADSL. It should be noted, however, that cable internet has the characteristic of regional dominance and the competition environment varying depending on the geographical conditions, for example different business operators providing services in different regions, etc.

In addition, a memorandum concerning discussion of a business alliance between J:COM,

[7] Refer to footnote 5. For the sake of reference the share was 78.8% (optical fiber only) as of the end of March 2009.

Sumitomo Corporation, and KDDI was concluded in June 2010 and is being held on cooperation in the cable television market between J:COM and JCN, a subsidiary of KDDI, and will include capital tie-up. These developments in the cable internet market will therefore need to be closely observed in the future.

IV. Market Analysis in Corporate Network Services Domain

In the corporation network service market the percentage of conventional services, including leased circuit services, etc., declined whereas the number of WAN line services has been on an increasing trend.

With the leased circuit service market the number of lines for all leased circuit services remained at the same level, but the decrease in the number of lines for leased circuit services excluding leased lines for connection was remarkable. The share of NTT East and West of the leased circuit service market was 91.3% as of the end of March 2009, thus indicating market dominance. Their share excluding leased lines for connection, however, was 54.6% as of the end of March 2009. Considering the competitive pressure of WAN services the possibility of market dominance being exercised is considered low.

The share of the NTT Group of WAN services was 67.5% as of the end of March 2010, thus indicating that the NTT Group is in the position of being capable of exercising market dominance. However, the possibility of market dominance actually being exercised is considered low because of the existence of fire wall regulations, regulations on interconnection charges of dark fiber used for access networks, and active WAN service competition, including internet VPN.

2.2. Points of Strategic Assessment

V. Sequential Analysis of Changes in Consumer Preferences with Telecommunications Services

As part of the Competition Review an annual Web questionnaire survey is conducted in amassing information on user preferences. The data is conventionally mainly used in the analysis of the specific theme of the respective year. There are quite few items, however, that are common to the surveys, although the theme differs every year. In the assessment, therefore, the results of the Web questionnaire surveys were sequentially analyzed to identify how user preferences have changed over the years.

The results of the Web questionnaire surveys revealed that the percentage of 0ABJ-IP telephone users had risen while the percentage of users of NTT East and West fixed telephones had declined, and the percentage of users of FTTH had risen while the percentage of NTT East and West broadband service users rose. In addition, a rise in the percentage of users of 3G mobile

phones was also revealed with mobile communications.

The Web questionnaire surveys provide data from the user-side, but the results of that data generally match the results of sequential analysis conducted on data from the provider-side.

VI. Quantitative Analysis of Economic Impact of Past Competition Policies concerning Dissemination of Mobile and Broadband Services

In this assessment how and what impact the various competition policies together have on the social and economic situation with expansion of the mobile and broadband markets was quantitatively analyzed from the point of view of their economic impact. In quantitatively identifying the economic impact direct impact of competition policies was calculated via consumer surplus analysis and AHP analysis, and then the spread impact on other industries calculated via an inter-industry relations table.

In mobile phone market the consumer surplus increased by approximately 685 billion yen over three years and three months, or from September 2006 through to December 2009, the period following the introduction of the number portability system, etc. Of this the direct impact of competition policies was calculated to be approximately 67 billion yen (the percentage of contribution of competition policies to the increase in customer surplus being 9.8%). In addition, the spread impact from the mobile phone market to other industries was calculated to be approximately 856 billion yen.

With the ADSL broadband market the consumer surplus increased by approximately 412 billion yen over five years and three months, or from March 2001 through to June 2006, the period following the introduction and dissemination of the unbundling functions, etc. Of this the direct impact of competition policies was calculated to be approximately 147 billion yen (the percentage of contribution of competition policies to the increase in customer surplus being 35.6%). In addition, the spread impact from the ADSL market to other industries was calculated to be approximately 207 billion yen.

With the FTTH broadband market the consumer surplus increased by approximately 131 billion yen over eight years and nine months, or from 2001 through to December 2009, the period following the introduction of the unbundling functions, etc. Of this the direct impact of competition policies was calculated to be approximately 13 billion yen (the percentage of contribution of competition policies to the increase in customer surplus being 9.9%). In addition, the spread impact from the FTTH market to other industries was calculated to be approximately 1,724 billion yen.

3. Competition Review of FY 2010 and onwards

(1) Ideal future assessment

1) Review of market delimitation

In conducting Competition Reviews delimiting markets in determining the subjects of assessment is very important. At present, however, assessments have only been conducted on markets delimited during the period of FY 2003 to FY 2006.

A considerable period of time has passed since the last market delimitation took place and therefore a separation between the delimited markets and the actual situation with markets may possibly be occurring due to technological innovations and the emergence of new services, etc. For example, the number of subscriptions of both mobile market MVNO and wireless broadband, including BWA, etc., within the broadband market is rapidly increasing. However, at present markets that are delimited as sub-markets of corporation services include those that are shrinking due to a decrease in number of users.

This situation gives rise to market delimitation needing to be appropriately reviewed with consideration given to the opinions of the relevant parties.

2) Comprehensive business capabilities of business operators

The “Basic Policies” (published in December 2009) provided the determining factors of not only including the market share and market concentration, etc. but also the comprehensive business capabilities of business operators, including technologies and capital tie-ups, etc., and for assessments to then be conducted through selectively combining those factors.

In view of making a comprehensive verification of business capabilities through capital tie-ups, etc., for example, the HHI was calculated by adding the shares of multiple business operators when necessary. Attention being paid to group dominance and discussing its ideal assessment is considered necessary.

3) Analysis of transactions between business operators

In Competition Reviews in Japan transactions between business operators were assessed as the theme in the strategic assessments of “Competition Review 2006” and “Competition Review 2007”, but the primary subjects of that analysis/assessment included end-user services only.

In the EU, however, review of the “Recommendation on Relevant Markets” that took place in December 2007 adopted the policy of focusing on wholesale markets, for example by significantly reducing the scope of retail markets included as subjects of the Competition Review, and based on the judgment that regulation of the retail market is insignificant if sufficient competition is maintained in the wholesale market.

In view of conforming to international assessments in Japan, enhancing the analysis of transactions between business operators will need to be discussed according to changes in the market environment and with attention paid to trends in foreign countries.

4) Trends in new technologies and services

Trends in demand and technological innovations are also important determining factors in the analysis of Competition Reviews. “Guidelines for Unlocking SIM Cards” were published in June 2010 and provided for SIM cards being unlocked when possible of new handsets that will be on sale from FY 2011 on[8]. What impact this has on the mobile communications markets in the future will need to be closely observed.

In addition, developing collaboration/integration of services, including bundle functions, etc., is accelerating, with business models that integrate the upper and lower layers of communications services, including content, applications, and handsets, etc., now emerging. Moreover, the dissemination of wireless broadband, including LTE and BWA, etc., for which the commencement of commercial services is being planned, may possibly have a large impact on the status of competition.

Future assessment of possibility of the existence and exercising of market dominance will comprehensively take place with consideration given to the market environment of the upper and lower layers, trends in technological innovations, and the demand of users, etc. as necessary.

(2) Others

Review of the Competition Review was mentioned in the “Toward Realization of the “New Broadband Super Highway (*Hikari no Michi*)” plan – Basic Directions –”[9] that was published in May 2010, and hence an ideal competition assessment system will need discussing in the future.

[8] NTT DOCOMO announced in July 2010 its intention to unlock the SIM cards of all mobile phones shipped from April 2011 on.

[9] “Toward Realization of the “New Broadband Super Highway (Hikari no Michi)” Plan – Basic Directions –” (excerpt)

4. Ideas for Improving the Usage Rate (from 30% to 100%)

(2) Development of services/lower prices through competition policies

c. Ideal dominant regulation with attention paid to market dominance

Immediately commencing discussion of the introduction of a dominant regulation with attention paid to total market dominance is considered appropriate in light of its general adoption in foreign countries and the possibility of then being able to respond to factors other than bottlenecks that interfere with fair competition. In doing so, re-discussing the competition safe guard system that is currently implemented by the Ministry of Internal Affairs and Communications and an ideal competition assessment system is considered desirable.

I. Fixed Telephone Domain

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Chapter 1 Market Delimitation within Fixed Telephone Domain

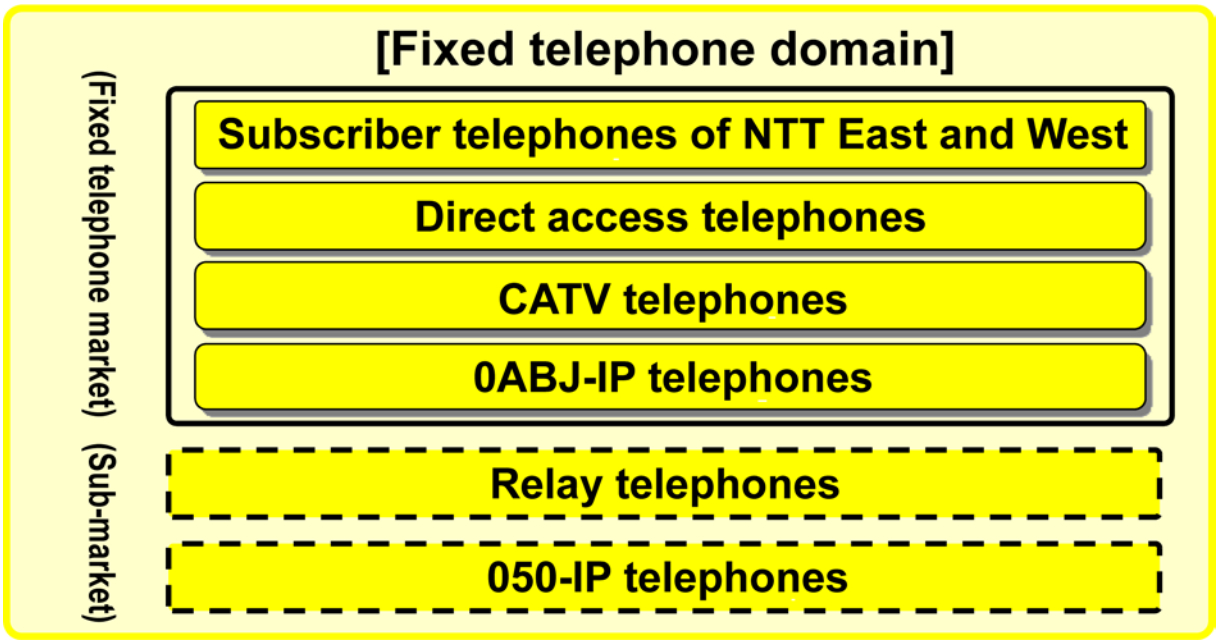
This chapter outlines market delimitation within the fixed telephone domain.

1. Delimitation of service markets

The delimitation of service markets involved the subscriber telephones of NTT East and West, direct access telephones[1], CATV telephones, and 0ABJ-IP telephones all being delimited as the fixed subscription service telephone market. Relay telephones and 050-IP telephones will therefore be respectively analyzed as sub-markets.

In actuality, if users select a direct access telephone, CATV telephone, or 0ABJ-IP telephone as a subscription service they generally cannot select telephone call services. In addition, no market delimitation has been made for softphones due to the unavailability of data.

[Figure I-1 Market delimitation within fixed telephone domain]



[1] Collectively refers to subscriber telephone services provided by telecommunications carriers other than NTT East and West, namely direct subscriber telephones, direct subscriber ISDN, new direct access telephones, and new direct access ISDN. Where [1] direct subscription telephones refer to analogue telephone services provided via telephone lines directly into offices, etc., [2] direct subscription ISDN refers to digital telephone services provided via telephone lines directly into offices, etc., [3] new direct access telephones refer to analogue telephone services via the dry copper (metal cables) of NTT East and West, and [4] new direct access ISDN refers to digital telephone services via the dry copper of NTT East and West.

2. Delimitation of geographical markets

In this delimitation the,

[1] Availability of data

[2] Existence of alternative services

[3] Areas in which the services of respective business operators were provided, etc.

were first considered and then two regions, namely Eastern Japan and Western Japan, delimited as geographical markets. The two regions are as follows.

(i) Eastern Japan region

Hokkaido, Aomori, Iwate, Miyagi, Akita, Yamagata, Fukushima, Ibaraki, Tochigi, Gunma, Saitama, Chiba, Tokyo, Kanagawa, Niigata, Yamanashi, and Nagano

(ii) Western Japan region

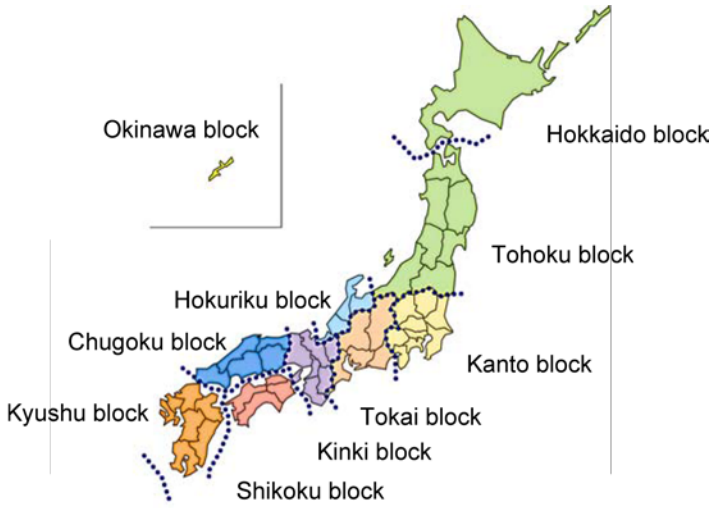
Shizuoka, Aichi, Mie, Gifu, Toyama, Ishikawa, Fukui, Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama, Tottori, Okayama, Hiroshima, Yamaguchi, Tokushima, Kagawa, Ehime, Kochi, Fukuoka, Saga, Nagasaki, Kumamoto, Oita, Miyazaki, Kagoshima, and Okinawa

[Figure I-2 Geographical segmentation into 2 regions: Eastern Japan and Western Japan]

In addition, assessments are to be conducted on the 10 following blocks (business zones of electrical power-related business operators[2]) nationwide.

(i) Hokkaido block: Hokkaido
(ii) Tohoku block: Aomori, Iwate, Akita, Miyagi, Yamagata, Fukushima, Niigata
(ii) Kanto block: Ibaraki, Tochigi, Gunma, Saitama, Chiba, Tokyo, Kanagawa, Yamanashi, Shizuoka[3] (east of Fuji River)
(iv) Tokai block: Nagano[4], Gifu, Shizuoka (west of Fuji River), Aichi, Mie
(v) Hokuriku block: Toyama, Ishikawa, Fukui
(vi) Kinki block: Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama
(vii) Chugoku block: Tottori, Shimane, Okayama, Hiroshima, Yamaguchi
(vii) Shikoku block: Kagawa, Tokushima, Ehime, Kochi
(ix) Kyushu block: Fukuoka, Saga, Nagasaki, Kumamoto, Oita, Miyazaki, Kagoshima
(x) Okinawa block: Okinawa

[Figure I-3 Geographical segmentation into 10 blocks nationwide]



[2] Electrical power-related business operators refer to Hokkaido Telecommunication Network, Tohoku Intelligent Telecommunication, Family Net Japan, Hokuriku Telecommunication Network, K-Opticom, Energia Communications, STNet, Kyushu Telecommunication Network, and Okinawa Telecommunication Network.

[3] Figures for Shizuoka prefecture were proportionally distributed into two blocks according to the ratio of households with the Fuji River used as a borderline and calculated based on the "Population Summary of the Basic Resident Registers" (March 2009). Although Shizuoka prefecture lies within the business zone of NTT West the figures for the regions west of the Fuji River were added to the Tokai block and those of the regions east of the Fuji River to the Kanto block when calculating the number of subscriptions for the 10 blocks. Therefore, although the Kanto block is basically included in the business zone of NTT East the number of subscriptions in the Kanto block includes the Shizuoka prefecture (east of Fuji River) subscriptions that are not included in the business zone of NTT East.

[4] Although Nagano prefecture lies within the business zone of NTT East it was included in the Tokai block in this geographical market delimitation. Therefore, although the Tokai block is basically included in the business zone of NTT West the number of subscriptions in the Kanto block includes the Nagano prefecture subscriptions that are not included in the business zone of NTT West.

Chapter 2 Analysis of Major Indices in Fixed Telephone Domain

This chapter analyzes the major indices in the fixed telephone domain.

1. Market size

(1) Number of subscriptions in fixed telephone market

The number of subscriptions in the entire fixed telephone market has been decreasing and was 57.87 million as of the end of March 2010. The percentage distribution of the entire fixed telephone market as of the end of March 2010 was

[1] 65.5% for subscriber telephones of NTT East and West (including ISDN),

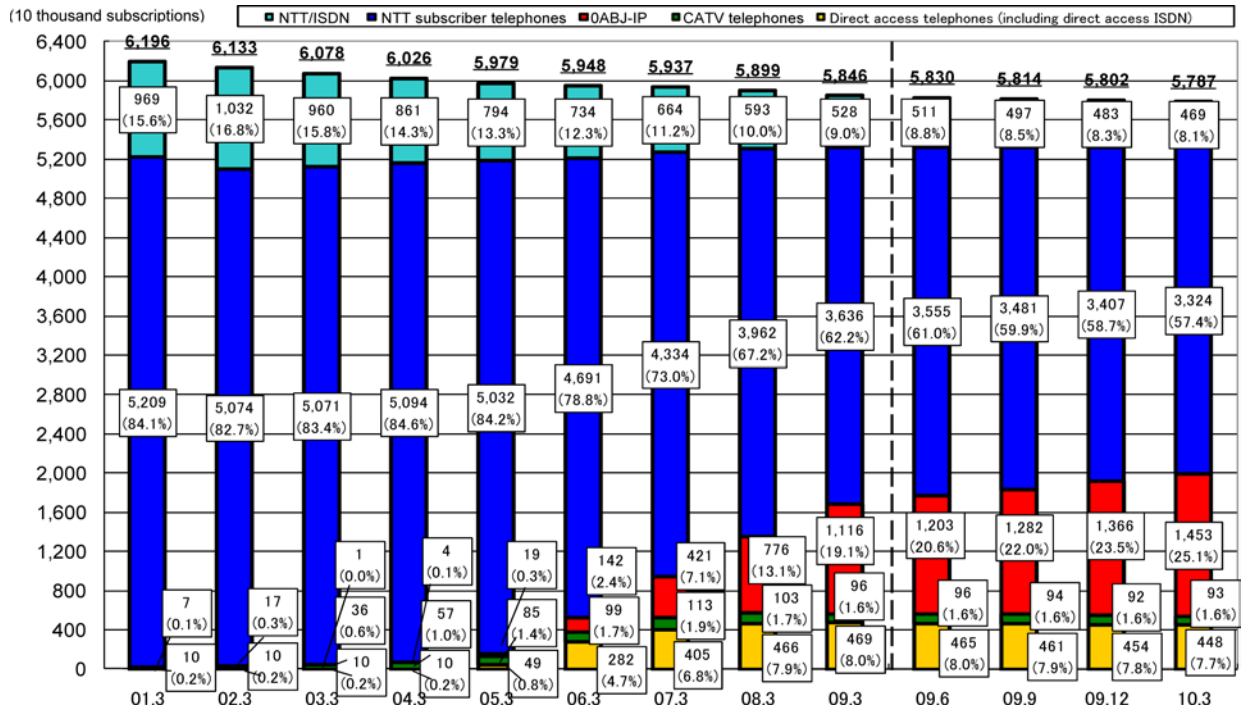
[2] 25.1% for 0ABJ-IP telephones,

[3] 7.7% for direct access telephones, and

[4] 1.6% for CATV telephones,

with the rate of increase being high with 0ABJ-IP telephones.

[Figure I-4 Changes in number of subscriptions of fixed telephones]



(Note 1) The figures for fixed telephones are the total subscriber telephones of NTT East and West (including ISDN), 0ABJ-IP telephones, CATV telephone, and direct access telephones (total of direct subscriber telephones, new direct access telephones, and direct subscriber ISDN).

(Note 2) The figures for 0ABJ-IP telephones indicate the number of users and number of user numbers as of the end of March 2003 whereas the end of March 2004 was based on the questionnaire survey of business operators.

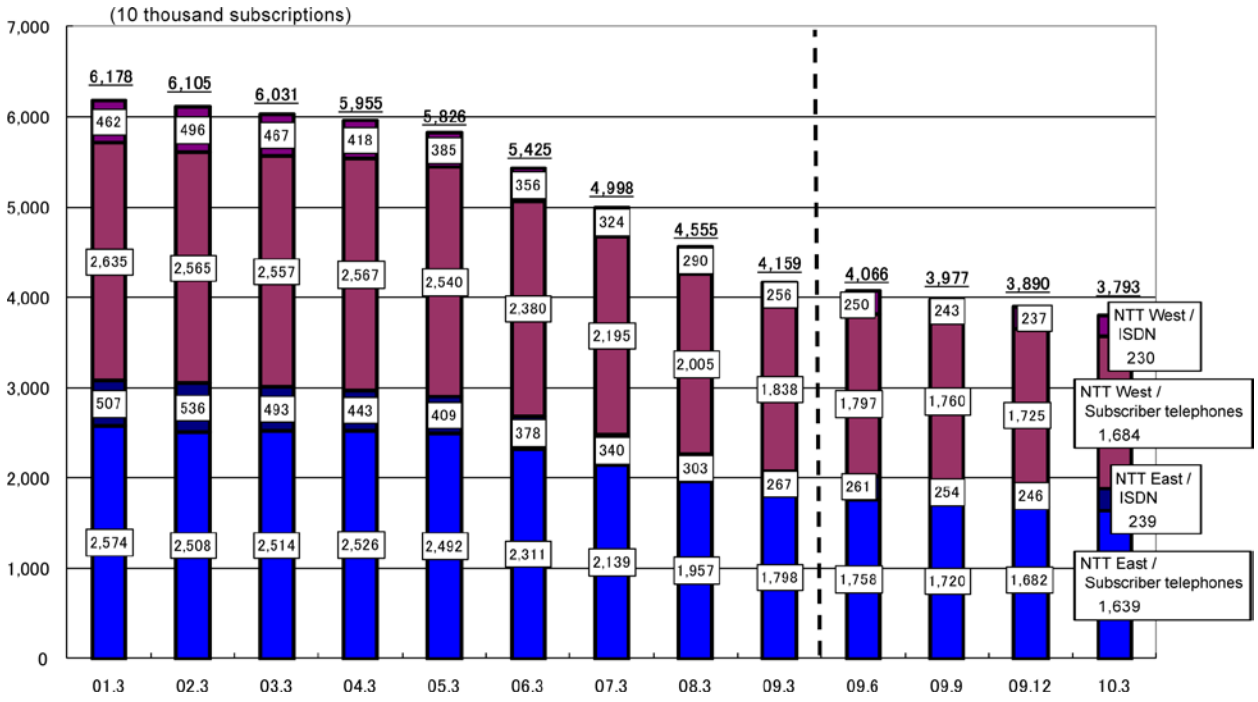
(Note 3) Total may not add up to 100% due to rounding, etc., with hereinafter the same applying.

(Source) Ministry of Internal Affairs and Communications

1) Number of subscriptions of subscriber telephones of NTT East and West

The number of subscriptions of subscriber telephones of NTT East and West has continued to decrease and was 37.93 million as of the end of March 2010. The reasons for that decrease is considered to be a migration to other fixed telephone services, including new direct access telephones[5] and 0ABJ-IP telephones, and the use of alternative services to fixed telephones provided by mobile communications.

[Figure I-5 Changes in number of subscriptions of subscriber telephones of NTT East and West]



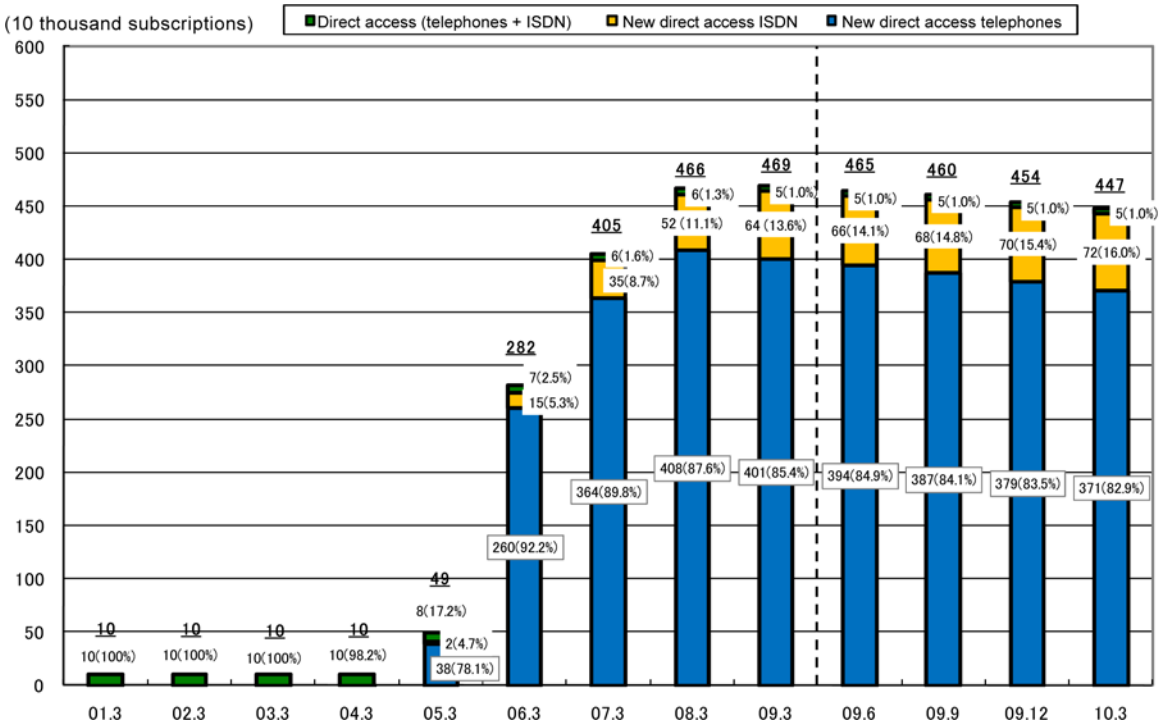
(Source) Ministry of Internal Affairs and Communications

[5] Refer to footnote 1 for information on new direct access telephones.

2) Number of subscriptions of direct access telephones

The number of subscriptions of direct access telephones has increased as a result of the provision of new direct access telephones[6] that commenced during the period of 2003 and 2005, with new direct access telephones accounting for 82.9% of all direct access telephones as of the end of March 2010. The number of subscriptions of all direct access telephones, including conventional direct access telephones, was 4.47 million as of the end of march 2010 but has been on a decreasing trend over the last year.

[Figure I-6 Changes in number of subscriptions of direct access telephones]



(Source) Ministry of Internal Affairs and Communications

[6] Provision of new direct access telephones was commenced upon by Heisei Denden in July 2003, SoftBank Telecom (former Japan Telecom) in December 2004, and KDDI in February 2005.

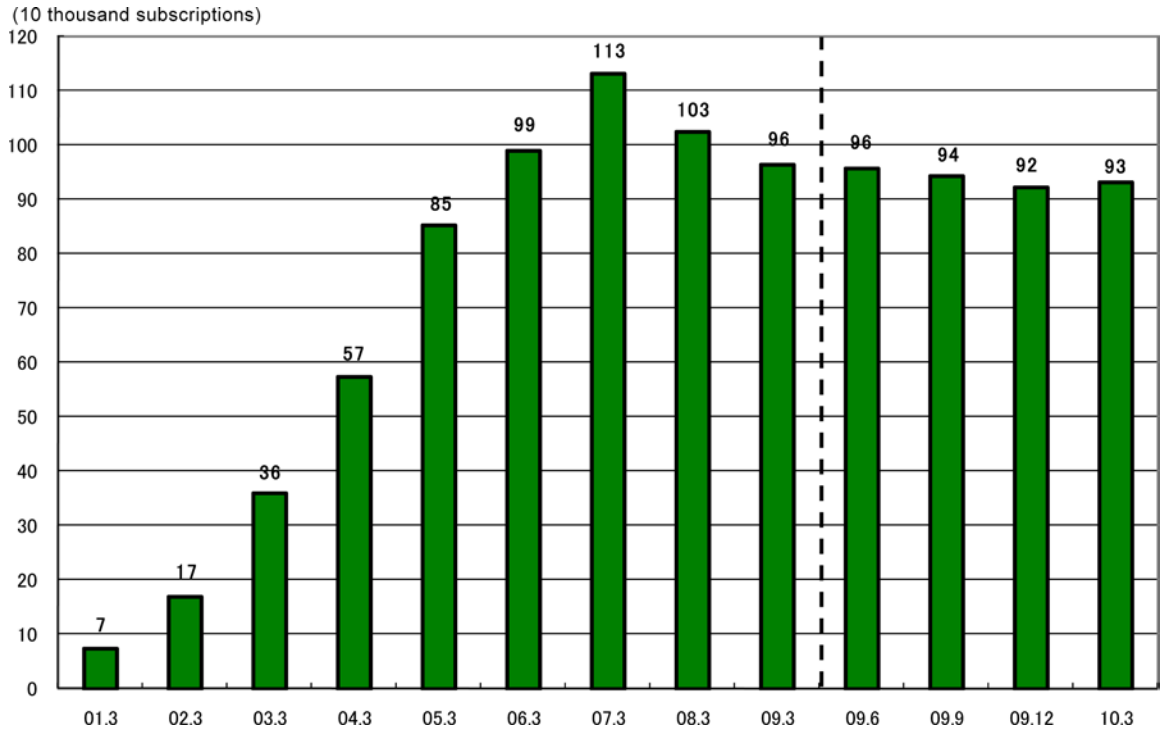
3) Number of subscriptions of CATV telephones

The number of subscriptions of CATV telephones was on an increasing trend until the end of March 2007, turned to a decreasing trend after June 2007, and then levelled off after the end of March 2009. It was 0.93 million as of the end of March 2010.

CATV telephones are not available in every prefecture and are instead limited to Hokkaido, Kanto, Kinki, Chugoku, and part of Kyushu. Use of them therefore has not been disseminated nationwide as an alternative service to the subscriber telephones of NTT East and West.

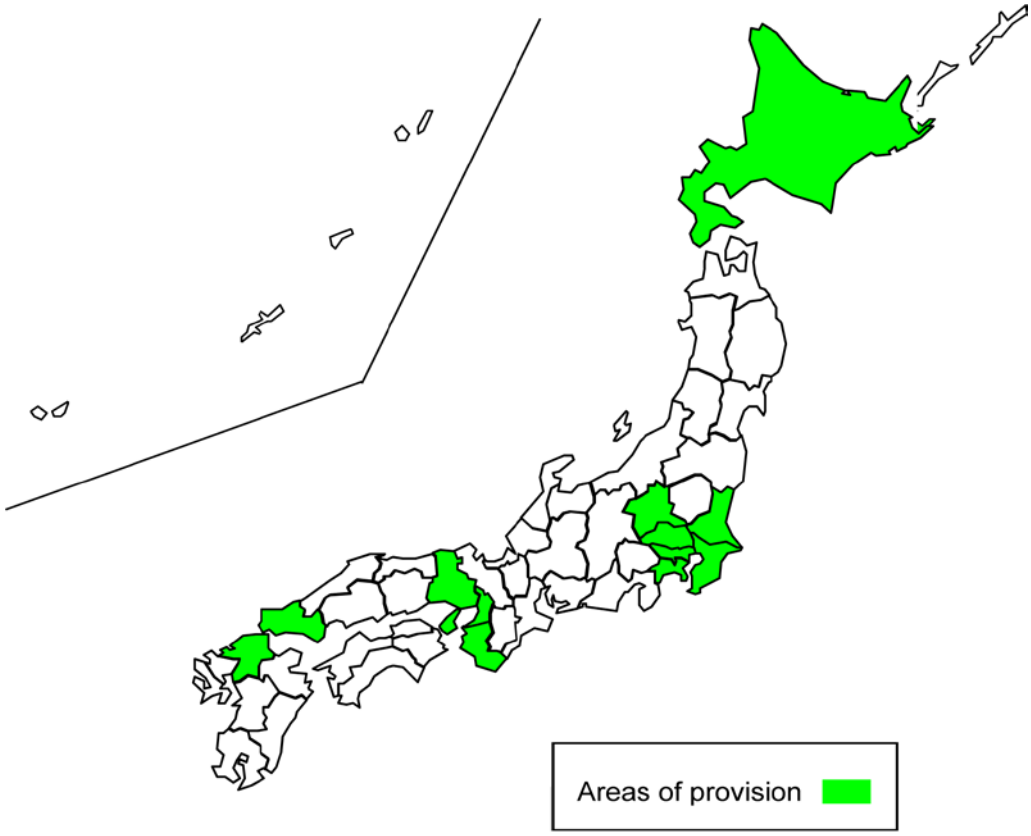
In addition, the J:COM Group is the only provider of that service in all regions.

[Figure I-7 Changes in number of subscriptions of CATV telephones]



(Source) Ministry of Internal Affairs and Communications

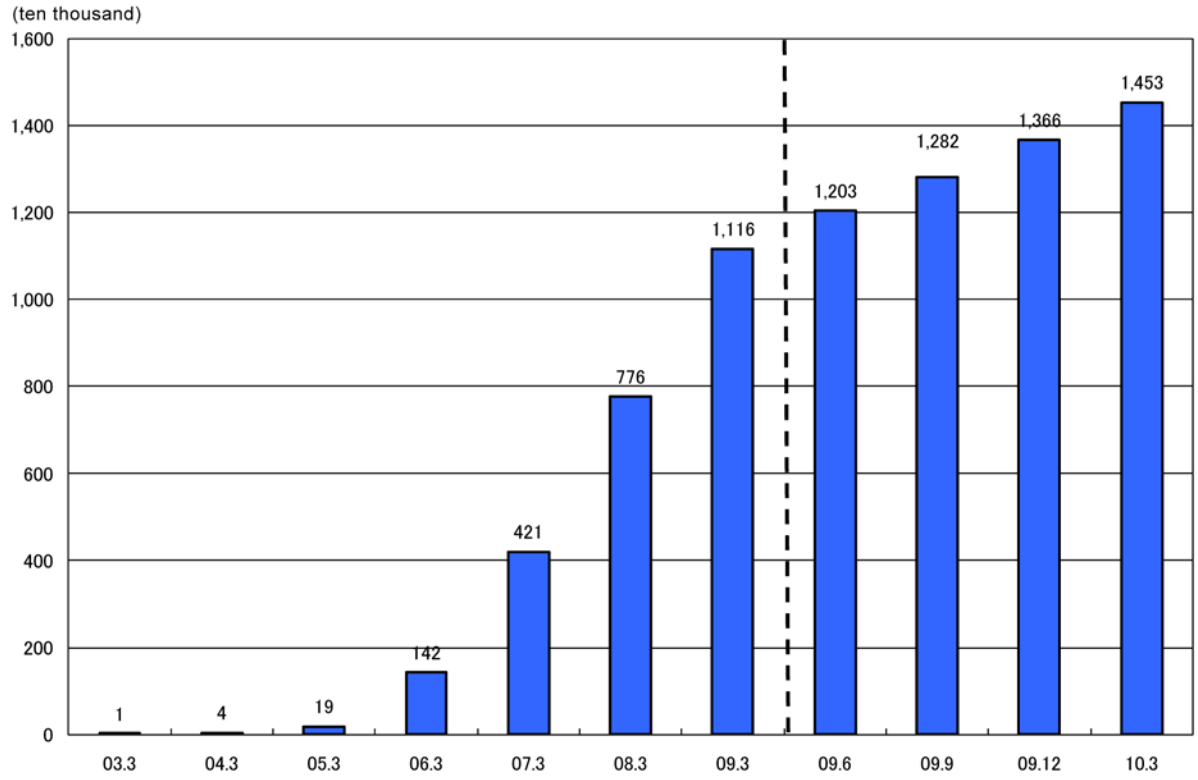
[Figure I-8 Areas of provision of CATV telephones]



4) Number of subscriptions of 0ABJ-IP telephones

The number of subscriptions of 0ABJ-IP telephones[7] has remained on an increasing trend, reflecting the increase in number of FTTH subscriptions, and was 14.53 million as of the end of March 2010. The number increased by approximately 1.3 times that of the same period last year due to dissemination of FTTH and has continued to be on an increasing trend.

[Figure I-9 Changes in number of subscriptions of 0ABJ-IP telephones]



(Source) Ministry of Internal Affairs and Communications

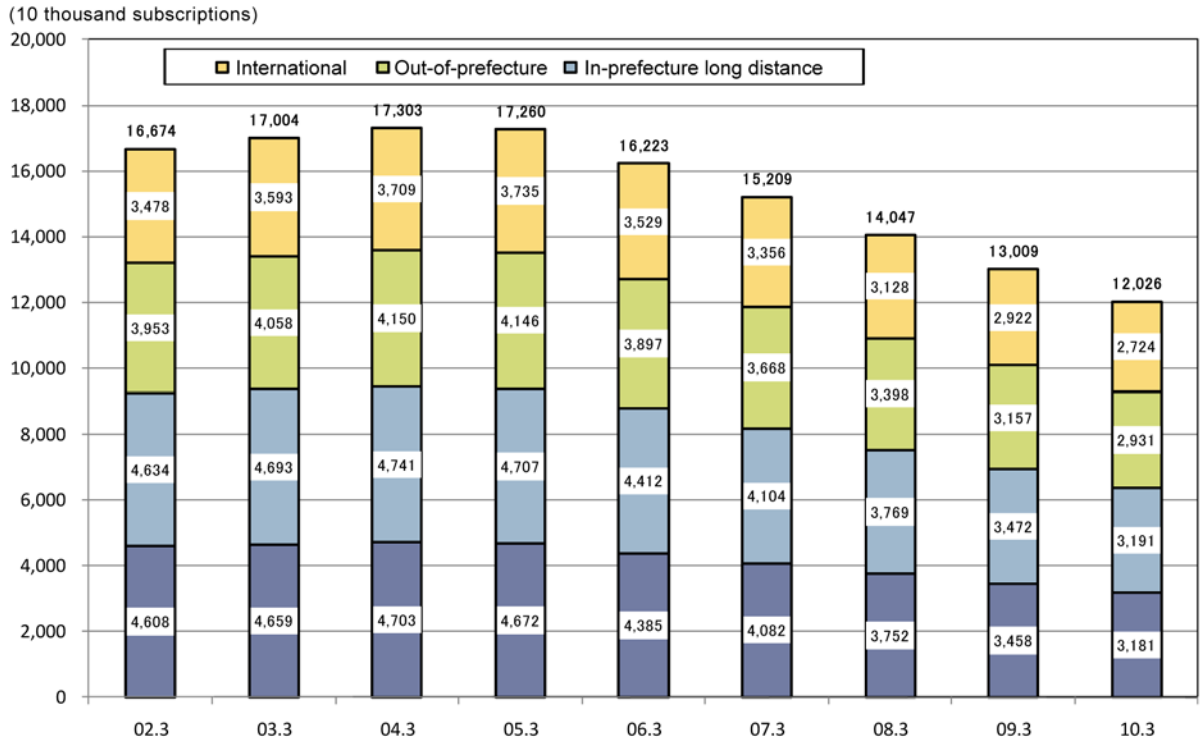
[7] Fixed telephone services mainly provided as an additional service to FTTH internet connections. In some cases, however, 0ABJ-IP telephones can be provided via the HFC method (a combination optical fiber and coaxial cables; utilizes optical fiber as the core but coaxial cables as the lines into users' homes with optical-electrical conversion devices in between). (For example: "Primary Telephone Service" provided by Technology Networks Inc. and "Cable Plus Telephone" by KDDI)

(2) Number of subscriptions in sub-markets

1) Number of subscriptions of relay telephones

The number of subscriptions of relay telephones (MyLine and MyLine Plus)[8] was 120.26 million as of the end of March 2010 but has been decreasing due to the decrease in number of subscriptions for the subscriber telephones of NTT East and West, etc.

[Figure I-10 Changes in number (total) of subscriptions of relay telephones (MyLine and MyLine Plus)]



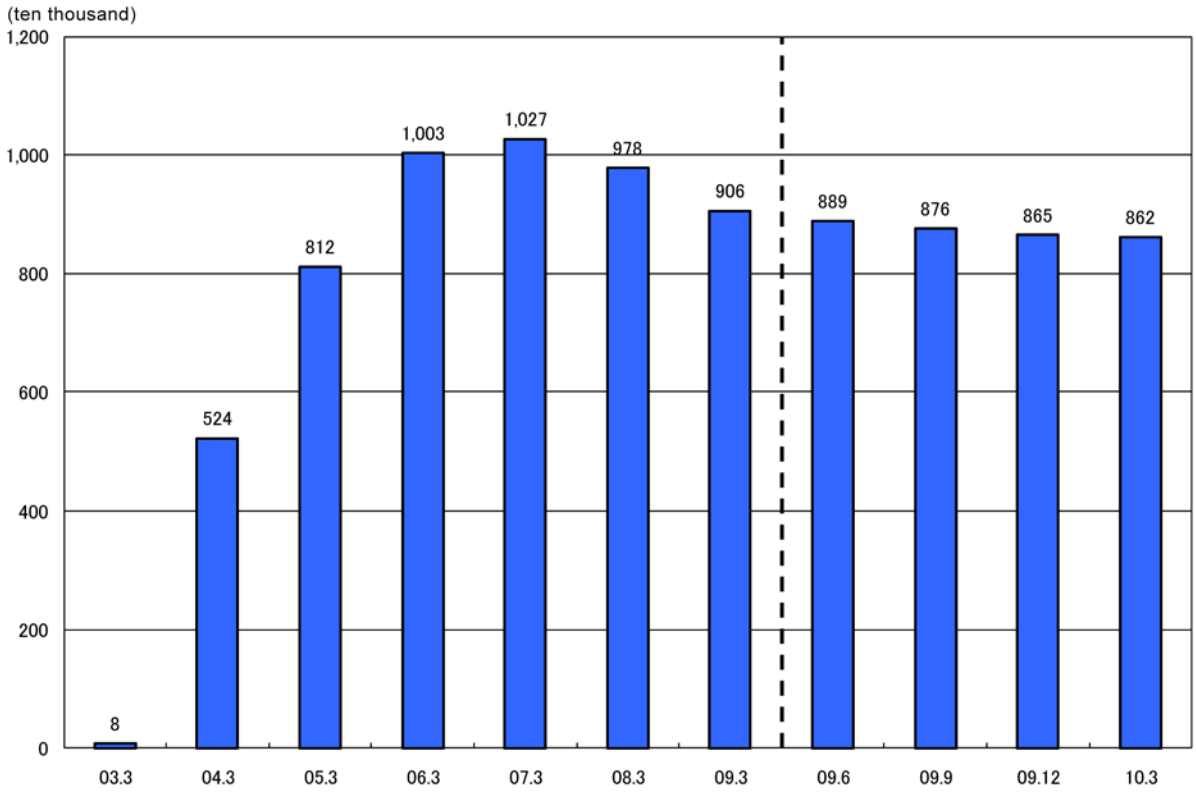
(Source) Ministry of Internal Affairs and Communications, MyLine Council

[8] Excludes those that have not registered for the service. Those that have not registered for the service were however assumed to have registered local and in-prefecture calls with NTT East and West and out-of-prefecture calls with NTT Communications.

2) Number of subscriptions of 050-IP telephones

The number of subscriptions of 050-IP telephones was 8.62 million as of the end of March 2010 but has been on a decreasing trend since the end of June 2007.

[Figure I-11 Changes in number of subscriptions of 050-IP telephones]



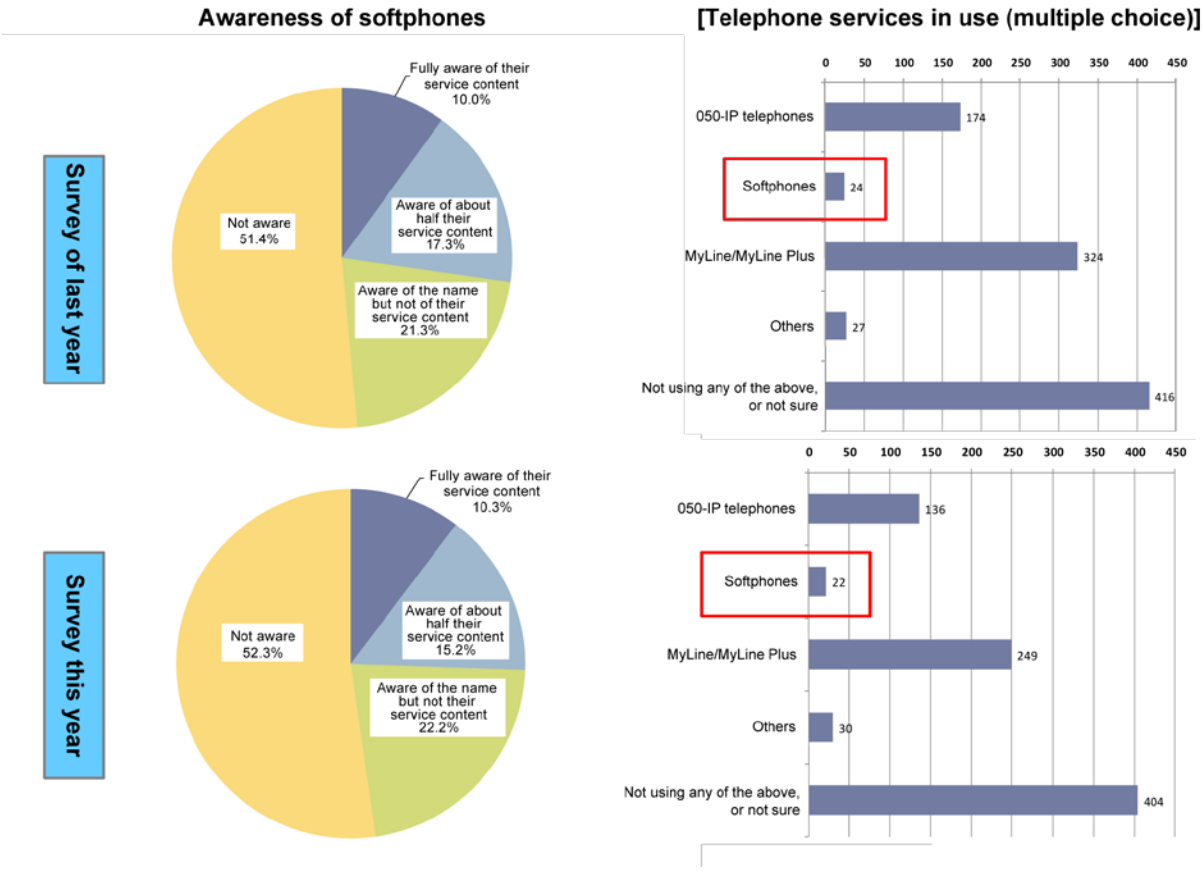
(Note) Figures for 03.3 and 04.3 are based on the questionnaire survey of business operators while the figures for the following periods were those reported in accordance with Article 2 of the Rules for Reports from the Telecommunications Business.

(Source) Ministry of Internal Affairs and Communications

(3) Softphones

Although the market size of softphones[9] cannot be directly shown due to the unavailability of data the awareness of the existence of softphones was examined for use as an index that would indirectly show its potential market size. That awareness was still as low as approximately 50% not being aware of the existence of softphones and over 70% not being aware of their service content. This resulted in the usage rate of those services only being approximately 2.7%. Changes in awareness and the usage rate from the last year were also both rather small.

[Figure I-12 Awareness and usage rate of softphones]



(Source) "FY 2008 Results of the First Telecommunications Service Monitor Questionnaire Survey"
"FY 2009 Results of the First Telecommunications Service Monitor Questionnaire Survey"

[9] Abbreviation for software phones, which is a method of communication through the internet using software such as Skype, etc.

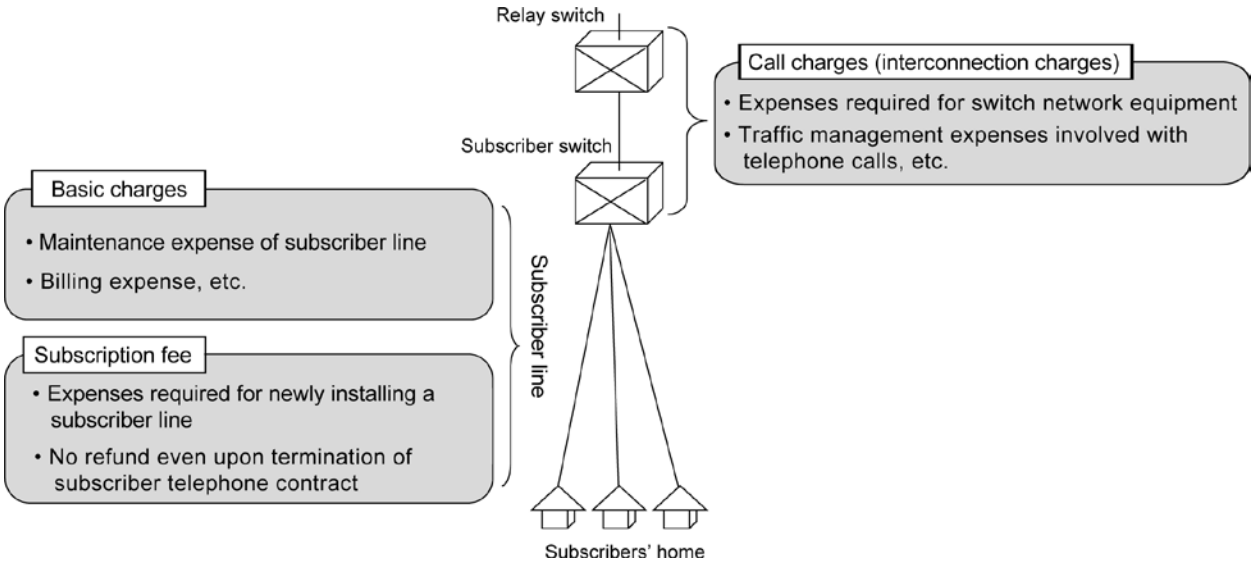
2. Analysis of status with competition

(1) Fees

1) Type of user fees

The fee structure of fixed telephones mainly uses the two-part fee system of a “basic charge” (fixed amount fee paid regularly (monthly, etc.) regardless of the volume of telephone calls made) and a “call charge” (usage-based fee paid according to the volume of telephone calls made). Use of the subscriber telephones of NTT East and West as an example provides fees corresponding to the expenses shown in the following figure. With the “subscription fee” conventionally required for using the subscriber telephones of NTT East and West a Lite Plan that adds a fixed amount to the basic charge is also now available.

[Figure I-13 Main fee structure of subscriber telephones of NTT East and West]

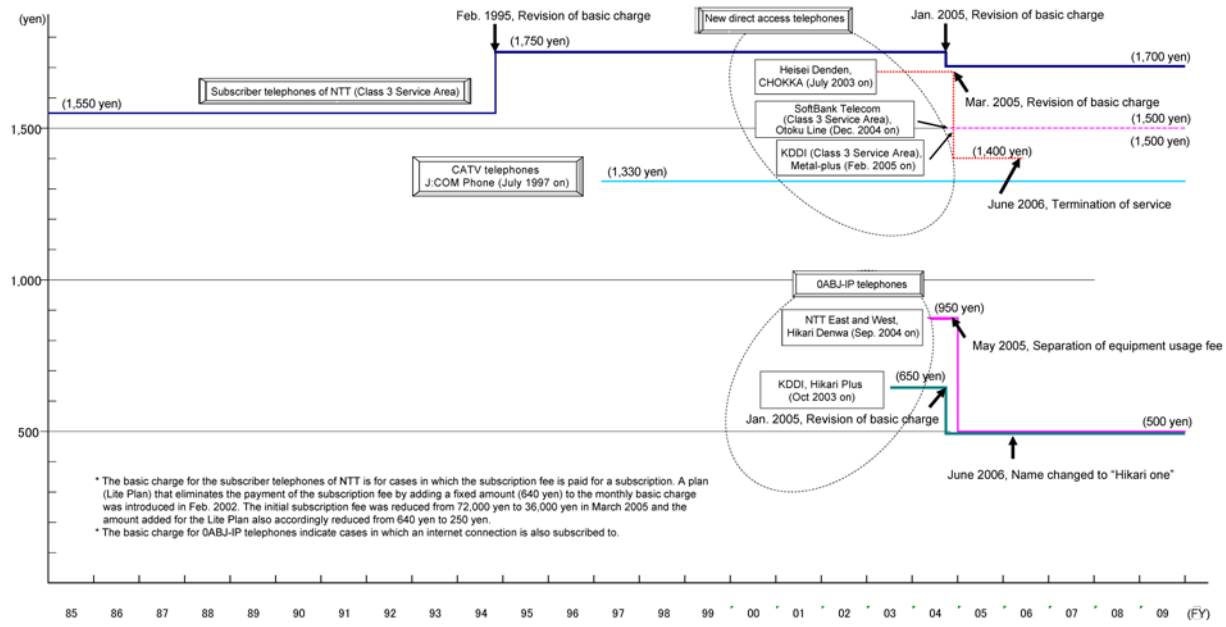


2) Changes in user fees

[1] Basic charges

Basic charges were reduced in 2005 in response to the provision of fixed telephone services other than those provided by NTT East and West such as new direct access telephones and 0ABJ-IP telephones, and then remained the same.

[Figure I-14 Changes in basic charges of fixed telephones (residential use)[10]]



(Source) Websites of respective business operators

[Figure I-15 Comparison of fees between subscriber telephones of NTT East and West and new direct access telephones]

			NTT East and West		SoftBank Telecom (Otoku Line)	KDDI (Metal-plus)
			Subscriber telephones	Subscriber telephones Lite Plan		
Subscription fee			36,000 yen			
Telephone installation charge				2,000 yen	100 yen x 60 months	100 yen x 60 months
Basic charge	Residential use	Class 3 Service Area	1,700 yen	1,950 yen	1,500 yen	Bank transfer: 1,400 yen Over-the-counter payment: 1,500 yen
		Class 2 Service Area	1,550 yen (1,600 yen)	1,800 yen (1,850 yen)	1,350 yen	
		Class 1 Service Area	1450 yen (1,600 yen)	1,700 yen (1,850 yen)		
	Business use	Class 3 Service Area	2,500 yen	2,750 yen	2,350 yen	Bank transfer: 2,100 yen Over-the-counter payment: 2,400 yen
		Class 2 Service Area	2,350 yen (2,400 yen)	2,600 yen (2,850 yen)	2,200 yen	
		Class 1 Service Area	2,300 yen (2,400 yen)	2,550 yen (2,800 yen)	2,050 yen	

* Classes of Service Area include Class 3: large-scale, Class 2: medium-scale
* Figures in parenthesis are for basic touch-tone charge
* Telephone installation charges for the subscriber telephones of NTT East and West indicate the installation charge in the case of existing internal wiring being available for use

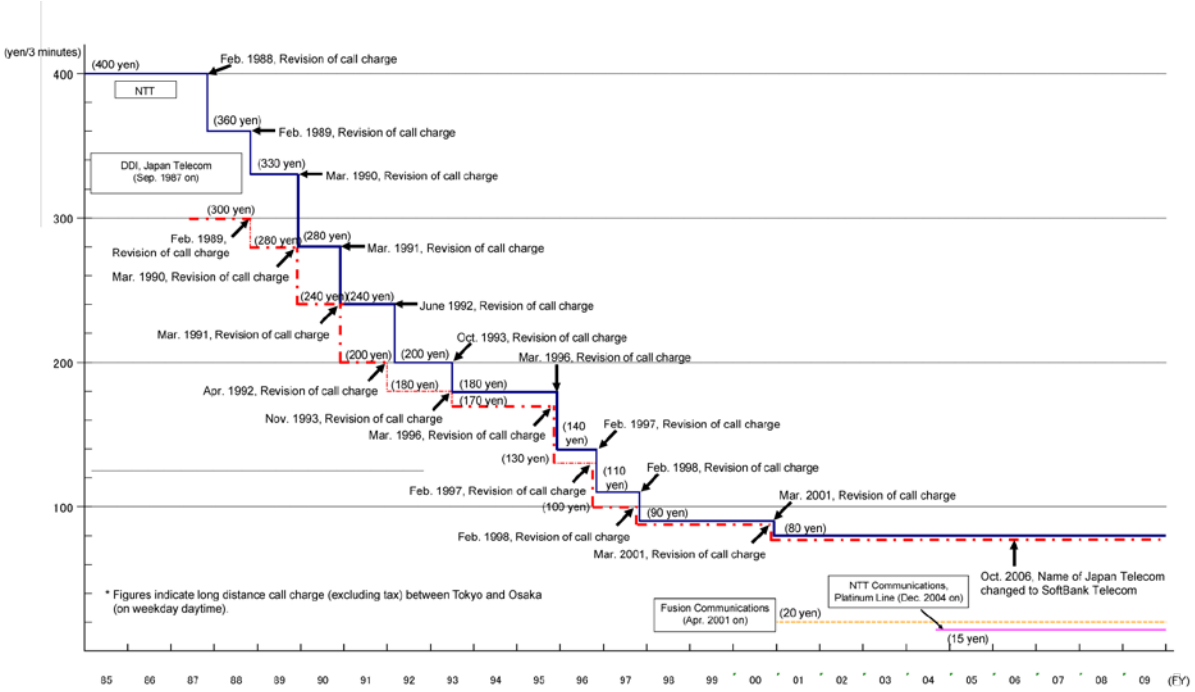
(Source) Websites of respective business operators

[10] Figures indicate the basic charges (residential use) (excluding tax) in the "Class 3 Service Area", including metropolitan areas, where the basic charges are the highest.

[2] Call charges

No significant changes have been observed in call charges since FY 2005. Examining changes in long distance call charges of relay telephones, for example, reveals there have been no noticeable changes in recent years since the provision of the “Platinum Line[11]” services by NTT Communications.

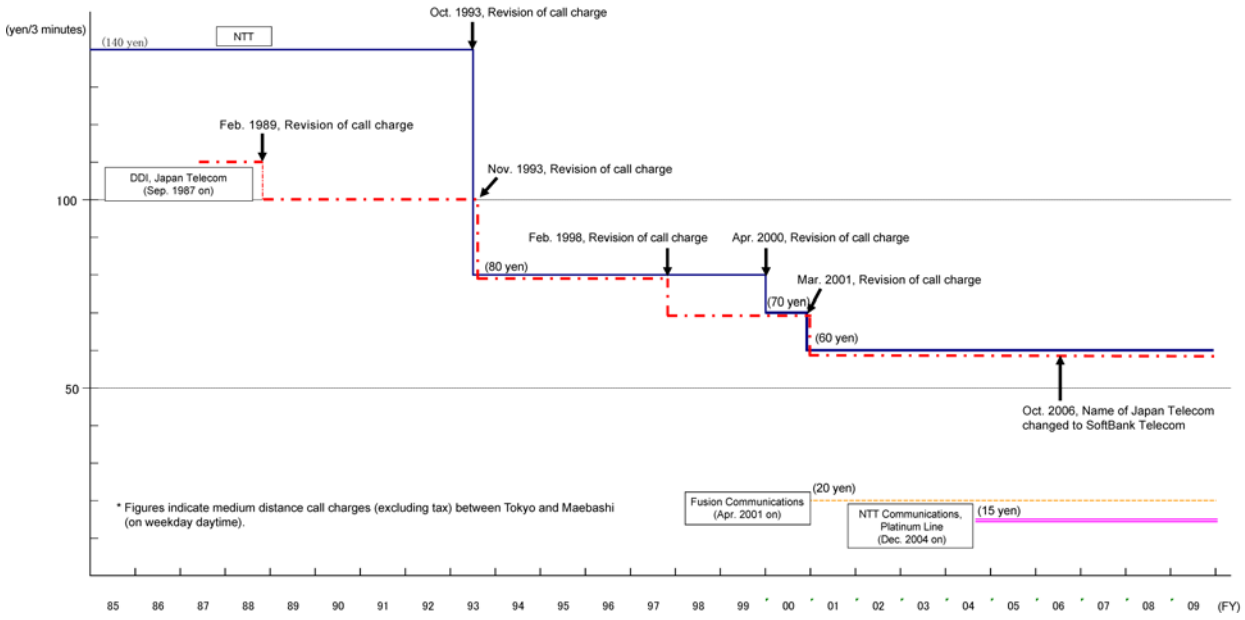
[Figure I-16 Changes in call charges of relay telephones (long distance)]



(Source) Websites of respective business operators

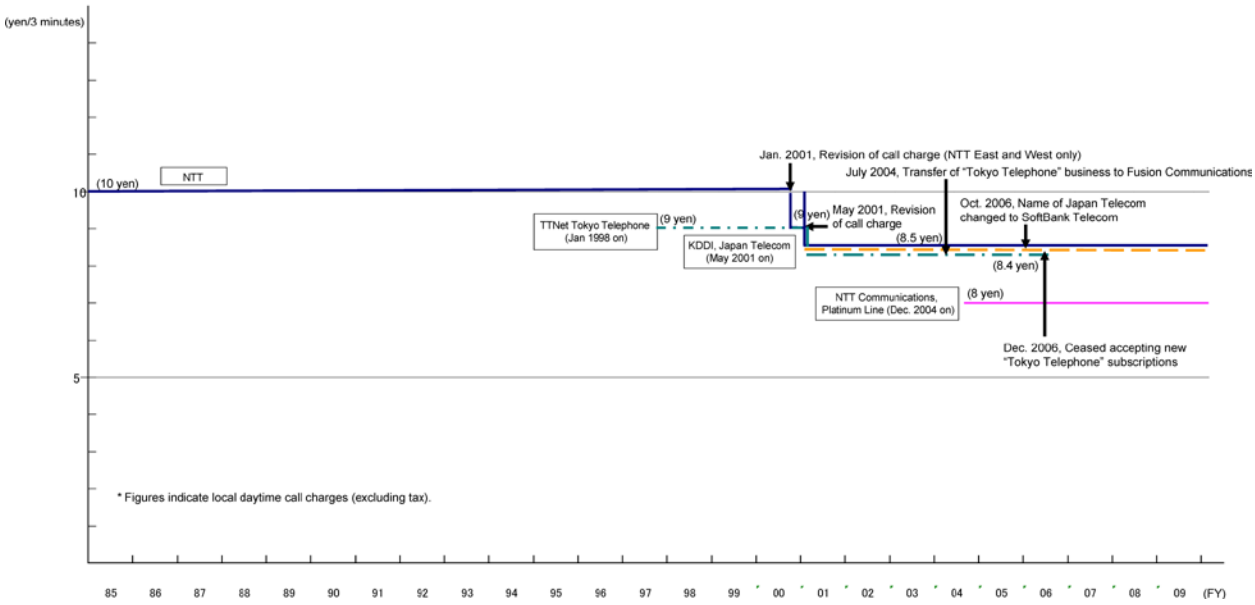
[11] A discount service in call charges if all four MyLine Plus call categories (local, in-prefecture long distance, out-of-prefecture, and international) are registered for with NTT Communications.

[Figure I-17 Changes in call charges of relay telephones (medium distance)]



(Source) Websites of respective business operators

[Figure I-18 Changes in call charges of relay telephones (local)]



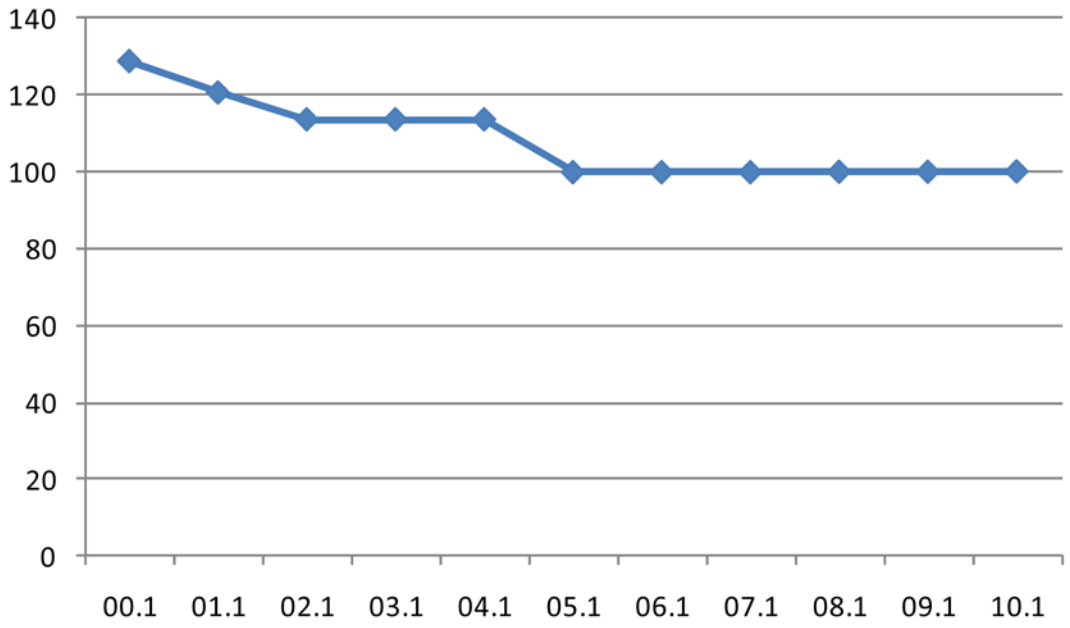
(Source) Websites of respective business operators, Telecommunications Carriers Association

[3] Level of fixed telephone fees

Levels of user fee vary depending on the business operator and plan, etc. However, for use as an index to analyze them at a single price level the changes in the Consumer Price Index (CPI), which measures changes over time in the price level of consumer goods and services purchased by households nationwide, were also considered beneficial.

Examining changes in 2005-base "telephone charges[12]" reveals a decreasing trend until 2005 but which then levelled off, similar to changes in the above mentioned basic and call charges.

[Figure I-19 Changes in Consumer Price Index (2005-base) of fixed telephones]



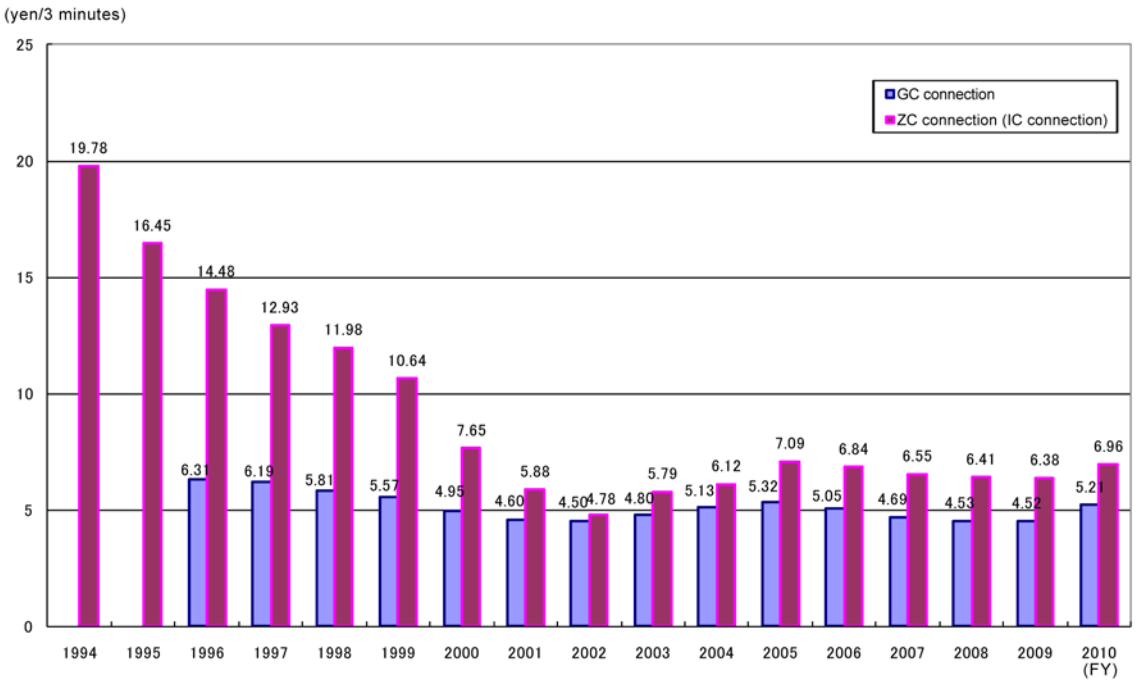
(Source) Ministry of Internal Affairs and Communications

[12] Computing the price index of "telephone charges" (item code 7410) involved a monthly price index being calculated using a specific formula. More concretely, the price was calculated by [1] selecting multiple business operators with a high traffic share, [2] adding up the basic charges (sum of weighted average call charges by line type, touch-tone line or rotary-dial line, and line service charges) and call charges (monthly average call charges estimated from the Family Income and Expenditure Survey and corrected by distance, time of day, and communication volume, etc.) of the fixed subscriber telephones of NTT East and West, [3] adding up basic charges (sum of basic service charge and telephone installation charge) and call charges (monthly average call charges estimated from the Family Income and Expenditure Survey and corrected by distance and communication volume, etc.) of direct access telephones, and [4] calculating the weighted average of the price of the subscriber telephones of NTT East and West and direct access telephones by number of subscribers by business operator/plan. The price was then used as the base price index (base year=100).

[4] Interconnection charges

The provision of subscriber telephone services requires network connections through the GC[13] or ZC[14] of NTT East and West and business operators (including the sectors of NTT East and West that use these facilities) and involves an interconnection charge being paid to the management sectors of NTT East and West. Examining changes in the interconnection charges reveals them to have been on a decreasing trend from FY 2005, when the model was reviewed[15] with consideration given to changes in the environment, including restrained new investment, etc., but which then turned to an increasing trend in FY 2010.

[Figure I-20 Changes in GC and ZC]



(Source) Ministry of Internal Affairs and Communications

[13] Group Center refers to subscriber exchange stations that unite subscriber lines within the regions.
[14] Zone Center refers to relay exchange stations that unite lines from GC and relay to other stations.
[15] The "MIC Ordinance to Amend Part of the Rules for Interconnection Charges" (MIC Ordinance No. 14 of 2005) provided for the NTS (Non-Traffic Sensitive) costs (cost of switching nodes, etc. that depend on the number of calls but not the communication volume) to be gradually deducted from interconnection charges and for the interconnect charges to be calculated annually using the (estimated) amount of traffic in the second half of the previous fiscal year and the first half of the fiscal year in concern. In addition, the "MIC Ordinance to Partially Amend the MIC Ordinance to Amend Part of the Rules for Interconnection Charges" (MIC Ordinance No. 10 of 2008) provided for the cost of transmission between RTs (Remote Terminal: a unit established between subscribers' homes and switching stations where subscriber switches are installed which can reduce terminal cable maintenance cost by accommodating multiple metal cables and then transmit via optical fiber) and GCs that is not practically included in the subjects for compensation for universal services to be gradually included in the interconnection costs.

Provision of new direct access telephone services require the use of the metal subscriber lines (so-called dry copper) of NTT East and West that are available with competing business operators then paying an interconnection charge for use of them to NTT East and West. With some other forms of that interconnection the optical fiber (so-called dark fiber) of NTT East and West that is available is used to provide 0ABJ-IP telephones. In this case, competing business operators pay an interconnection charge for use of the dark fiber to NTT East and West.

Examining changes in interconnection charges for dry copper in the forecast of the former new direct access telephones as a representative example reveals interconnection charges to have been on an increasing trend over the last few years.

[Figure I-21 Changes in interconnection charges for dry copper]

Date of approval			NTT East	NTT West
Dec. 15, 2000			1,905 yen	1,905 yen
	Line management/ operational costs	1 line	157 yen	157 yen
		1 bill	128 yen	128 yen
Jan. 31, 2002			1,790 yen	1,790 yen
	Line management/ operational costs	1 line	143 yen	143 yen
		1 bill	126 yen	126 yen
Feb. 14, 2003			1,690 yen	1,803 yen
	Line management/ operational costs	1 line	139 yen	147 yen
		1 bill	125 yen	125 yen
Oct. 29, 2003			1,290 yen	1,390 yen
	Line management/ operational costs	1 line	139 yen	147 yen
		1 bill	125 yen	125 yen
Feb. 17, 2004			1,256 yen	1,318 yen
	Line management/ operational costs	1 line	129 yen	135 yen
		1 bill	130 yen	134 yen
Mar. 1, 2005			1,248 yen	1,256 yen
	Line management/ operational costs	1 line	118 yen	112 yen
Mar. 3, 2006			1,205 yen	1,241 yen
	Line management/ operational costs	1 line	129 yen	164 yen
Feb. 26, 2007			1,204 yen	1,254 yen
	Line management/ operational costs	1 line	107 yen	139 yen
Mar. 27, 2008			1,216 yen	1,294 yen
	Line management/ operational costs	1 line	69 yen	89 yen
Feb. 24, 2009			1,261 yen	1,300 yen
	Line management/ operational costs	1 line	62 yen	78 yen
Mar. 1, 2010			1,353 yen	1,333 yen
	Line management/ operational costs	1 line	41 yen	58 yen

(Note) Monthly charge per line that competing business operators pay to NTT East and West are the sum of the respective costs for the respective fiscal year.

(Example: In the case of approval in Mar. 1, 2010 by NTT East the monthly charge per line would be 1,353 + 41 = 1,394 (yen))

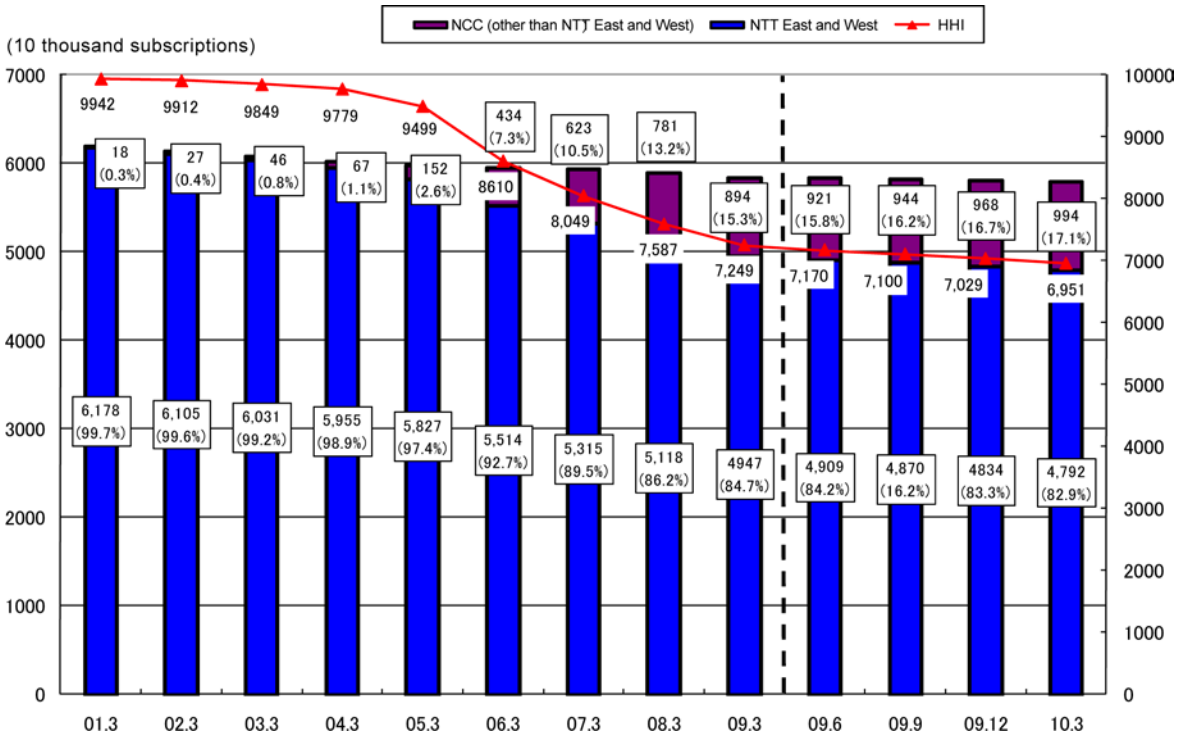
(Source) Ministry of Internal Affairs and Communications

(2) Market concentration

1) Fixed telephone market

The share of NTT East and West of the number of subscriptions in the fixed telephone market (subscriber telephones of NTT East and West and 0ABJ-IP telephones) has been on a downward trend due to the dissemination of new direct access telephones, but was still at the extremely high level of 82.9% as of the end of March 2010. In addition, the HHI also remained at the extremely high level of 6,951 as of the end of March 2010, although it has been gradually declining.

[Figure I-22 Changes in share and HHI of NTT East and West in number of subscriptions in fixed telephone market]



(Note 1) The share of NTT East and West includes both the fixed telephones of NTT East and West (including ISDN) and 0ABJ-IP telephones (number of user numbers).

(Note 2) HHI was calculated by regarding NTT East and West as one company.

In addition to nationwide figures the number of subscriptions, HHI, and share of the top three business operators being examined by geographical market revealed the share of the top three business operators to exceed 90% of the nationwide, Eastern Japan, and Western Japan markets. The HHI was also around 7,000, thus indicating an extremely high market concentration.

[Figure I-23 Changes in share and HHI of top three business operators of number of subscriptions in fixed telephone market]

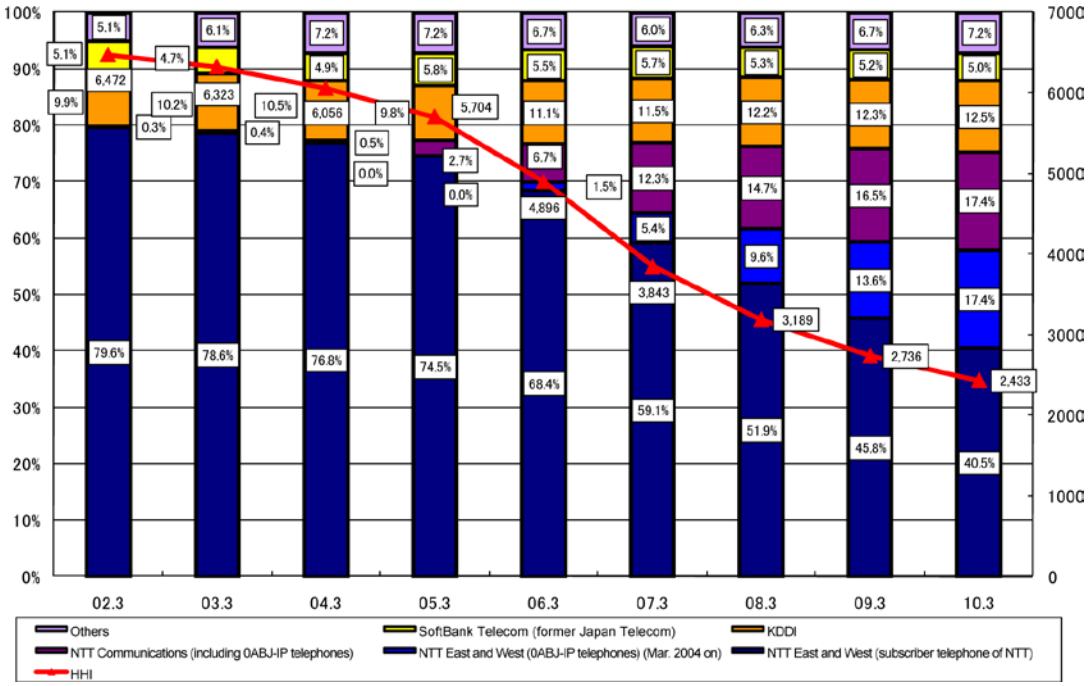
Category	Nationwide (as of March 2010)	Eastern Japan (as of March 2010)	Western Japan (as of March 2010)
Number of subscriptions	57.86 million	29.10 million	28.76 million
HHI	6,951	7,622	7,554
Share of top three business operators	94.4%	96.4%	92.4%
Top three business operators	NTT East and West KDDI SoftBank Telecom	NTT East KDDI SoftBank Telecom	NTT West KDDI K-Opticom

(Note 1) The nationwide HHI and share of the top three business operators were calculated regarding NTT East and West as one company.
(Note 2) The estimated figures for 0ABJ-IP telephones (number of user numbers) was calculated using the percentage of individual business operators to the number of user numbers by prefecture as of the end of September 2009 (and part of the end of September 2008).
(Source) Ministry of Internal Affairs and Communications

2) Relay telephone market (sub-market)

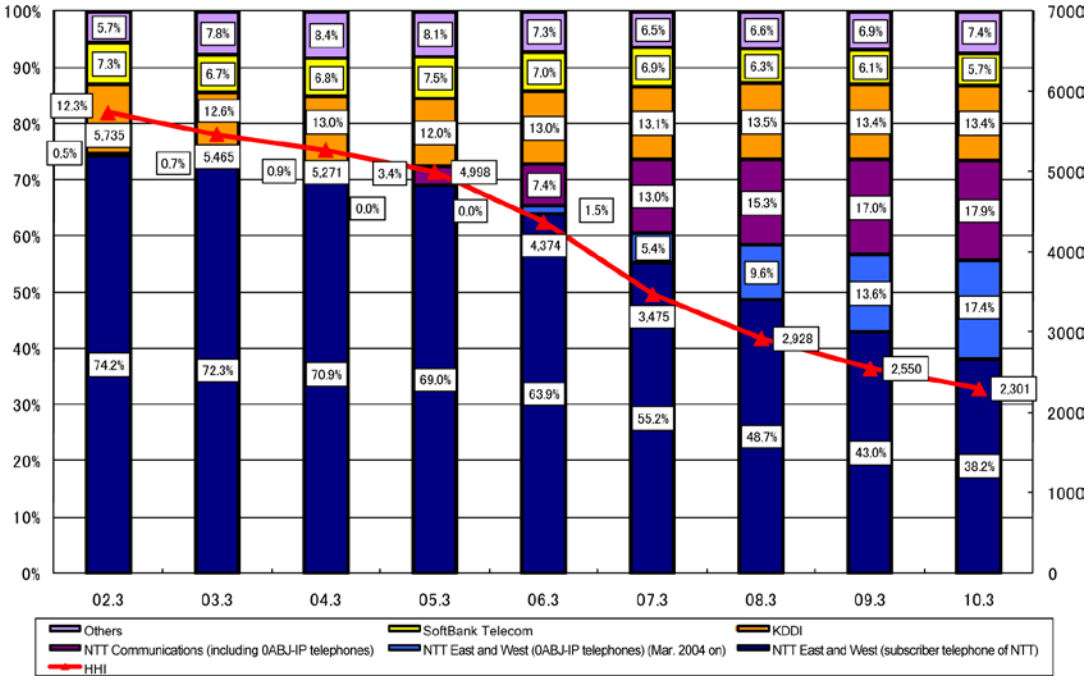
The market share of relay telephones was calculated by adding the number of registrations in the four MyLine/MyLine Plus call categories (local, in-prefecture long distance, out-of-prefecture, and international) to the number of subscriptions of direct access telephones, CATV telephones, and 0ABJ-IP telephones (number of user numbers) for each call category . The share of the NTT Group as of the end of March 2010 was 75.3% for local calls, 73.5% for in-prefecture long distance calls, 72.5% for out-of-prefecture calls, and over 66.4% for international calls. NTT Group has a share of over 70% of domestic calls and over 60% of international calls. In addition, changes in the HHI revealed the shares to be on a downward trend in each call category.

[Figure I-24 Changes in share of subscriptions of relay telephones (local calls/nationwide)]



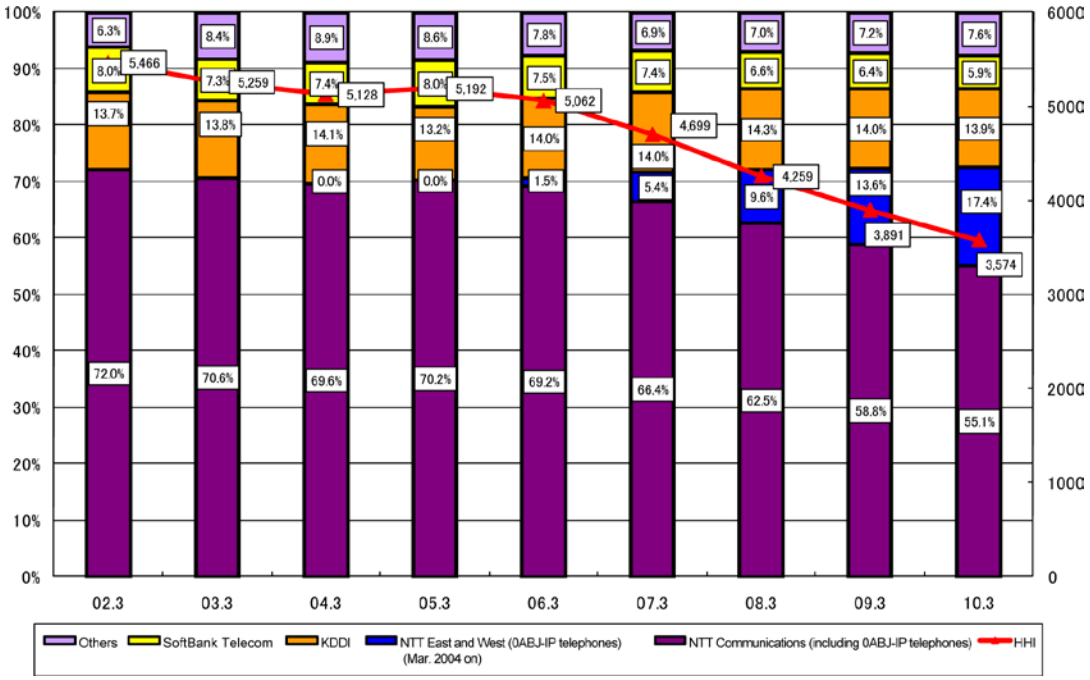
(Note) The number of user numbers of 0ABJ-IP telephones as of the end of March 2003 and of the end of March 2004 was based on the questionnaire survey of business operators.
(Source) Ministry of Internal Affairs and Communications, MyLine Council

[Figure I-25 Changes in share of subscriptions of relay telephones (in-prefecture long distance calls/nationwide)]



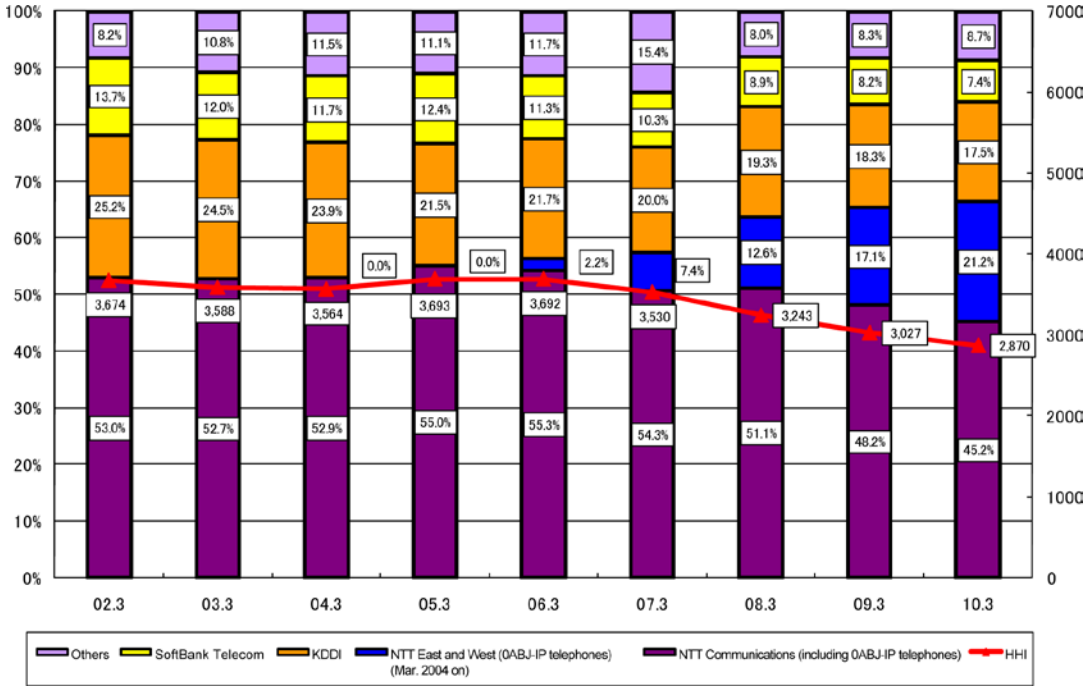
(Note) The number of user numbers of 0ABJ-IP telephones as of the end of March 2003 and of the end of March 2004 was based on the questionnaire survey of business operators.
(Source) Ministry of Internal Affairs and Communications, MyLine Council

[Figure I-26 Changes in share of subscriptions of relay telephones (out-of-prefecture calls/nationwide)]



(Note) The number of user numbers of 0ABJ-IP telephones as of the end of March 2003 and of the end of March 2004 was based on the questionnaire survey of business operators.
(Source) Ministry of Internal Affairs and Communications, MyLine Council

[Figure I-27 Changes in share of subscriptions of relay telephones (international calls/nationwide)]



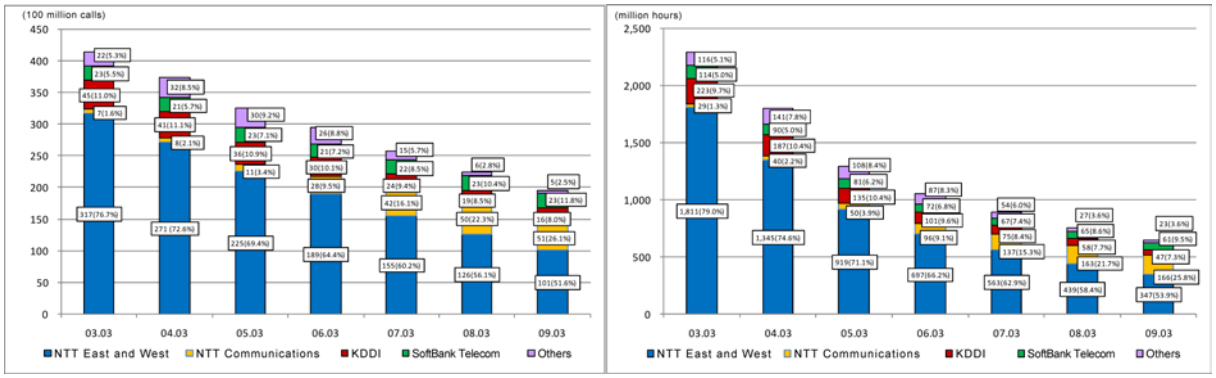
(Note) The number of user numbers of 0ABJ-IP telephones as of the end of March 2003 and of the end of March 2004 was based on the questionnaire survey of business operators.
(Source) Ministry of Internal Affairs and Communications, MyLine Council

In addition to the share of business operators of the number of subscriptions their share of the communication volume (number of calls and communication time) can also be identified for relay telephones. Examining changes in the share of NTT East and West and NTT Communications of the communication volume for local, in-prefecture long distance, and out-of-prefecture calls by number of calls and communication time revealed the share of NTT East and West to be 51.6% (number of calls) and 53.9% (communication time) of local calls, 34.9% (number of calls) and 38.6% (communication time) of in-prefecture long distance calls, and the share of NTT Communications 50.7% (number of calls) and 51.6% (communication time) of out-of-prefecture calls as of the end of March 2009.

Examining changes in the share of KDDI of the communication volume with international calls by number of calls[16] and communication time revealed them to be 25.1% (number of calls) and 28.3% (communication time) as of the end of March 2009.

The share of the NTT Group is low with in-prefecture long distance and out-of-prefecture calls when compared to the share of number of subscriptions.

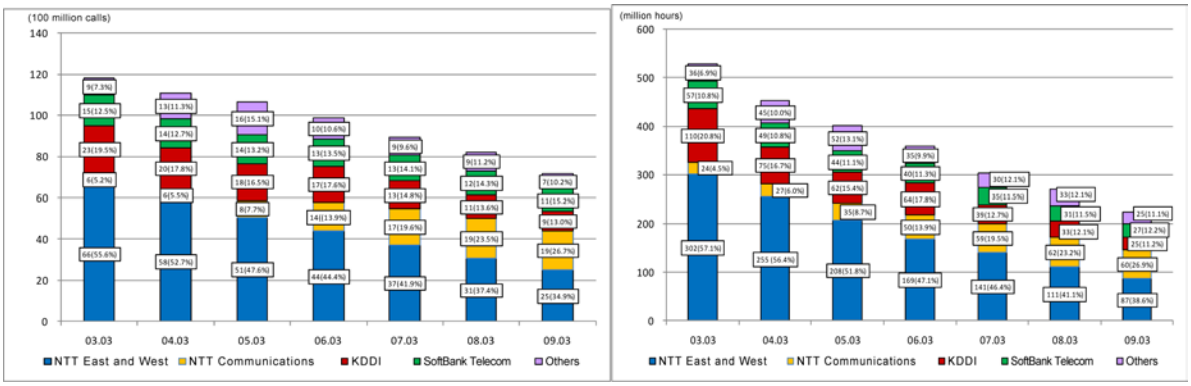
[Figure I-28 Changes in share of NTT of communication volume (number of calls/communication time) (local calls)]



(Source) Ministry of Internal Affairs and Communications

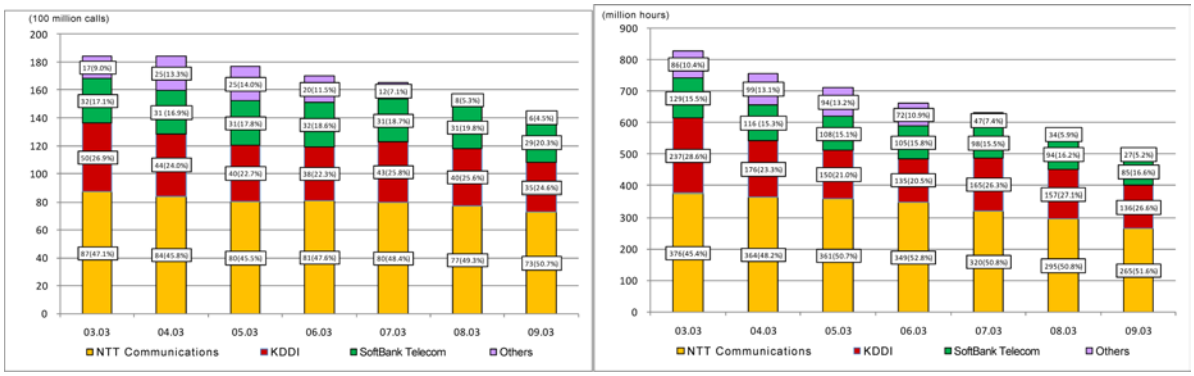
[16] Aggregation of the communication volume takes time and hence the latest data was for FY 2008. Due to the limited data the traffic of 0ABJ-IP telephones and 050-IP telephones were not included in the communication volume data.

[Figure I-29 Changes in share of NTT of communication volume (number of calls/communication time) (in-prefecture long distance calls)]



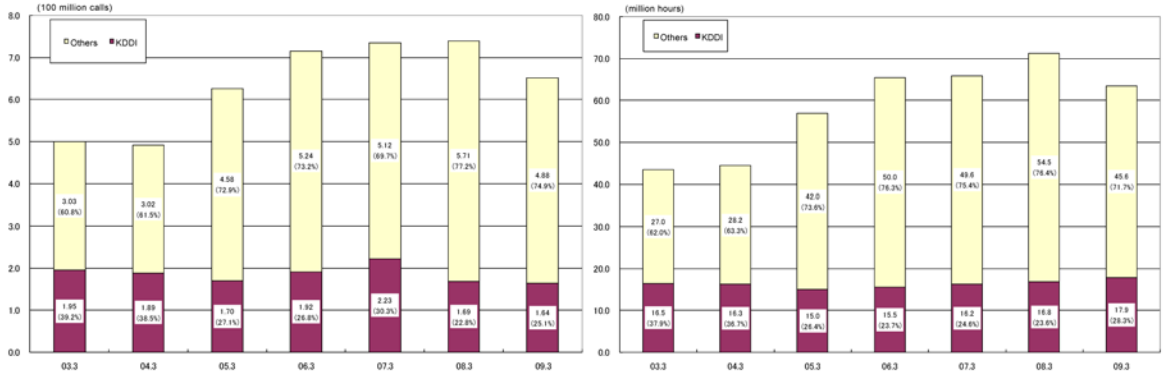
(Source) Ministry of Internal Affairs and Communications

[Figure I-30 Changes in share of NTT of communication volume (number of calls/communication time) (out-of-prefecture calls)]



(Source) Ministry of Internal Affairs and Communications

[Figure I-31 Changes in share of KDDI of communication volume (number of calls/communication time) (international calls)]



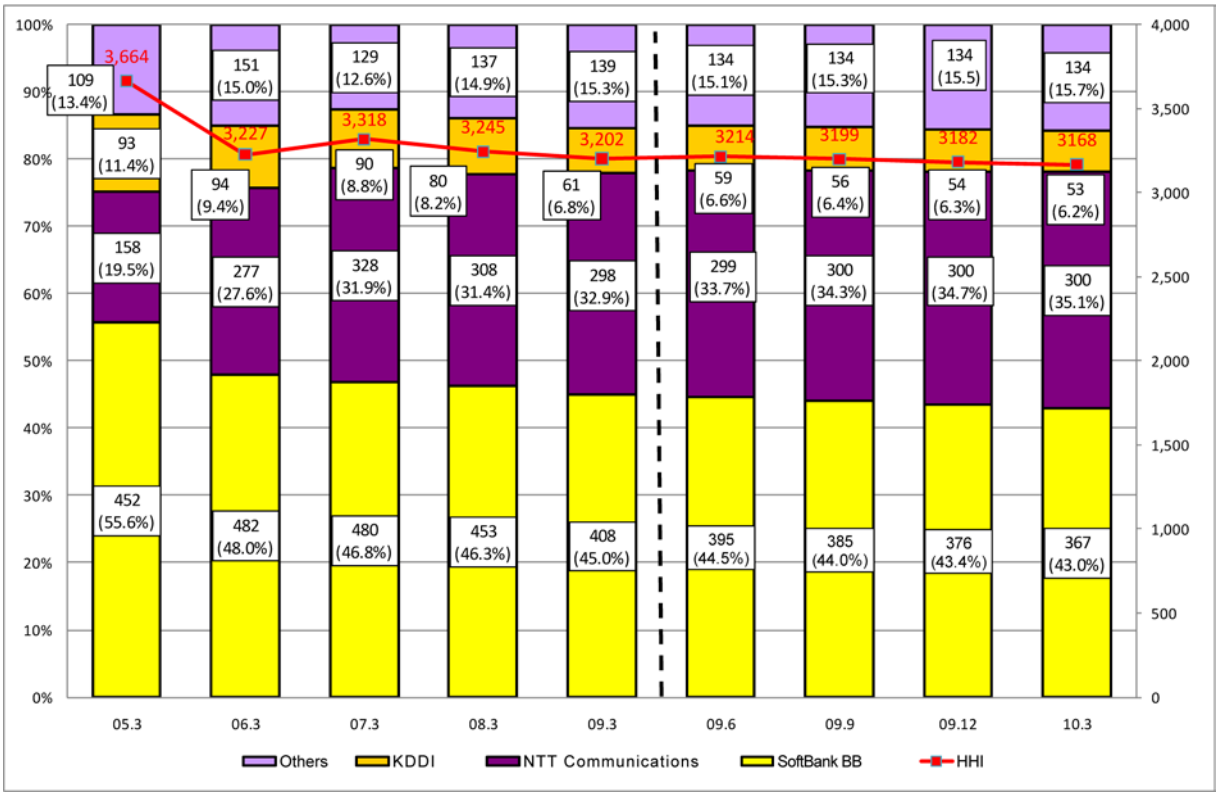
(Note) The scope of business operators subject to making reports was expanded in March 2005 and thus the figures cannot simply be compared.
(Source) Ministry of Internal Affairs and Communications

3) 050-IP telephone market (sub-market)

The share of the top three business operators of 050-IP telephones has remained basically at the same level since 2007 and was 84.3% as of the end of March 2010. The HHI has also not significantly changed since 2006 and was 3,168 as of the end of 2009.

It should be noted, however, that the existence of business operators that are providing retail services along with wholesale services provided by business operators to whom the number is allocated is not reflected in the share of number of user numbers.

[Figure I-32 Changes in share of top three business operators of 050-IP telephones]



(Source) Ministry of Internal Affairs and Communications

3. Analysis of geographical markets

When analyzing geographical markets in fixed telephone domains the markets, in principle, get delimited into the two regions of Eastern Japan and Western Japan, as with the business zones of NTT East and West. Because of the development of 0ABJ-IP telephones electrical power-related business operators entering the market, however, analysis was also conducted on 10 regional blocks nationwide as necessary in consideration of the business zones of the electrical power-related business operators. The analysis here, therefore, involves 10 regional blocks nationwide.

Examining the number of subscriptions in fixed telephone domains by regional block revealed the number for Kanto to account for 36.4% the of total (nationwide), Kanto and Kinki over 50%, and Kanto, Kinki, and Tokai 65%. Due to the limitation of available data, however, the number of user numbers of 0ABJ-IP telephones was determined by allocating the number of user numbers as of the end of March 2010 according to the share as of September 2009 or September 2008.

[Figure I-33 Number of subscriptions for 10 regional blocks and percentage to national total (March 2010)]

Category	Hokkaido	Tohoku	Kanto	Tokai	Hokuriku
Number of subscriptions	2.60 million	4.81 million	20.90 million	6.84 million	1.26 million
Percentage	4.5%	8.4%	36.4%	11.9%	2.2%
Category	Kinki	Chugoku	Shikoku	Kyushu	Okinawa
Number of subscriptions	9.76 million	3.36 million	1.78 million	5.63 million	0.49 million
Percentage	17.0%	5.8%	3.1%	9.8%	0.9%

(Note) The figures for the Tokai blocks were calculated by combining the regions where both NTT East and NTT West are providing services and regarding NTT East and West as one company.

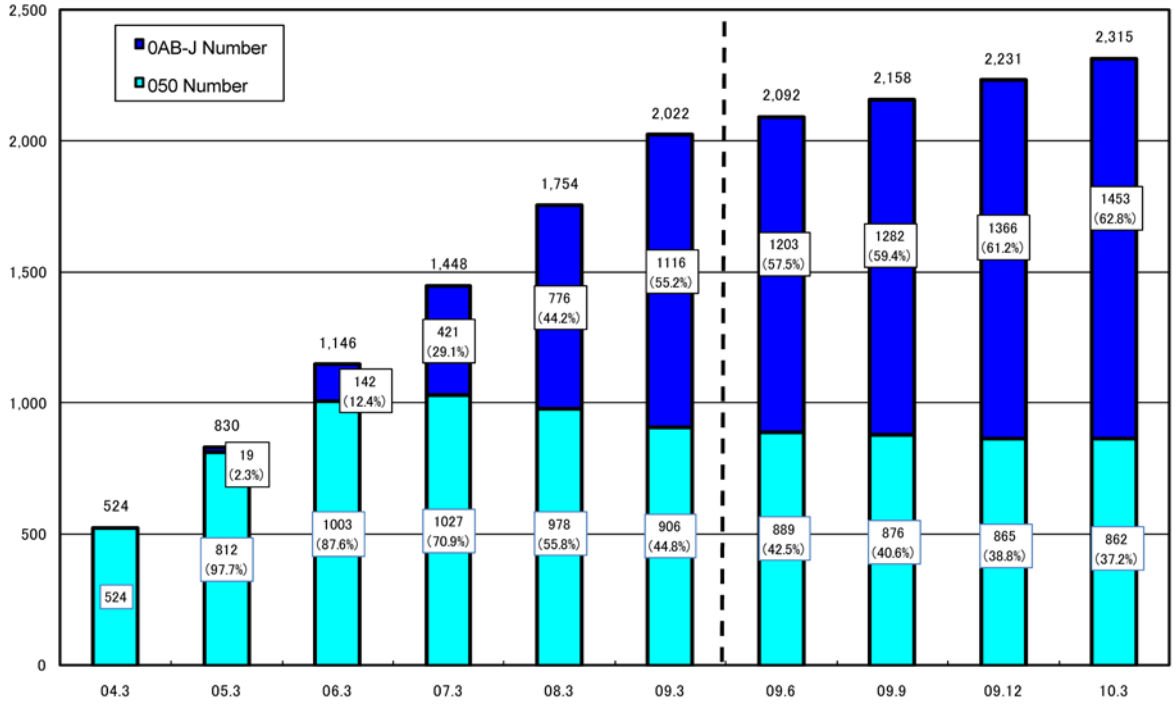
(Source) Ministry of Internal Affairs and Communications

4. Analysis of IP telephone market

Many users do not recognize the difference between a 050-IP telephone and a 0ABJ-IP telephone and hence they are also generally combined when collecting/adjusting various statistical data. 050-IP telephones and 0ABJ-IP telephones were therefore combined as being part of the “IP telephone market” and then analyzed as such.

The number of user numbers of all IP telephones was 23.15 million as of the end of March 2010 and the percentage of 0ABJ-IP telephones has been rapidly rising. The percentage of 050-IP telephones to overall IP telephones was 44.8% and that of 0ABJ-IP telephones 55.2% as of the end of 2009, and that of 050-IP telephones 37.2% and that of 0ABJ-IP telephones 62.8% as of the end of march 2010, thus indicating that the difference is increasing.

[Figure I-34 Changes in number of user numbers of IP telephones]



(Note) Figures are taken from those reported in accordance with Article 2 of the Rules for Report from Telecommunications Business.
(Source) Ministry of Internal Affairs and Communications

5. Assessment of status with competition

(1) Trends in FY 2009

1) Trends in share of NTT East and West

The number of subscriptions of all fixed telephones has been decreasing every year and was 57.87 million as of the end of March 2010. And although the share of NTT East and West (subscriber telephones of NTT East and West and 0ABJ-IP telephones) has been gradually declining, it continued to remain at the high level of 82.7% as of the end of March 2010.

In addition, direct access telephones turned to a decreasing trend while CATV telephones have been levelling off.

2) Expansion of IP telephone market

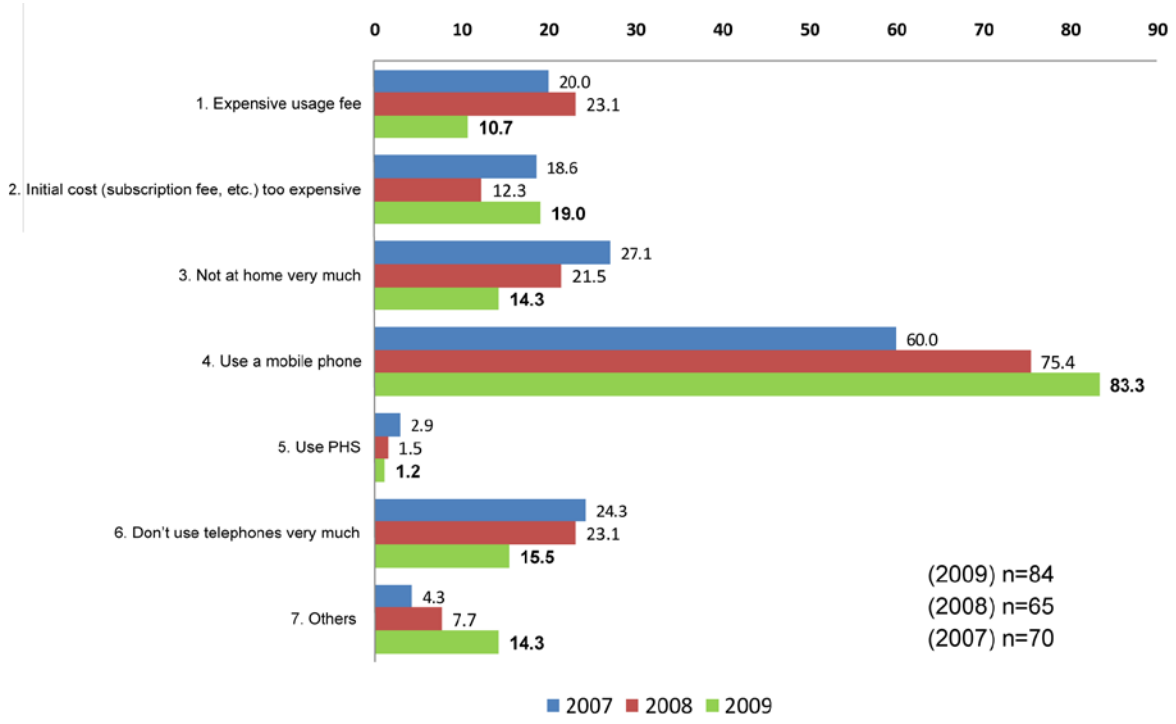
With further the dissemination of FTTH the number 0ABJ-IP telephones has been increasing, with the number of user numbers having reached 14.53 million as of the end of March 2010.

(2) Examination from users' point of view

Users' intentions in the fixed telephone domain are considered here with regard to the major items from the results of the "FY 2009 Results of the First Telecommunications Service Monitor Questionnaire Survey"[17].

First, of those that responded that they do not use fixed telephone services 83.3% gave the reason as "using mobile phones". Rather than the changing handset according to the situation with fixed telephones and mobile communications, therefore, use of a single telephone service handset instead is considered to be a growing trend.

[Figure I-35 Reasons for not subscribing to fixed telephone service (up to two choices)]

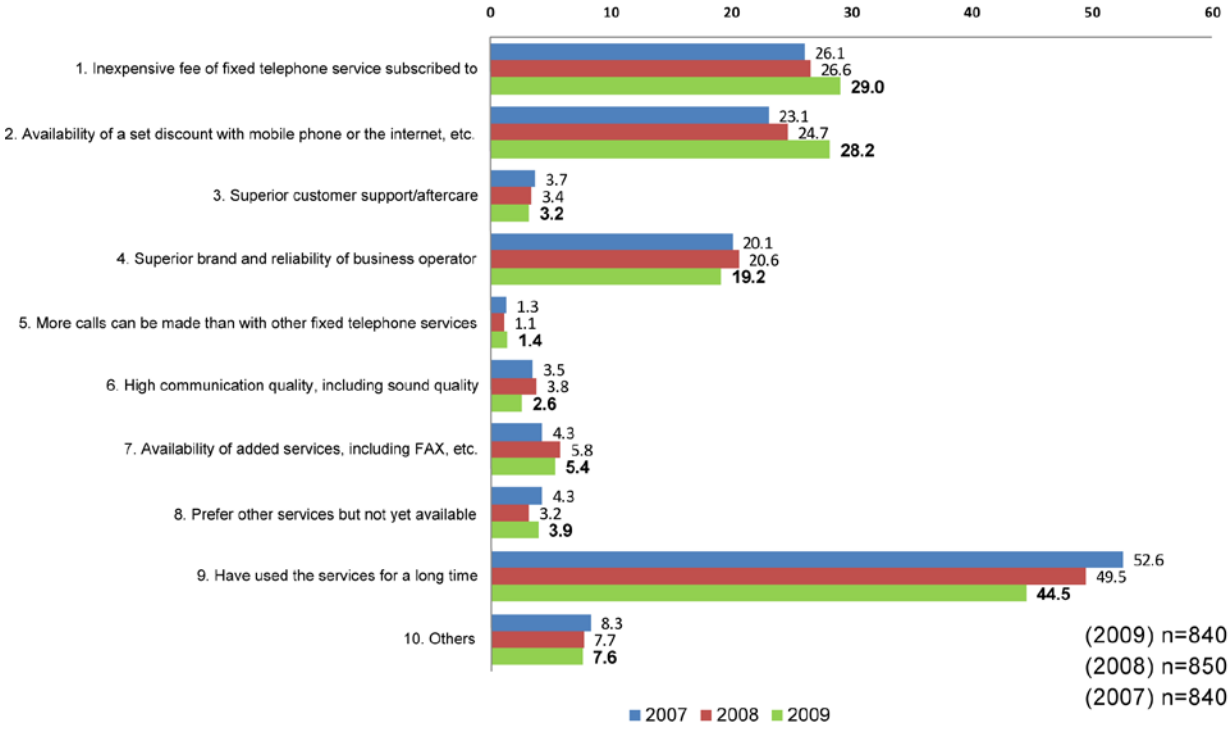


(Source) Ministry of Internal Affairs and Communications
"FY 2007 Results of the First Telecommunications Service Monitor Questionnaire Survey"
"FY 2008 Results of the First Telecommunications Service Monitor Questionnaire Survey"
"FY 2009 Results of the First Telecommunications Service Monitor Questionnaire Survey"

Next, with regard to the reason of those subscribing to fixed telephone services for selecting those services, "have used the services for a long time" was the highest percentage at 44.5%, followed by reasons concerning the price and reliability of the providers. No significant change can be observed, in general, except that the number of responses regarding the "availability of a set discount with mobile phones or the internet, etc." increased.

[17] Published May 19, 2010. Refer to http://www.soumu.go.jp/menu_news/s-news/02kiban08_02000040.html.

[Figure I-36 Reasons for selecting the fixed telephone service subscribed to (up to two choices)]



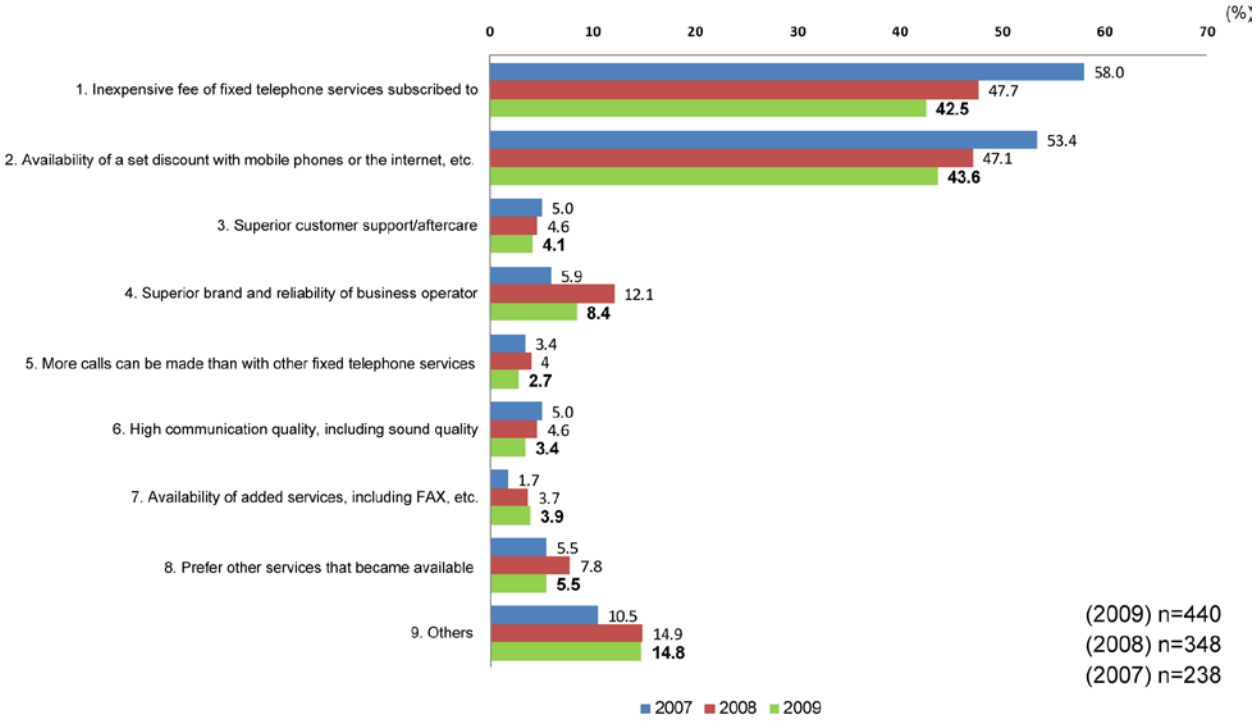
(Source) Ministry of Internal Affairs and Communications
"FY 2007 Results of the First Telecommunications Service Monitor Questionnaire Survey"
"FY 2008 Results of the First Telecommunications Service Monitor Questionnaire Survey"
"FY 2009 Results of the First Telecommunications Service Monitor Questionnaire Survey"

With regard to the fixed telephone services subscribed to the aggregation was made separately for those that had changed from other fixed telephone services to the services that they are currently using and for those who have been using their current service without having changed.

Many responded with price-related reasons for changing services, although the percentage had declined from the previous year, with the highest percentage being "availability of a set discount with mobile phones or the internet, etc." at 43.6%, followed by "inexpensive fees of fixed telephone service subscribed to" at 42.5%.

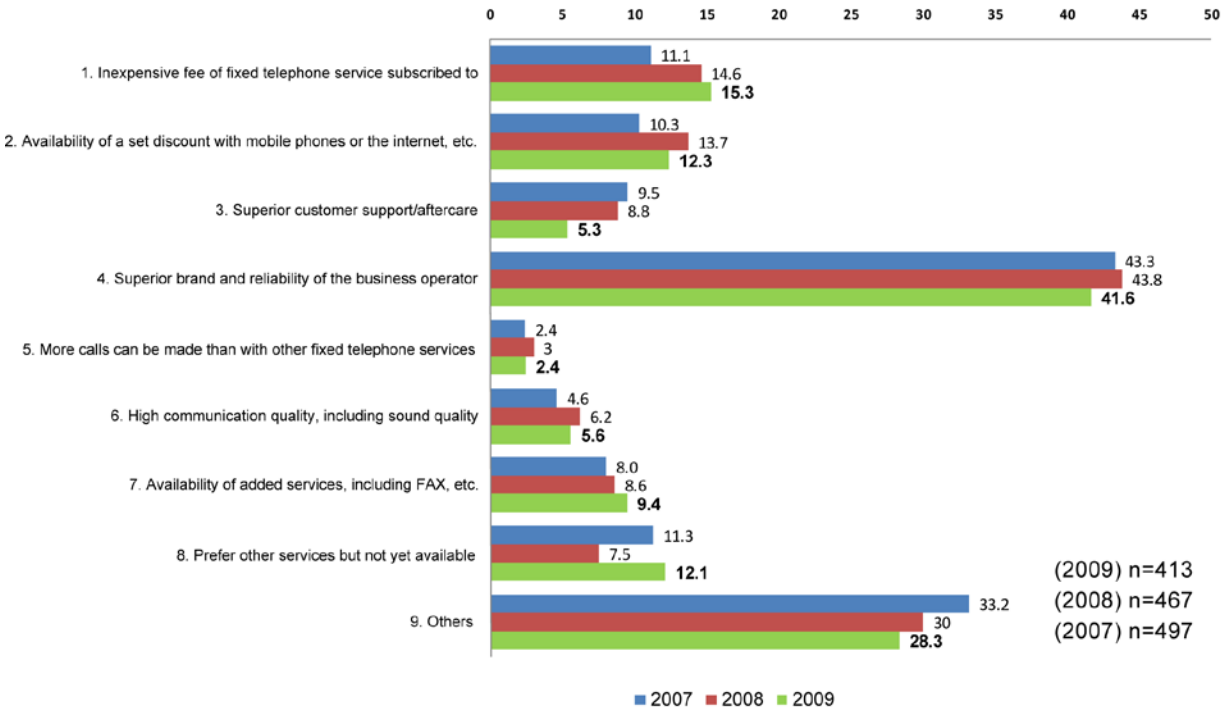
In contrast "superior brand and reliability of the business operator" was the highest percentage at 41.6% for the reason of those who had not changed services. In addition, a certain percentage responded with reasons concerning inexpensive fees and a set discount for the fixed telephone subscribed to.

[Figure I-37 Reasons for changing to fixed telephone service currently subscribed to (up to two choices)]



(Source) Ministry of Internal Affairs and Communications
"FY 2007 Results of the First Telecommunications Service Monitor Questionnaire Survey"
"FY 2008 Results of the First Telecommunications Service Monitor Questionnaire Survey"
"FY 2009 Results of the First Telecommunications Service Monitor Questionnaire Survey"

[Figure I-38 Reasons for not changing fixed telephone service currently subscribed to (up to two choices)]



(Source) Ministry of Internal Affairs and Communications
"FY 2007 Results of the First Telecommunications Service Monitor Questionnaire Survey"
"FY 2008 Results of the First Telecommunications Service Monitor Questionnaire Survey"
"FY 2009 Results of the First Telecommunications Service Monitor Questionnaire Survey"

Considering the increase in the number of people responding they regularly use mobile phones and the number that attach greater importance to the price level, including a set discount with other services, other services, including the provision of fixed telephones and mobile telephones/internet connection services in sets, may have an impact on the share of the fixed telephone market. This survey was merely a monitor survey, and thus it should be noted that the following examination may not necessarily match the opinions of the overall or representative users.

(3) Market dominance

1) Fixed telephone market

[1] Existence of market dominance

After taking into general consideration the following determining factors, etc., NTT East and West were deemed to be in a position of being capable of independently exercising market dominance. The current market structure and status with competition between business operators makes the probability of NTT East and West, having the top share in the market, being in the position to be able to control the price and other conditions quite high.

a) Quantitative criteria

The share of NTT East and West of the fixed telephone market is on a downward trend but was still much higher than that of other competing business operators at 82.7% as of the end of March 2010. NTT East and West continue to be in a dominant position in the market.

b) Other major determining factors

NTT East and West not only have the largest share of the number of subscriptions in the market but also continue to have a large share of the pertinent facilities. As of March 2010 their share of the number of subscriber lines, including both metal cables and optical fiber, was 87.9%, and that of optical fiber alone 77.3%[18].

Competing business operators therefore need to rent facilities from NTT East and West in order to provide their own services. NTT East and West can then impose on competing business operators through various procedures, etc. involved in the use of those facilities [19].

Because of the exclusiveness of the market cooperative dominance was not examined.

[2] Exercise of market dominance

After taking into general consideration the following determining factors, etc. the possibility of NTT East and West independently exercising market dominance is considered low with current regulations and the market environment.

Measures to restrain/check any exercising of market dominance, including a connection regulation, action regulation, and price cap in accordance with the type 1 designated

[18] This includes those used not only for networks for fixed telephones but also networks used for internet connections and corporate networks, etc.

19 For example, a new direct access telephone service may be provided through utilizing the dry copper of NTT East and West.

telecommunications facility system, have been taken with NTT East and West. The Ministry of Internal Affairs and Communications has been operating a “competition safe guard system” since FY 2007 with the aim of regularly verifying the scope of designated telecommunications facilities and the effectiveness of successive fair competition requirements on the NTT Group and has been securing the effectiveness of these measures through that.

In addition, price/service competition has been developed by other business operators competing with NTT East and West, for example through the provision of new direct access telephones and 0ABJ-IP telephones, with the use of latter 0ABJ-IP telephones in particular being expected to grow even further in the future. It is therefore deemed unlikely that NTT East and West will have any incentive to raise the price of fixed telephones.

Considering the results of the monitor questionnaire survey, however, users selecting fixed telephone services may be connected to their provision in sets with services in other domains. For example, provision in sets with 0ABJ-IP telephones may have contributed to the increase in the share of NTT East and West of the FTTH market (74.4% as of the end of March 2010).

Although measures to restrain/check any exercising of market dominance, including regulation on connections, actions, and services in accordance with the type 1 designated telecommunications facility system, have been taken with NTT East and West an order to improve their business activities was issued to NTT West on the handling of information obtained from other telecommunications carriers as part of its business in connection to telecommunications facilities in February 2010. The status with compliance of the competition rules therefore needs to continue to be closely observed in the future.

2) Relay telephone market (sub-market)

[1] Existence of market dominance

After taking into general consideration the following determining factors, etc. the NTT Group was deemed to be in a position of being capable of exercising market dominance both independently and cooperatively.

a) Quantitative criteria

The NTT Group has the top share of the relay telephone market. As of the end of March 2010 its share of local calls was 75.3%, in-prefecture long distance calls 73.5%, out-prefecture calls 72.5%, and international calls 66.4%. The difference with that of competing business operators remains large and their share stable. In addition, the share of NTT East and West with communication volume was 51.6% (number of calls) and 53.9% (communication time) for local calls, and 34.9% (time of calls) and 38.6% (communication time) for in-prefecture long distance

calls.

b) Other major determining factors

MyLine and MyLine Plus with relay telephones require users to pay “MyLine registration fees (840 yen, including tax)” per telephone number when they change service providers, thus a certain switching cost arises when the various procedures are included.

In addition, NTT Communications is not directly competing in the direct access telephone market but instead competing with relay telephones through provision of the Platinum Line at low call charges. NTT East and West and NTT Communications have capital ties through a holding company, thus a certain connection exists between them, and that could possibly be a factor in cooperation. Conversely however, cooperation between the NTT Group, KDDI, and SoftBank Telecom is deemed very unlikely.

In addition, call services with fixed telephones are homogeneous and the market is considered mature.

[2] Exercise of market dominance

The increase in percentage of 0ABJ-IP telephones in the fixed telephone market leads to the possibility of market dominance of NTT East and West based on MyLine and MyLine Plus being exercised on call services in the mature fixed telephone market being considered low.

3) 050-IP telephone market (sub-market)

[1] Existence of market dominance

a) Independent market dominance

After taking into general consideration the following determining factors, etc. no business operator is considered to be in a position of being capable of independently exercising market dominance.

i) Quantitative criteria

As of the end of March 2010 SoftBank BB had the highest share of 42.6% of the 050-IP telephone market, followed by NTT Communications at 34.8%. The share of SoftBank BB, however, has been on a declining trend and that of NTT Communications on an upward trend, thus their shares are getting close.

ii) Other major determining factors

Entering the 050-IP telephone market is not very difficult when compared to other fixed telephone services, and active price/service competition is considered to be taking place among the many business operators in the market.

b) Cooperative Market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. multiple business operators were deemed to be in the position of being capable of exercising cooperative market dominance.

i) Quantitative criteria

The total share of the top three business operators of the 050-IP telephone market was 84.3% and their HHI 3,168 as of the end of March 2010, thus indicating that the market is overly oligopolistic. In addition, their share has been levelling off since 2007.

ii) Other major determining factors

With 050-IP telephones a certain homogeneity in terms of the service content, price system, and quality, etc. is considered to tend to occur in the services of the individual business operators, including discount price such as free calls between subscribers of the same services.

In addition, the 050-IP telephone market is considered to be maturing because of the gradual decrease in the number of user numbers, and thus competition for market share through acquisition of new users is considered unlikely.

[2] Exercise of market dominance

After taking into general consideration the following determining factors, etc. the possibility that multiple business operators with the top shares exercising cooperative market dominance is considered low.

050-IP telephones are positioned as additional services to broadband services, including ADSL, etc., and their importance lies in their ability to easily realize voice communications. In addition, discount prices, including free calls between subscribers of the same voice services, etc., have been established and are already known by users. It is therefore deemed unlikely that they would have the incentive to raise the price of fixed telephones.

(4) Matters requiring close observation in the future

Matters requiring close observation in the future with consideration given to the results of the above assessments are as follows.

Trends in the provision of services in sets with services in other domains need to continue to be closely observed. With regard to concern over market dominance being leveraged by NTT East and West in the fixed telephone market into adjacent markets, the share of NTT East and West in the overall fixed telephone market is declining but dissemination of FTTH and the rise in the share of NTT East and West of the FTTH market could result in the rise of the share of NTT East and West in 0ABJ-IP telephones that are provided in sets with FTTH.

Although measures to restrain/check any exercising of market dominance, including regulations on connections, actions, and services in accordance with the type 1 designated telecommunications facility system, have been taken with NTT East and West an order to improve their business activities was issued to NTT West on the handling of information obtained from other telecommunications carriers as part of its business in connection to telecommunications facilities in February 2010. In consideration of that the existence of market dominance in the fixed telephone market being leveraged into adjacent markets needs to continue to be closely observed.

Other than that the status with competition within the fixed telephone domains and development of bundled services, including integration of fixed/mobile telephones with the development of FMC, will need to continue to be closely observed.

[Reference] Charges of major services of fixed telephones (as of the end of March 2010)

(1) Charges of subscriber telephones of NTT East and West, direct access telephones, and CATV telephones

Business operator		Basic charges				Call charges (per 3 minutes, 8:00-19:00)							Others
		Residential use				Local	In-prefecture long distance			Out-of-prefecture Over 100 km	Call to mobile telephones	Call to IP telephones	
		Class 3 Service Area	Class 2 Service Area	Class 1 Service Area	ISDN 64		Within 20 km	Over 20 km but within 60 km	Over 60 km				
Subscriber telephones	NTT East	1,700 (1,785)	1,600 (1,680)	1,600 (1,680)	2,780 (2,919)	8.5* (8.925)	20 (21)	30 (31.5)	40 (42)	—	* Charges vary depending on mobile telephone business operator (using 0036)	* Charges vary depending on IP telephone business operator	• If both local and in-prefecture long distance calls are registered with NTT East in MyLine Plus when using FLET'S ISDL or FLET'S ADSL a10% discount applies to the monthly FLET'S charge * Excluding FLET'S ADSL Entry Type • In addition to the charges in the left columns a universal service charge of 8 yen (8.4 yen) per month is required for each telephone number
New direct access telephones	SoftBank Telecom (former Japan Telecom) (Otoku Line)	1,500 (1,575)	1,350 (1,417.5)	1,350 (1,417.5)	2,580 (2,709)	7.89 (8.2845) (Simple Plan)				14.9 (15.645) (Simple Plan)	25/min. (26.25/min.)	10.0 (10.5) * In case of 050 numbers (Simple Plan)	• Monthly basic charge of touch-tone in case of "Otoku Line" (Simple Plan)
	KDDI (Metal-plus)	1,400 (1,470) * In case of payment through bank transfer or credit card * 1500 (1,575) in case of over-the-counter payment * ISDN for personal use not available				8.5 (8.925)	20 (21)	30 (31.5)	40 (42)	80 (84)	30 (31.5) (call to mobile phone other than SoftBank) ↓ * In case of dialling "0077" 16.45875 yen/minute for calls to au mobile phones (au discount) and 17.325 yen/minute (including tax) otherwise	10.0 (10.5) * In case of 050 numbers	• Charges for calls from au mobile phones to fixed phones at home have a 50% discount with "au -> My Home Discount" (same for Hikari one phone, au one net ADSL, 050 number services, cable-plus phone, and for registering MyLine Plus with KDDI in three or more categories) • Dial-up Metal-plus telephone course of au one net offers full time connection with monthly fixed charge of 945 yen (free of communication charges) • 105 yen is deducted from monthly charges if the au bill and the bill of KDDI Metal-plus telephones, ADSL one, Hikari one (au one net), au one net, or MyLine are consolidated.
CATV telephones	Jupiter Telecommunications (J:COM PHONE)	1,330 (1,397)				7.9 (8.295) * 5.0 (5.250) between J:COM PHONE subscribers	25.5 (26.775) * 15.0 (15.75) between J:COM PHONE subscribers			68.0 (71.4) * 40.0 (42.0) between J:COM PHONE subscribers	52.5 (55.125) (DOCOMO) 54 (56.7) (au, SoftBank) 58.5 (61.425) (EMOBILE)	9.9 (10.395) * Universal charges across all business operators to which calls are made	[Heavy user discount] The following discount applies to call charges • 8,000 yen or more but less than 40,000 yen: 8% discount • 40,000 yen or more: 10% discount [Toku Toku Talk (monthly fixed charge of 250 yen)] (263 yen) Universal charges for in-prefecture long distance calls and out-of-prefecture calls In-prefecture long distance: 7.9 yen (8.3 yen) / 3 min. Out-of-prefecture: 14.8 yen (15.5 yen) / 3 min. Free call charges of 10,000 yen (10,500 yen) for calls to specific destinations (J:COM PHONE, J:COM MOBILE)

(2) Relay telephone charges

Business operator	Basic charges				Call charges (per 3 minutes, 8:00-19:00)				
	Residential use				Local	In-prefecture, within 60km	Out-of-prefecture, 100 km or over	Call to mobile telephones	Call to IP telephones
	Class 3 Service Area	Class 2 Service Area	Class 1 Service Area	ISDN 64					
NTT Communications (Platinum Line)					8.0 (8.4)		15 (15.75)	48.0 (50.4) (using 0033)	
SoftBank Telecom (MyLine Plus)					8.5 (8.925)	30 (31.5)	80 (84)	54 (56.7)	
KDDI (MyLine Plus)					8.5 (8.925)	30 (31.5)	80 (84)	49.5 (51.975) * In case of calls to au	

(3) 0ABJ-IP telephone charges

Business operator	Service	Monthly service charge (service charge includes adapter usage fees, etc., and access network fees and provider charges are also additionally necessary)	Call charges				Note
			Between subscribers	Call to fixed telephones of other business operators	Call to mobile telephones	Call to the USA	
NTT East	Hikari Denwa	1,500 yen (1,525 yen) * Hikari Denwa A includes free call charge of 480 yen (504 yen)	8 yen / 3 min. (8.4 yen)	8 yen / 3 min. (8.4 yen)	[1] 16 yen / min. (16.8 yen) [2] 17.5 yen / min. (18.375 yen) [3] 10.8 yen / 3 min. (11.34 yen) * [1]-[3] charges vary depending on the business operator to which the connection is made	9 yen / min.	Call charge to IP telephones (050 numbers) vary between 10.4 yen and 10.8 yen depending on the business operator of the IP telephone (3 min.) Additional channels or numbers are also available.
KDDI	Hikari one phone	500 yen (525 yen)	8 yen / 3 min. (8.4 yen)	8 yen / 3 min. (8.4 yen)	au: 15.5 yen / min. (16.275 yen) Others: 16 yen / min. (16.8 yen)	9 yen / min.	50% discount for calls from au mobile phones with “au -> My Home Discount”. Free calls from au mobile phones to home if au Home Phone used at home. Calls to KDDI-IP telephones (050 numbers) and IP telephones of affiliate ISPs are free of charge with optional 050 number services (KDDI-IP telephones).
K-Opticom	eo Hikari Denwa	286 yen (300 yen)	0 yen	6 prefectures in Kinki block: 7.4 yen / 3 min. (7.77 yen) Others: 8 yen / 3 min. (8.4 yen)	18 yen / min. (18.9 yen)	6 yen / min.	Calls to 050-IP telephones of affiliate ISPs are free of charge.
SoftBank Telecom	Hikari BB Phone	1,550 yen (1,627 yen)	0 yen (including BB Phones)	7.99 yen / 3 min. (8.3895 yen)	25 yen (daytime) / min. (26.25 yen) 20 yen (nighttime) / min. (21 yen)	7.99 yen / 3 min.	Call charges to 050-IP telephones of affiliate ISPs are the same as domestic call charges. Calls to some BB Phones may not be free of charge unless 050 number is used.

(4) 050-IP telephone charges

Service	Basic charges	Call charges				IP network wholesale suppliers	Note
		Between subscribers	Domestic	Mobile phones	USA		
OCN.Phone	0 yen	0 yen	8 yen / 3 min. (8.4 yen)	16 yen / min. (16.8 yen)	9 yen / min. (excluding Guam and Saipan)	NTT Communications	Can be used with “Hikari Denwa”. OCN.Phone has the priority when making calls.
KDDI-IP telephones	0 yen	0 yen (150 yen (157 yen) in case of Hikari one/ADSL one)	8 yen / 3 min. (8.4 yen)	au: 15.5 yen / min. (16.275 yen) Others: 16 yen / min. (16.8	9 yen / min.	KDDI	Low price type ADSL plans include a plan with IP telephones and a plan without IP telephones, with the former being 294 yen more expensive.
@nifty Phone (C,F,K)	0 yen	0 yen (limited to calls between the same type or to destinations subject to free calls of respective type)	8 yen / 3 min. (8.4 yen)	18 yen / min. (18.9 yen)	Type: F 2.5 yen / min. Type: C, K 9 yen / min.	@nifty Phone-C: NTT Communications @nifty Phone-F: Plala Networks @nifty Phone-K: KDDI	Free calls between @nifty Phone-C and F @nifty Phone-C, F and @nifty Phone-K uses IP network of a different group and thus calls between different types result in a call charge.

(5) Charges for triple play services

Business operator	Telephone	Internet connection	Television service	Integrated charges
KDDI (Hikari one)	8.4 yen / 3 min. (0AB-J) * 050 IP telephones are also available as an option	100 M at maximum (Hikari one network service)	Multi-channel broadcasts (50 ch.) VOD (approx. 5,000 videos)	9.660 yen (Hikari one Home) 6,615 yen (Hikari one Mansion type E (Ethernet))
SoftBank BB (Yahoo! BB Hikari)	8.3895 yen / 3 min. (0AB-J)	100 M at maximum (Yahoo! BB Hikari)	Multi-channel broadcasts (Channel service: 35 ch.) VOD (Electronic video rental service: approx. 5,000 videos)	8,966 yen (Yahoo! BB Hikari TV package (Home) + BB Phone Hikari) 4,766 yen (Yahoo! BB Hikari TV package (Mansion) + BB Phone Hikari)
NTT East, Plala Networks, I-Cast	8.4 yen / 3 min. (050/Plala Phone) (0ABJ-IP/Hikari Denwa)	100 M at maximum (B FLET’S)	Multi-channel broadcasts (basic service: 10 ch., premium channels: 20 ch. or more, total channels: 70 ch. or more) VOD (approx. 10,000 videos)	9,975 yen (*1, *2, *3) (For independent houses (Home type): Plala Hikari Triple Pack/discount plan) 7,139 yen (*1, *3, *4) (For apartment buildings (Mansion type): Plala Hikari Triple Pack/discount plan)
J:COM Tokyo	8.295 yen / 3 min. (0AB-J) (Between J:COM 3.5 yen / 3 min.)	40 M at maximum (J:COM NET 40M Course)	Multi-channel broadcasts (100 ch. or more including terrestrial broadcasting, BS, and CS) VOD (approx. 13,000 videos)	8.800 yen (Otoku Plan 40: J:COM NET 40M Course + J:COM TV Digital + J:COM PHONE) * Regular pack price 10,815 yen
K-Opticom	7.77 yen / 3 min. (6 prefectures in Kinki block) 8.4 yen / 3 min. (others) (0AB-J)	100 M at maximum (eo Hikari Net)	Multi-channel broadcasts (Compact 31 ch., Basic HD 67 ch, Premium HD 83 ch., including terrestrial broadcasting, BS, and CS)	8.700 yen (eo Hikari TV Basic HD + eo Hikari Denwa + eo Hikari Net (Home type) 100M Course) 8.025 yen (K-CAT eo Hikari TV Basic HD + eo Hikari Denwa + eo Hikari Net (Mansion type)

*1 - Internet connection service and video distribution service “Hikari TV” support NGN (FLET’S Hikari Next).

*2 - In case of using B FLET’S Hyper Family Type of NTT East. Including equipment usage fee, tuner rental fee, and interior wiring installation charge, etc.

*3 - Not included in monthly basic charge of Hikari Denwa of NTT East.

*4 - In case of using B FLET’S Mansion Type Plan 2 of NTT East. Including equipment usage fee and tuner rental fee, etc.

(Source) Websites of respective business operators

II Mobile Communications Domain

Table of Contents

Chapter 1 Market Delimitation within Mobile Communications Domain

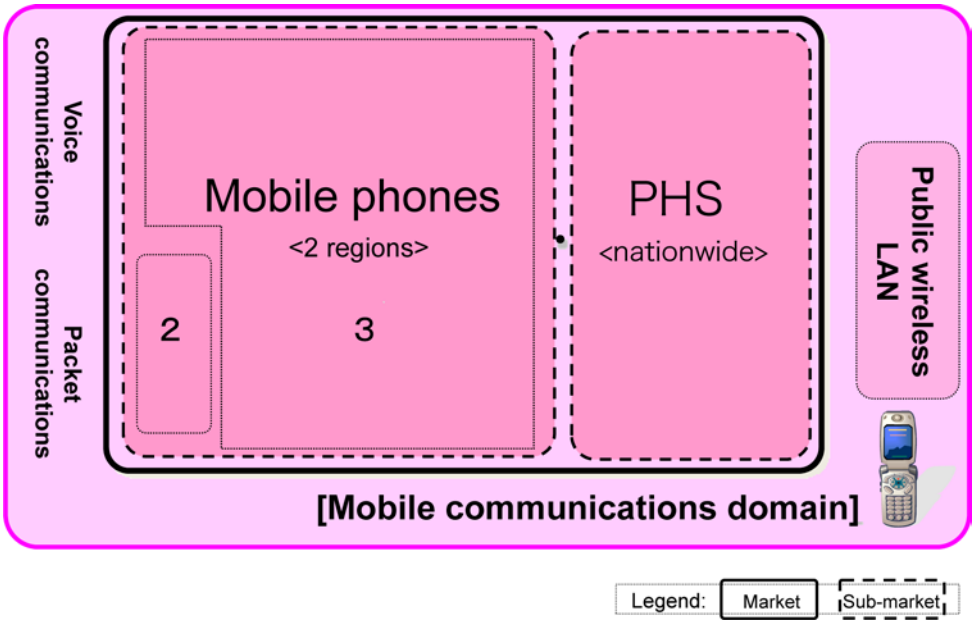
This chapter outlines market delimitation within the mobile communications domain.

1. Delimitation of service markets

The conventional idea of regarding voice and packet communications, and mobile phones and PHS as one market has been adopted in the delimitation of service markets. In addition, mobile phones and PHS were regarded as being sub-markets.

Public wireless LAN market delimitation could not take place due to the unavailability of any detailed data.

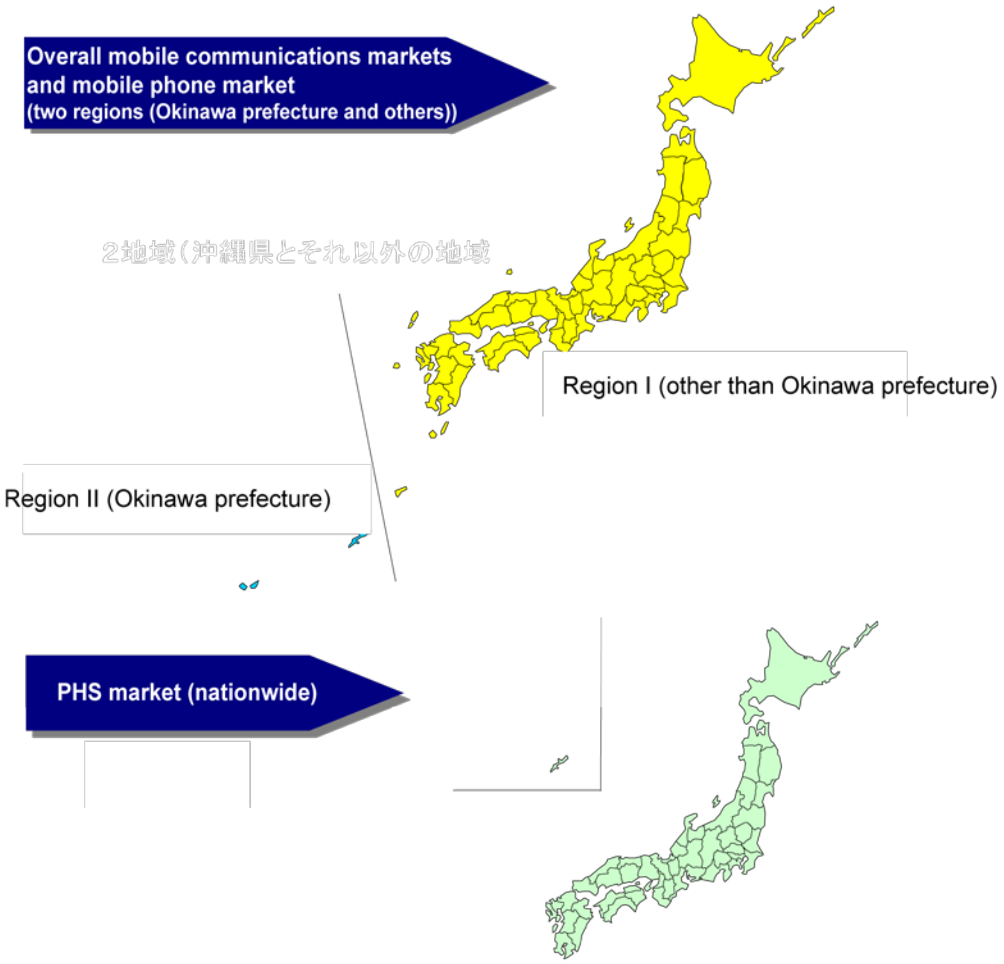
[Figure II-1 Delimitation of service markets in mobile communications domain]



2. Delimitation of geographical markets

In the geographical market delimitation attention was paid to
[1] Regions where the number of service providers differs and
[2] Regions where service providers differ even if the number of them was the same,
with the mobile phone market being delimited into two regional markets nationwide (Okinawa prefecture and others) and the PHS market as one nationwide market. The number of subscriptions of mobile phones in the overall mobile communications markets being overwhelmingly large resulted in analysis of the mobile phone market being made with necessary modifications where appropriate.

[Figure II-2 Delimitation of geographical markets in mobile communications domain]



3. Markets subjected to assessment/analysis

The percentage of PHS within the overall mobile communications market with regard to the number of subscriptions is extremely small (approximately 3.5% of the overall mobile communications markets (as of the end of March 2010)) and hence the PHS market was not subjected to the assessment/analysis as it was in the case of Competition Review 2008.

Chapter 2 Analysis of Major Indices in Mobile Communications Domain

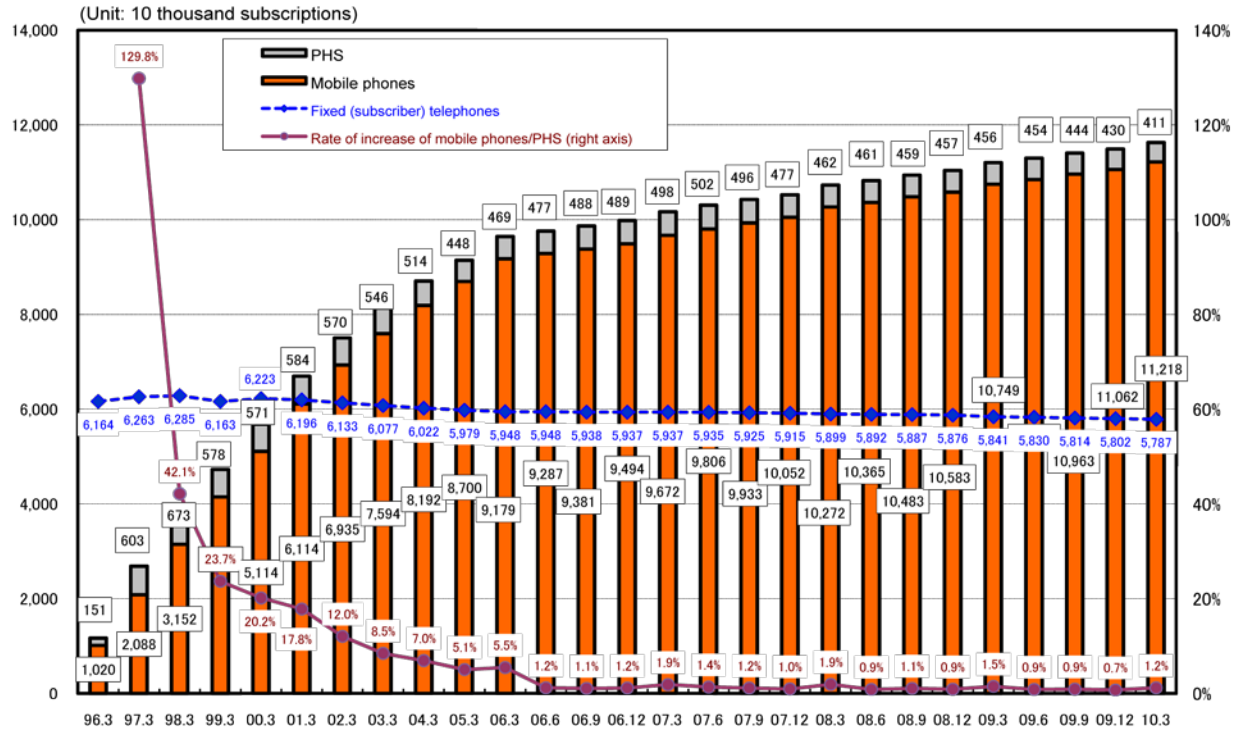
This chapter analyzes the major indices in the mobile communications domain.

1. Market size

(1) Number of subscriptions of mobile communications services

The number of mobile communications service subscriptions has exceeded 100 million and is still on an increasing trend, although the rate of increase is slowing down. The number of mobile phone subscriptions has been increasing whereas that of PHS has been on a decreasing trend.

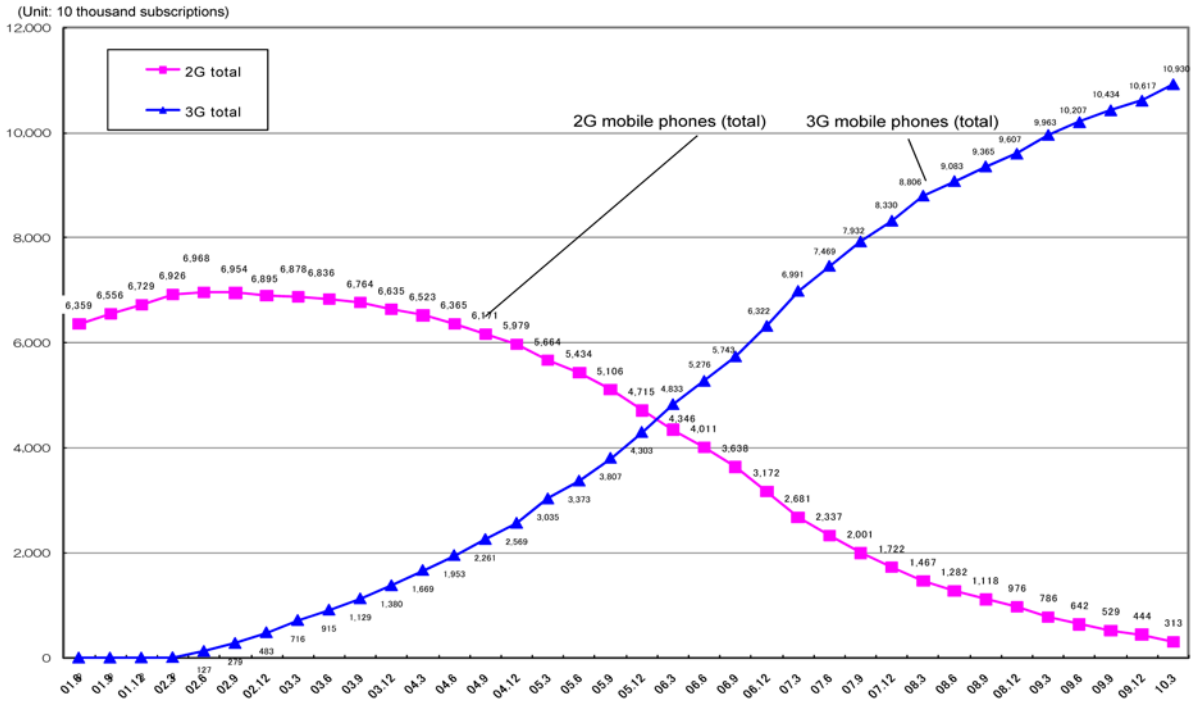
[Figure II-3 Changes in number of subscriptions of mobile telecommunications services]



(Note) The number of mobile phone subscriptions is the total number of NTT DOCOMO, KDDI (including Okinawa Cellular), SoftBank Mobile, and EMOBILE subscriptions. The number of PHS subscriptions is that of WILLCOM only and does include that of K-Opticom as it only provides data communication services.
(Source) Telecommunications Carriers Association, Ministry of Internal Affairs and Communications

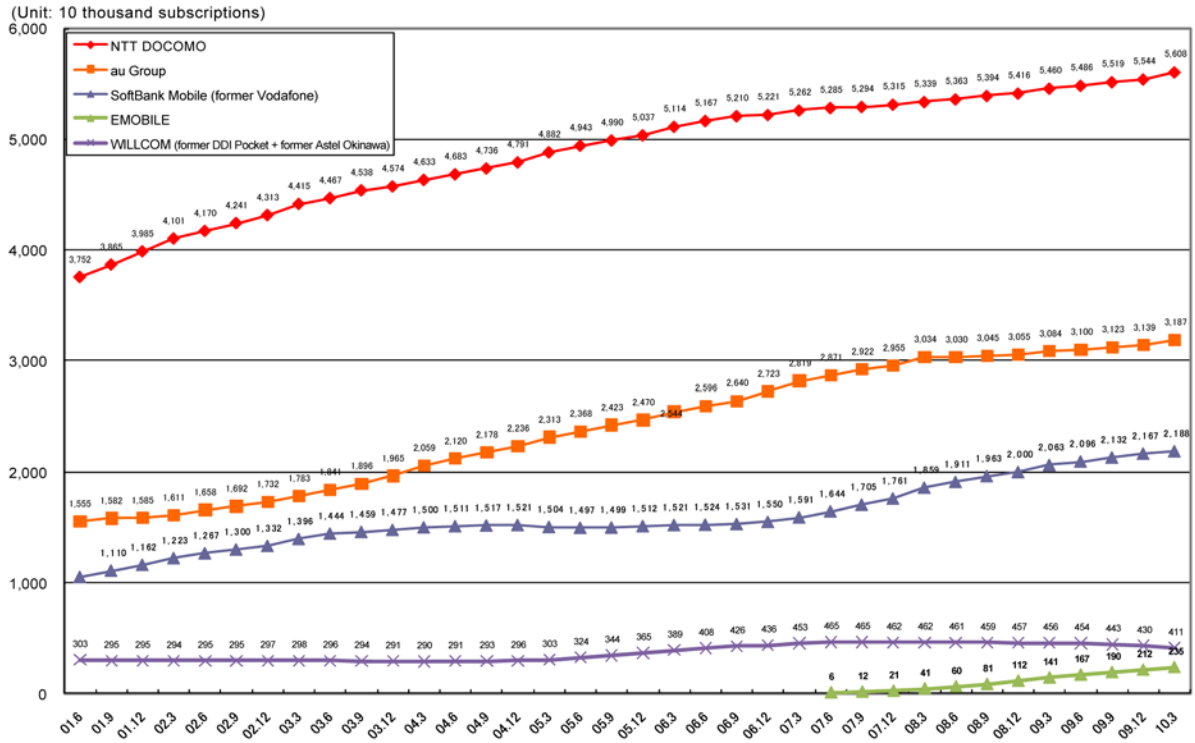
The migration from 2G to 3G is steadily progressing with mobile phones, with the percentage of 3G to number of mobile phone subscriptions having reached 97.2% as of the end of March 2010. In addition, all business operators have either stopped providing 2G services or accepting new subscriptions.

[Figure II-4 Changes in number of subscriptions of mobile phones]



(Source) Telecommunications Carriers Association, Ministry of Internal Affairs and Communications

[Figure II-5 Changes in number of subscriptions by business operator]



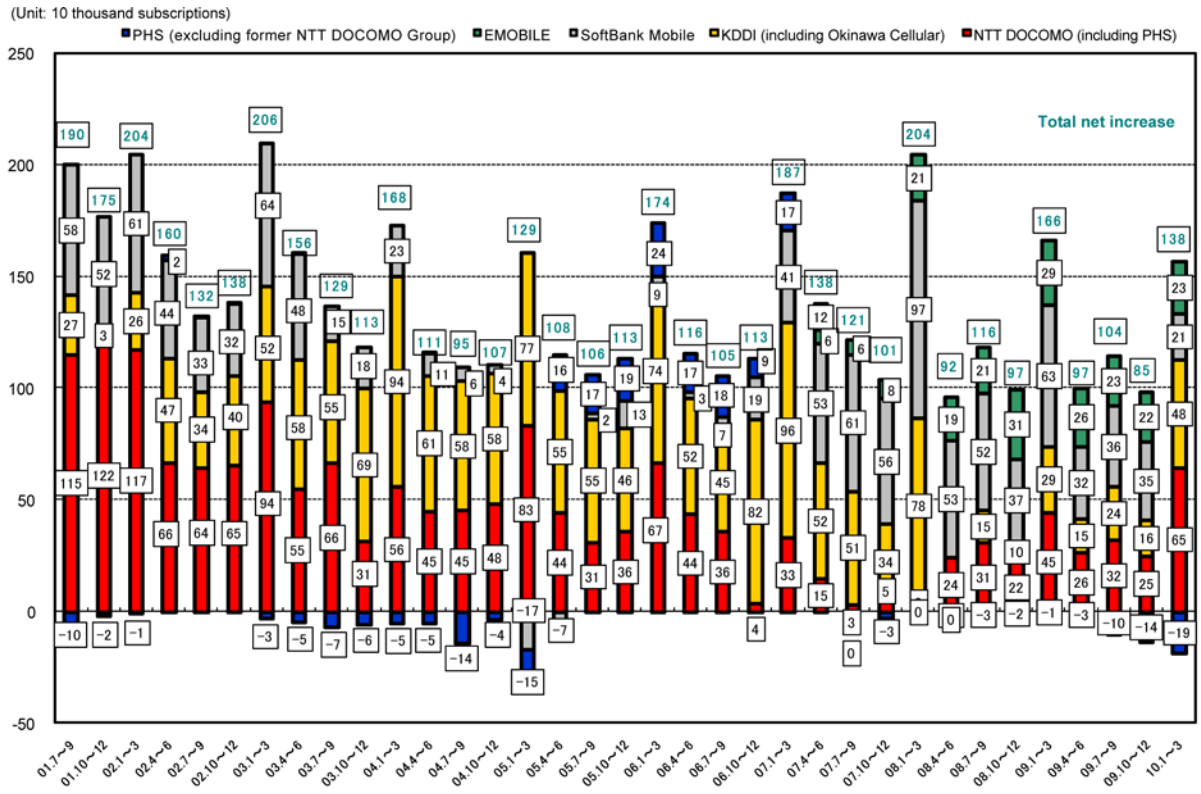
(Source) Telecommunications Carriers Association, Ministry of Internal Affairs and Communications

With WILLCOM the number of PHS subscriptions steadily increased from the end of June 2005, basically levelled off at the end of June 2007, and then started decreasing from the end of March 2008.

(2) Net increase in number of subscriptions of mobile communications services

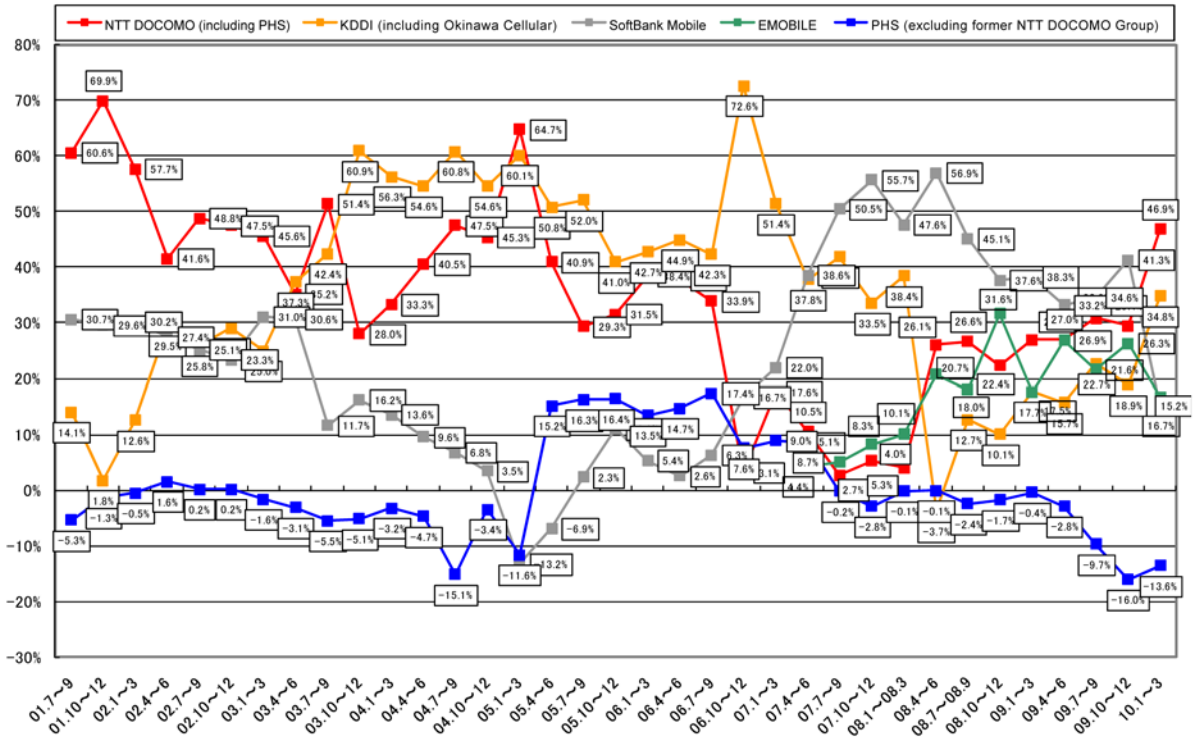
The net increase in number and share of NTT DOCOMO mobile phone subscriptions was decreasing but recently turned to an increasing trend. In addition, the net increase in the share of SoftBank Mobile has remained at a high level since 2007.

[Figure II-6 Changes in net increase in number of subscription of mobile telecommunications services]



(Source) Telecommunications Carriers Association

[Figure II-7 Changes in net increase in share of number of subscription of mobile telecommunications services]



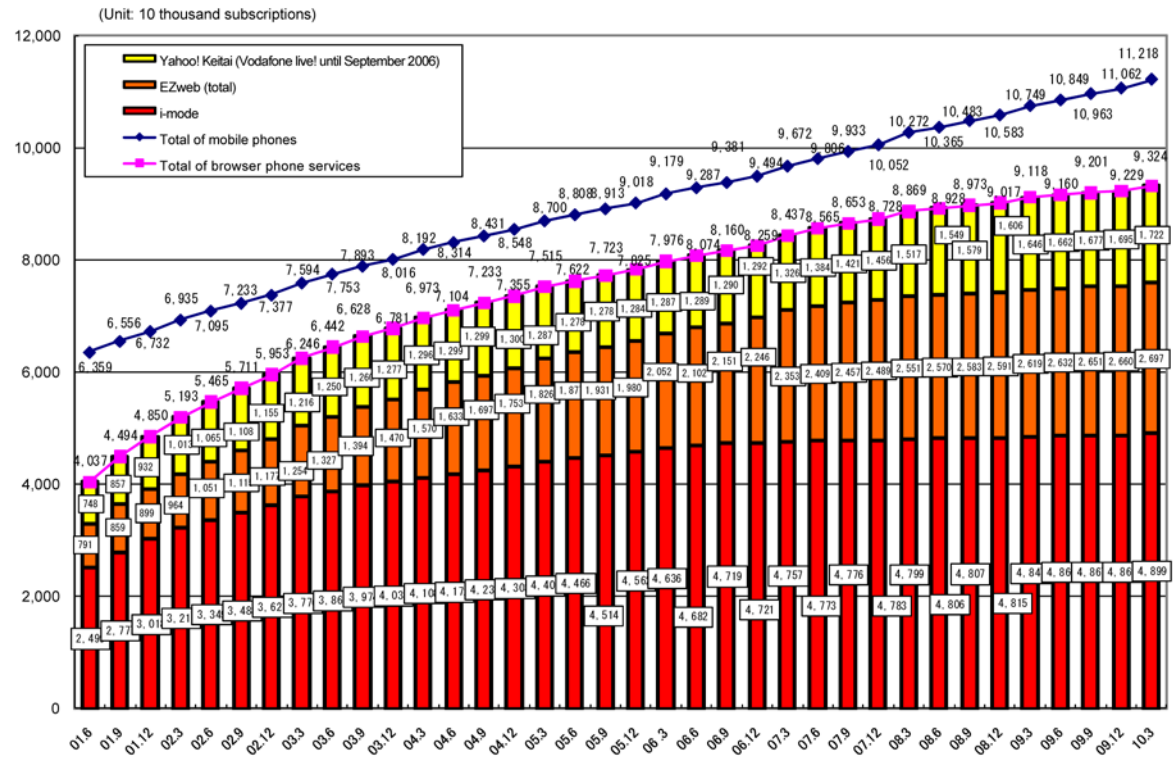
(Source) Telecommunications Carriers Association, Ministry of Internal Affairs and Communications

(3) Number of subscriptions of various services

1) Browser phone services

The number of subscriptions of browser phone services for mobile phones accounted for 83.1% of all mobile phone subscriptions of mobile phones as of the end of March 2010 and has been increasing at almost the same rate as the number of mobile phone subscriptions.

[Figure II-8 Changes in number of subscriptions of browser phone services for mobile phones]

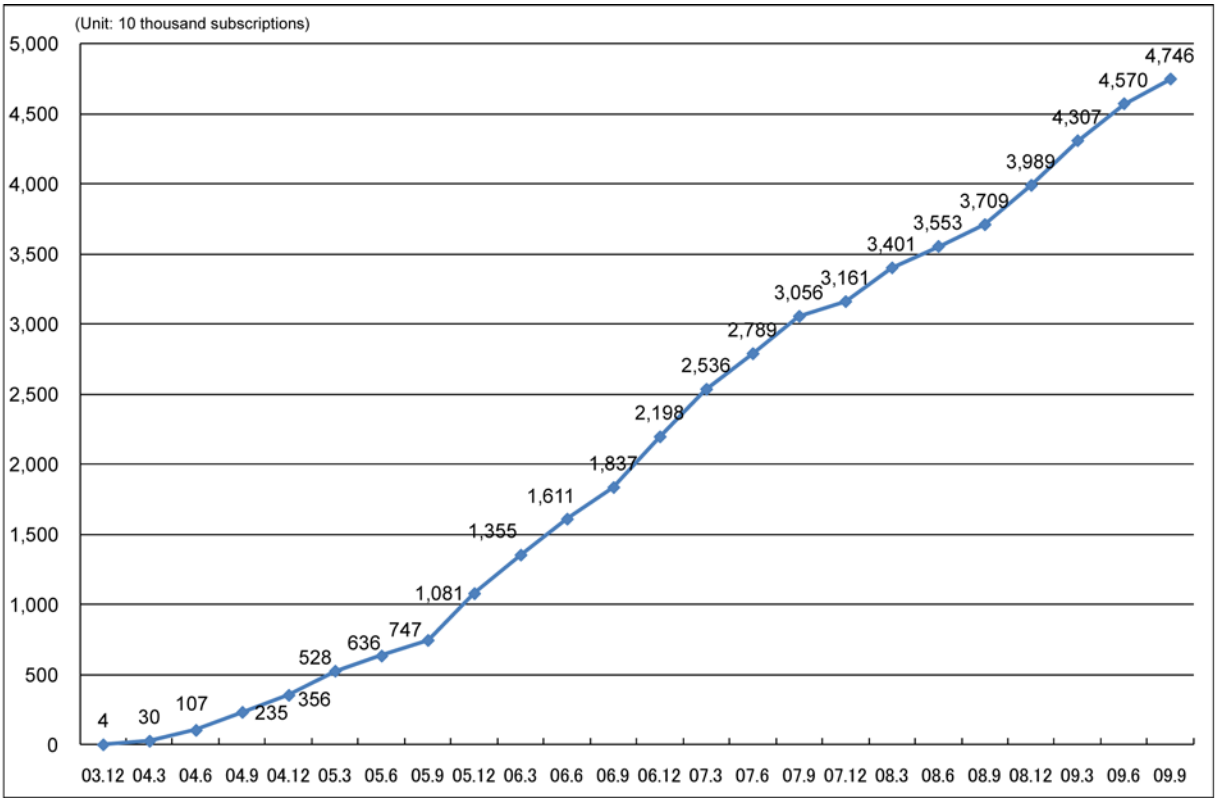


(Source) Telecommunications Carriers Association, Ministry of Internal Affairs and Communications

2) Flat rate services

The number of flat rate mobile phone service subscriptions has been increasing and was 47.46 million as of the end of September 2009; thus indicating a share of 42.3% of all mobile phone service subscriptions.

[Figure II-9 Changes in number of subscriptions of flat rate services for mobile phones]

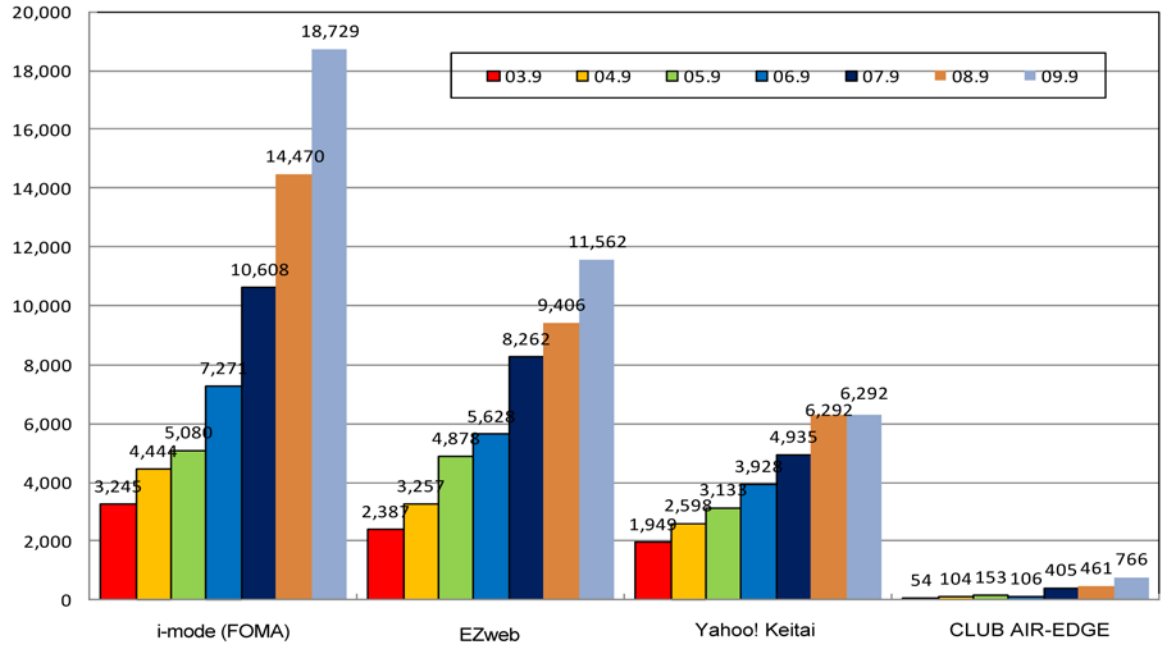


(Source) Ministry of Internal Affairs and Communications

3) Number of official websites

The number of official mobile phone/PHS websites has been increasing with most business operators. By category the trend is for official game and music distribution, etc. websites to commonly account for a high percentage of them.

[Figure II-10 Changes in number of official websites for browser phone services]



(Source) Ministry of Internal Affairs and Communications

[Figure II-11 Number of official websites by category] (as of the end of September 2009)

i-mode (FOMA)				Ezweb				Yahoo! Keitai				CLUB AIR-EDGE				For W-ZERO			
Category	Number of websites	Percentage	Last FY	Category	Number of websites	Percentage	Last FY	Category	Number of websites	Percentage	Last FY	Category	Number of websites	Percentage	Last FY	Category	Number of websites	Percentage	Last FY
Weather/news/business	188	1.0%	1.2%	Chaku-Uta-Full-Plus	13	0.1%	-	Chaku-Uta Full	171	2.7%	2.2%	News	4	0.7%	2.2%	News	2	1.0%	0.6%
Mobile banking	1,355	7.2%	9.5%	Chaku-Uta-Full video clips	231	2.0%	1.8%	Chaku-Uta/Video/Melody	519	8.2%	8.3%	Weather	8	1.4%	0.9%	Maps/Gourmet Town	7	3.5%	3.8%
Securities/card/money/insurance	82	0.4%	0.5%	Chaku-Uta	459	4.0%	4.7%	Keitai Game	796	12.7%	12.8%	Banking	2	0.4%	0.4%	Hot spot search	1	0.5%	0.6%
Transportation/gourmet/travel	132	0.7%	0.9%	Ringtones/karaoke/voice	443	3.8%	4.6%	Books/comics/photographic albums	223	3.5%	2.7%	Stock trading	8	1.4%	1.7%	Anti-virus measures	1	0.5%	0.6%
Hotels/lodges/travel	127	0.7%	0.7%	Chaku-Movie/Chaku-Flash	226	2.0%	2.1%	Decoration mail	223	3.5%	2.6%	Stock information	5	0.9%	1.1%	Electronic books/comics	2	1.0%	0.6%
Shopping/tickets	177	0.9%	1.0%	Machi-Uta	94	0.8%	0.8%	Wall Paper/Kisekae Arrangement	534	8.5%	7.9%	Card	4	0.7%	0.7%	Games/application programs	46	22.9%	27.5%
Fashion/cosmetics	172	0.9%	0.8%	Standby images/keitai-arrange	1,189	10.3%	10.0%	Osaifu-Keitai	39	0.6%	0.6%	Business	4	0.7%	0.9%	Ringtones	3	1.5%	0.6%
Health/beauty care/life	113	0.6%	0.7%	Games	900	7.8%	-	Transportation/gourmet/travel	166	2.5%	2.3%	Ringtones	39	6.9%	6.7%	Music/videos	10	5.0%	3.8%
Gourmet/recipes	6	0.0%	0.4%	Electronic books/comics/photographic albums	354	3.1%	2.8%	Weather/news/economics	106	1.7%	1.3%	Karaoke	1	0.2%	0.2%	TV/radio	13	6.5%	5.0%
Work/residence/education	94	0.5%	2.3%	E-mail/decoration mail	529	4.6%	3.1%	Entertainment/movies/music	322	5.1%	4.7%	Games/application programs	50	8.8%	11.5%	Standby screens	4	2.0%	1.9%
Community/SNS	149	0.8%	0.4%	Shopping/auctions	423	3.7%	3.6%	TV/radio/magazines	173	2.7%	2.7%	Comics/electronic books	3	0.5%	0.4%	Communication	3	1.5%	1.3%
Uta-hodai	150	0.8%	0.2%	TV/radio/magazines	293	2.5%	3.0%	Sports	205	3.3%	3.3%	Standby screens	25	4.4%	4.1%	Fortune telling/lotteries	26	12.9%	13.8%
Ringtones/karaoke	62	0.3%	4.5%	Music/movies/entertainment	482	4.2%	4.5%	Hobbies/leisure	163	2.6%	2.3%	Entertainment/movies/music	6	1.1%	1.3%	Sports	3	1.5%	2.5%
Chaku-Uta/chaku-motion	34	0.2%	8.3%	Prize competitions/lottery/gaming	347	3.0%	2.1%	Fortune telling/psychology	333	5.3%	4.7%	Fortune telling/quizzes	55	9.7%	8.5%	Transportation/route finder	6	3.0%	4.4%
Chaku-Uta Full	745	4.0%	8.4%	Sports/leisure	401	3.5%	3.5%	Dictionaries/tools	47	0.7%	0.7%	Communication	40	7.1%	3.5%	Securities	6	3.0%	4.4%
Music & Video channels	1,341	7.2%	0.8%	Fortune telling/quizzes	835	7.2%	6.0%	Work/residence/education	174	2.8%	2.0%	TV/media/books	10	1.8%	2.6%	Dictionaries/education	7	3.5%	2.5%
Melody Calls	1,639	8.8%	0.4%	News/weather	174	1.5%	1.8%	Living/health care	169	2.7%	2.4%	Gambling/prize competitions/lotteries	20	3.5%	3.5%	Houses	2	1.0%	0.6%
Video/video clips	93	0.5%	5.2%	Maps/transportation/travel	223	1.9%	2.0%	SNS	14	0.2%	0.1%	Travel	9	1.6%	2.2%	Government/medical care	11	5.5%	4.4%
Standby screens/frames	69	0.4%	4.9%	Gourmet/town guide/government	360	3.1%	3.3%	Communication	24	0.4%	0.5%	Sports	21	3.7%	4.6%	Work/qualifications	6	3.0%	5.0%
Kisekae Tools	1,075	5.7%	3.7%	Local information	1,432	12.4%	15.4%	Shopping/tickets	272	4.3%	4.5%	WILLCOM location information service	1	0.2%	0.0%	Shopping	8	4.0%	6.3%
Games	904	4.8%	9.9%	Banking/financial	392	3.4%	4.1%	Banking	354	5.6%	6.8%	Maps	3	0.5%	0.9%	Decorative mail	8	4.0%	3.1%
Fortune telling/diagnosis	1,041	5.6%	2.4%	Securities/card/insurance	120	1.0%	1.0%	Securities/card/insurance	61	1.0%	1.0%	Train route finder	4	0.7%	2.0%	E-mail tools	12	6.0%	6.9%
Sports	2,069	11.0%	2.7%	Work/education	380	3.3%	2.8%	Local menu	1,137	18.1%	22.4%	Road information	5	0.9%	1.3%				
Hobbies/entertainment	500	2.7%	2.8%	Houses/health care/daily living	496	4.3%	3.3%	English	60	1.0%	1.1%	Bus information	12	2.1%	1.1%				
Music/movies/artists	486	2.6%	4.9%	Dictionaries/useful tools	432	3.7%	2.2%	My SoftBank		0.0%	-	Airplane/ship information	6	1.1%	1.3%				
Entertainment/photo related/comedy	152	0.8%	2.5%	Community (271)	267	2.3%	2.4%	+magazine mobile		0.0%	-	Gourmet information	11	1.9%	2.0%				
TV/radio/magazines	58	0.3%	2.7%	Global Site	65	0.6%	0.6%	Tokusuru information channel		0.0%	-	Town information	5	0.9%	0.9%				
Comics/books	352	1.9%	8.4%					Retrieval/general websites	9	0.1%	-	Package searches	5	0.9%	1.1%				
Dictionaries/useful tools	903	4.8%	0.5%					S! Quick News		0.0%	-	Work/qualifications	30	5.3%	4.8%				
Daily living information	384	2.1%	0.1%					Full browser	1	0.0%	-	Houses/cars	17	3.0%	2.0%				
Decome-Anime	177	0.9%	0.9%									Health/medical care	14	2.5%	3.7%				
Deco-mail	462	2.5%	1.9%									Dictionaries	8	1.4%	2.6%				
E-mail	1,589	8.5%	0.4%									Shopping	30	5.3%	5.9%				
Chara-den	322	1.7%	0.0%									Auctions	1	0.2%	0.4%				
Enterprises/brands	144	0.8%	0.4%									Search engines	2	0.4%	0.4%				
Disaster prevention/crime prevention/medical care	503	2.7%	0.1%									Decorative mail	30	5.3%	3.0%				
DCMX	53	0.3%										Mail magazines	4	0.7%	0.7%				
"iD"	150	0.8%										E-mail	5	0.9%	1.1%				
Mobile phone manufacturers	325	1.7%	0.1%									Manufacturers	1	0.2%	0.2%				
Kids' iMenu	25	0.1%										Wireless LAN/tools	8	1.4%	1.3%				
Local menu	9	0.0%	1.1%									Government	29	5.1%	0.0%				
Town information/government			2.1%																
English	54	0.3%	0.3%																
Others	262	1.4%	1.1%	Others		-	0.3%	Others	3	0.0%	0.1%	Others	29	5.1%	0.0%	Others	14	7.0%	0.0%
	18,729	100.0%	100.0%		11,562	100.0%	100.0%		6,292	100.0%	100.0%		563	100.0%	100.0%		201	100.0%	100.0%

(Source) Ministry of Internal Affairs and Communications

2. Analysis of status with competition

(1) Number of business operators

At present mobile phone services are being provided by four MNOs (Mobile Network Operators), namely NTT DOCOMO, KDDI (including Okinawa Cellular), SoftBank Mobile, and EMOBILE.

PHS services are only being provided by two business operators [1], namely WILLCOM and K-Opticom, the latter which only provides data communication services.

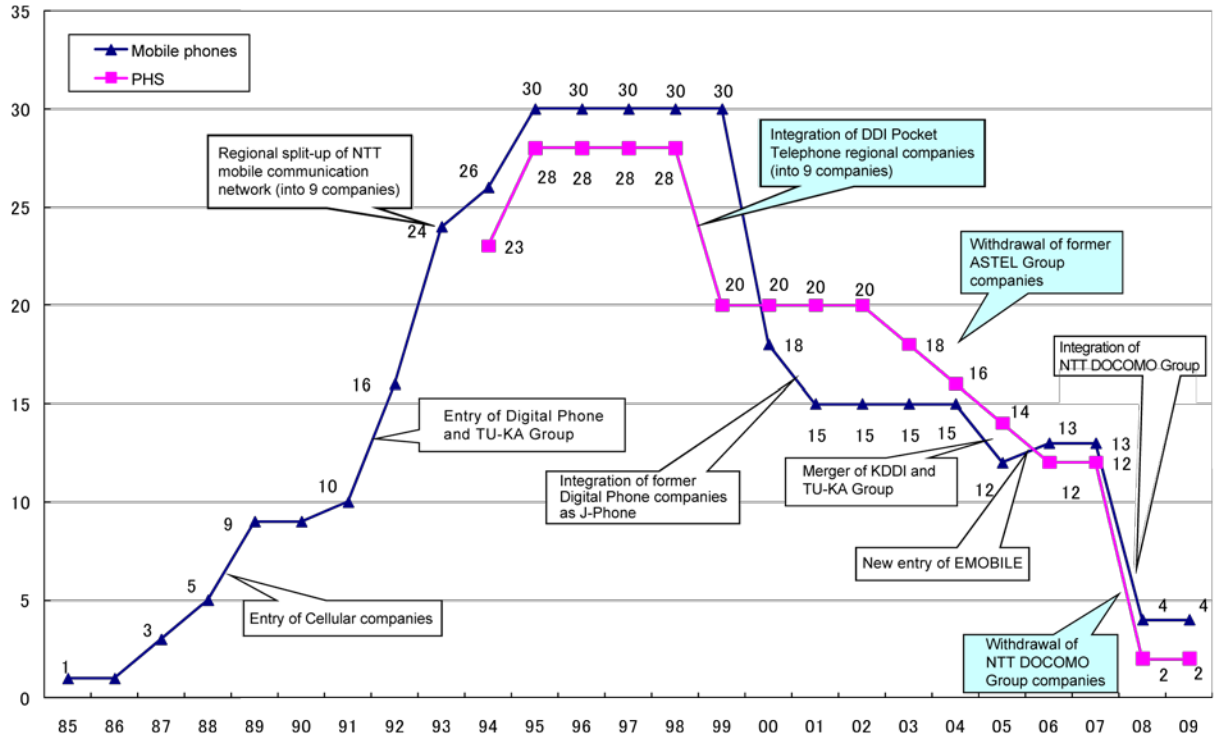
In addition, MVNOs (Mobile Virtual Network Operators) that provide mobile communications services as their own brand but using networks provided by MNOs are starting to emerge[2].

[1] WILLCOM Okinawa is not included because it only involves the resale of WILLCOM services.

[2] "Guidelines concerning Application of the Telecommunications Business, Law and the Radio Law pertaining to MVNOs" formulated by the Ministry of Internal Affairs and Communications define MNOs and MVNOs to be as follows.

- An MNO is defined as being a business operator that engages in the telecommunications business which provides mobile communications services as telecommunications services (hereinafter simply referred to as "mobile communications business") and establishes by itself (including acquisition of licensee's position, etc. for established radio stations; hereinafter the same) or operates ratio stations for the said mobile communications services.
- An MVNO is defined as being a business operator that [1] provides mobile communications services by using or connecting to mobile telecommunications services provided by an MNO and [2] does not establish by itself or operate radio stations for the said mobile communications services.

[Figure II-12 Changes in number of business operators]



(Note) *1 - Figures indicate the number of business operators as of the end of the respective fiscal year.
*2 - Companies within a group are regarded as one company.
*3 - WILLCOM and WILLCOM Okinawa are regarded as one company.
*4 - Okinawa Cellular and KDDI are regarded as one company.

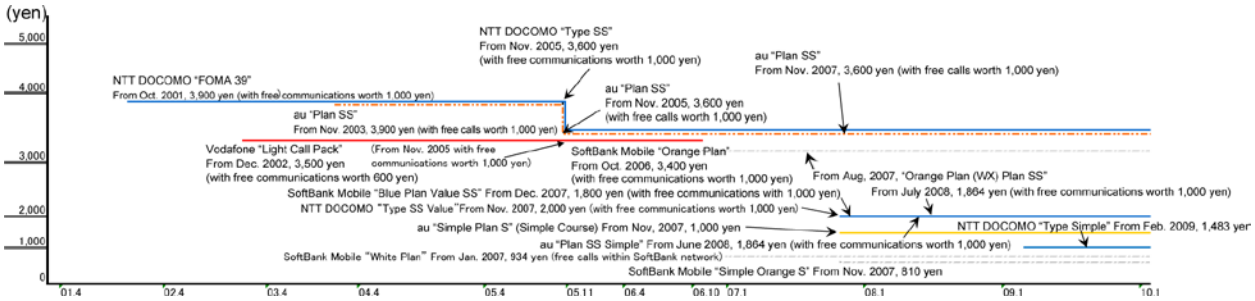
(2) Fees

1) Fees

[1] Basic charges

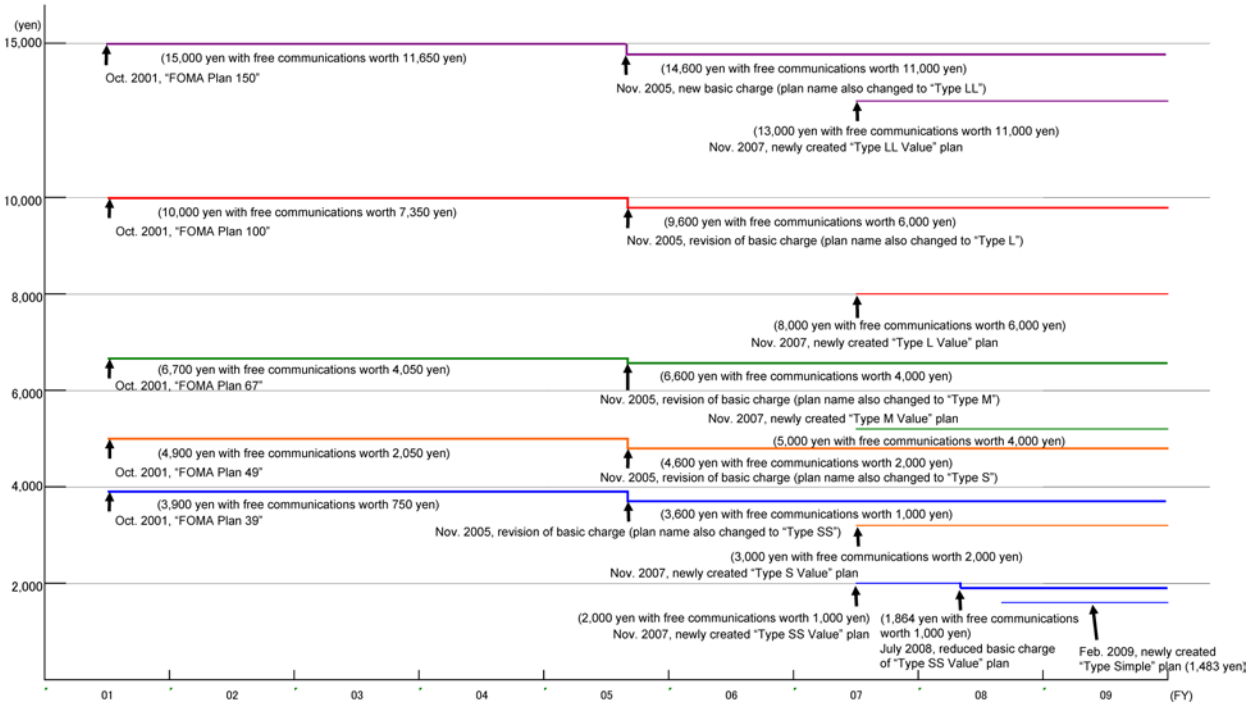
Basic charges for mobile phones are becoming more diverse as fee plans with an amount equivalent to the sales incentive deducted are being introduced.

[Figure II-13 Changes in basic charge for 3G mobile phones]



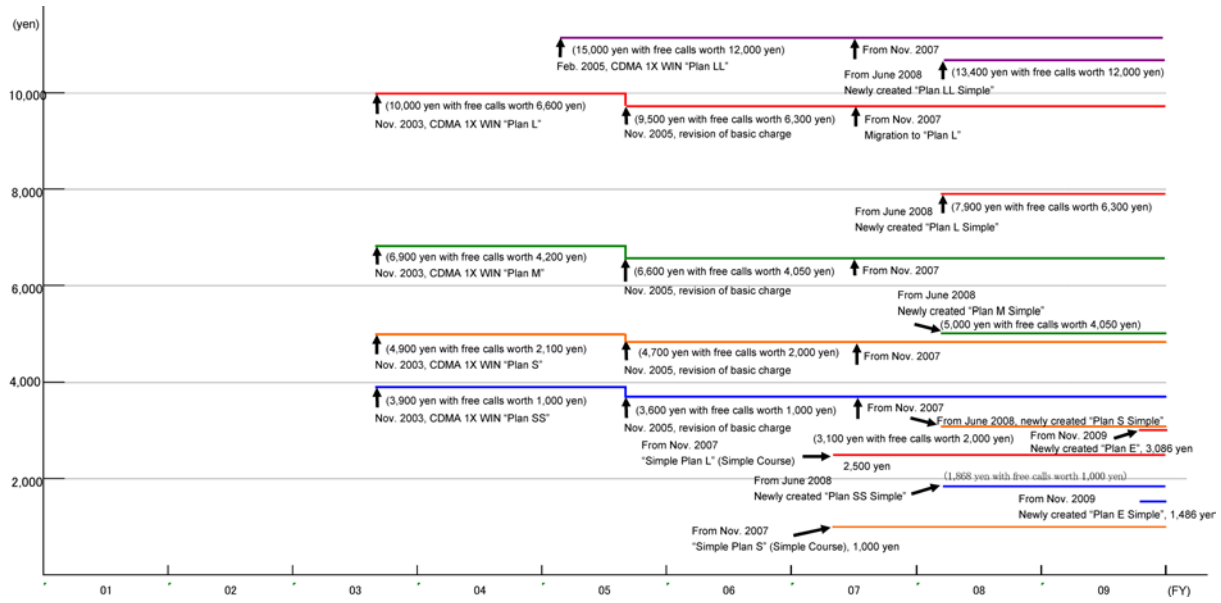
(Note 1) Basic charges for light users of respective business operators are compared here.
(Note 2) Excluding various discount services.
(Note 3) Fee structures of FOMA and mova of NTT DOCOMO were integrated in November 2005 , excluding packet communication charges.
(Source) Brochures and websites of respective business operators

[Figure II-14 Basic charges for NTT DOCOMO (3G, excluding tax)]



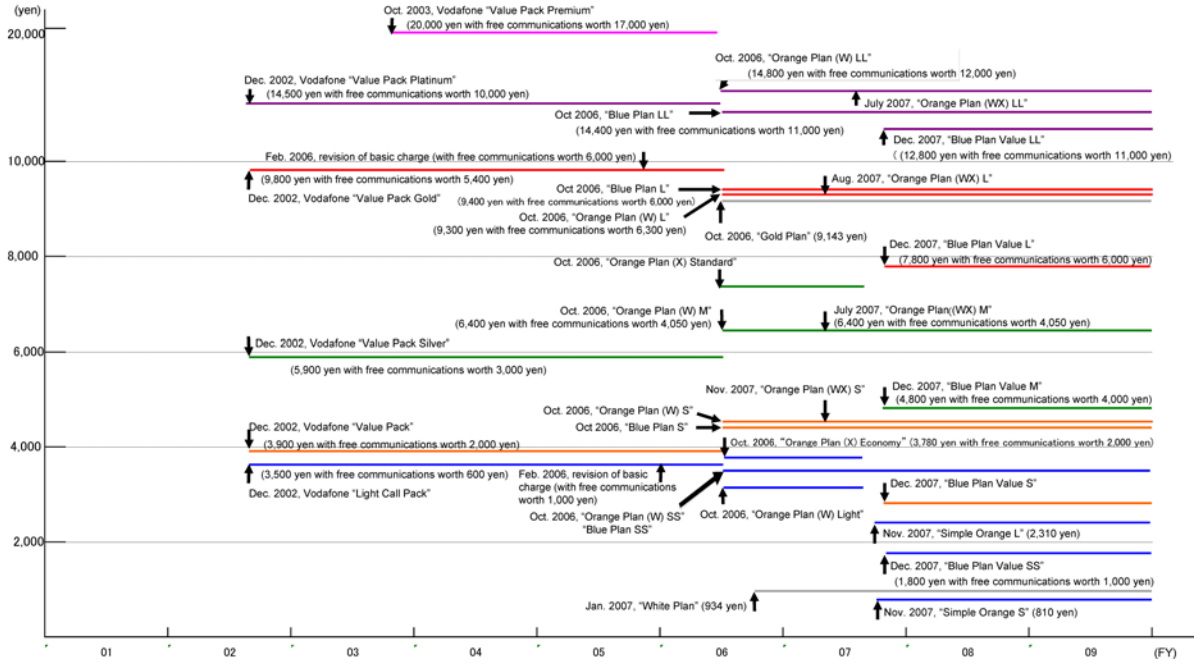
(Source) Brochures and websites of respective business operators

[Figure II-15 Basic charges of KDDI (including Okinawa Cellular) (3G, excluding tax)]



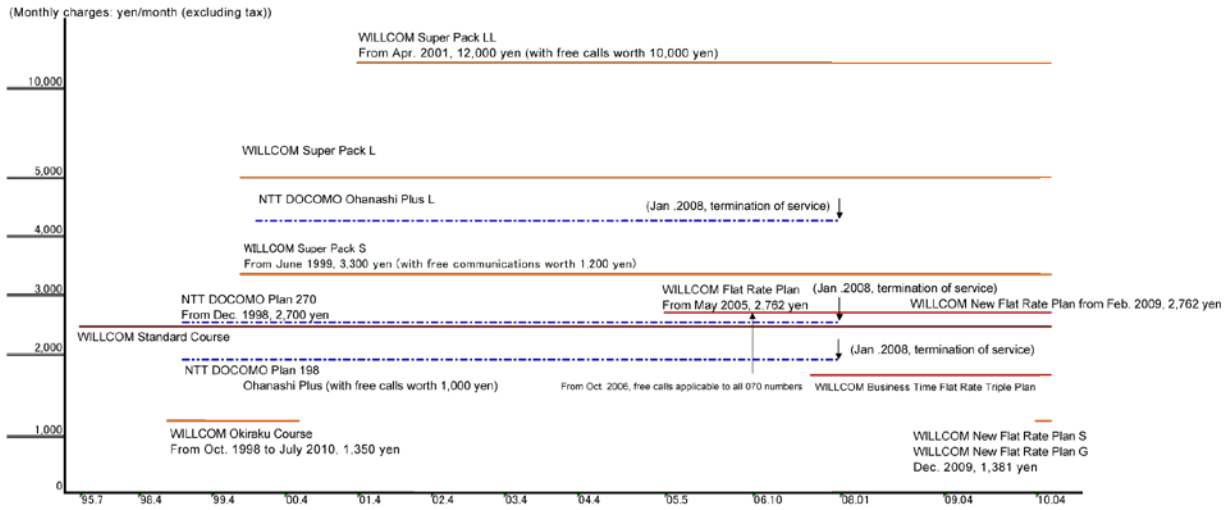
(Source) Brochures and websites of respective business operators

[Figure II-16 Basic charges of SoftBank Mobile (3G, excluding tax)]



(Source) Brochures and websites of respective business operators

[Figure II-17 Changes in basic charges for PHS]

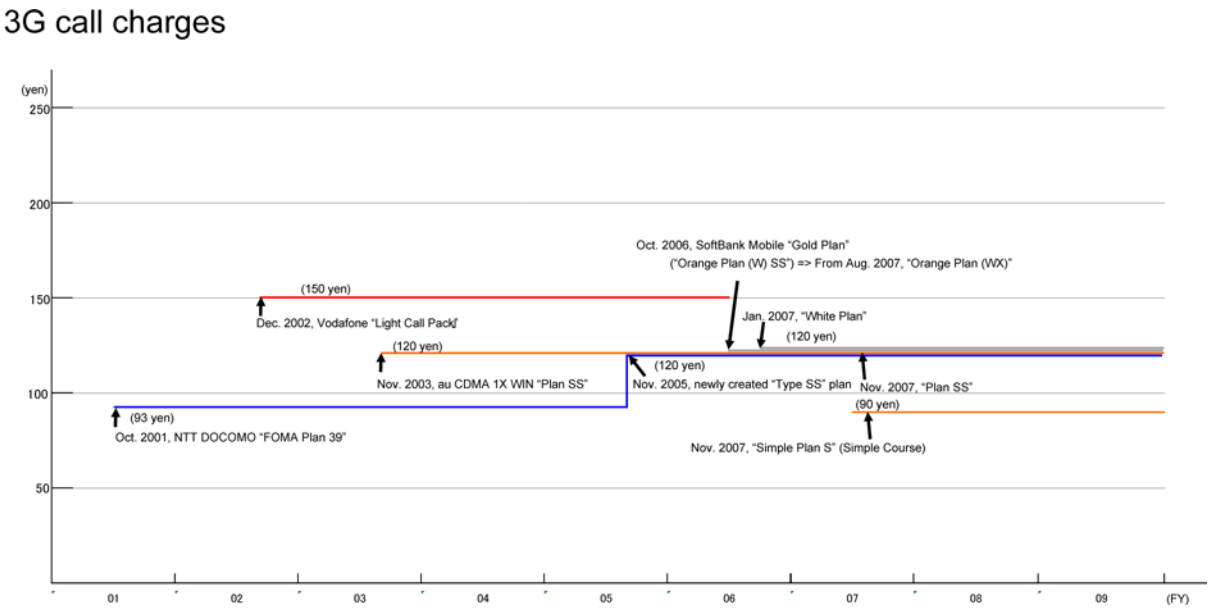


(Source) Brochures and websites of respective business operators

[2] Call charges

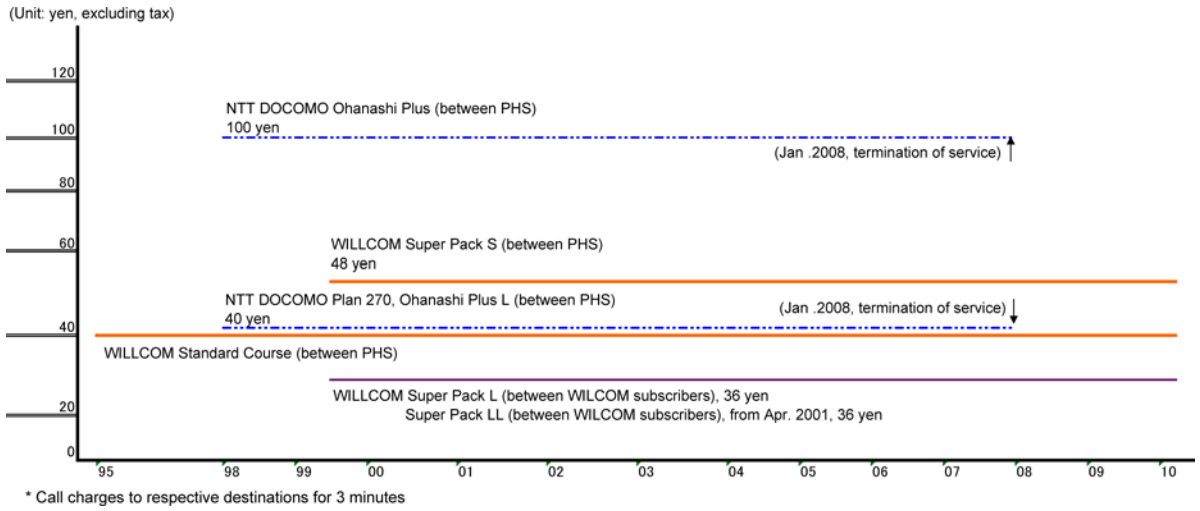
No significant change was observed in the level of call charges after they were revised as part of the revision of basic charges that took place in November 2005 when local calls to subscriber telephones on weekdays in the daytime are compared. However, more discount services have been provided as described below, including free calls between subscribers of the same business operators and free calls between family members.

[Figure II-18 Call charges for mobile phones (local call to subscriber telephones on weekdays in daytime for 3 minutes, excluding tax)]



(Source) Brochures and websites of respective business operators

[Figure II-19 Call charges of PHS (local call to subscriber telephones on weekdays in daytime for 3 minutes, excluding tax)]



(Source) Brochures and websites of respective business operators

[3] Discount services

Various discount services have continued to be provided by the different business operators but they have tended to be very similar.

[Figure II-20 Major discount services]

Discount service		NTT DOCOMO	au	SoftBank Mobile					
				Blue Plan	Blue Plan Value	Orange Plan (WX)	Simple Orange	Gold Plan	White Plan
Prerequisite	Handset sales method	**Basic Course: with sales incentive.** Purchase support covers 15,750 yen (including tax). Cancellation fee calculated by multiplying 630 yen (including tax) by the number of months remaining required if a subscriber upgrades their handset or cancels their contract within 2 years. **Value Course: no sales incentive.** Basic charge 1,736 yen (866 yen after various discounts are applied) less than that of Type SS Basic Plan. * Same discount service applicable with Basic Course and Value Course.	**Full Support Course: with sales incentive.** • Purchase support covers 21,000 yen (including tax). • Cancellation fee determined according to the number of months remaining in the contract required if a subscriber changes their handset or cancels their contract during the full support period (within 2 years). • Cancellation fee is as follows (prices include tax, revised on December 2009). • Revised cancellation fee applicable from December 2009 also applicable to those who subscribed to the service before December 2009. • Month subscription entered counts as 1st month. [1st month to 6th month 21,000 yen, 7th month to 12th month 16,800 yen, 13th month to 18th month 12,600 yen, 19th month to 24th month 6,300 yen, and 25th month on 0 yen] • au points (4% to 7% depending on the usage charge) can be appropriated as full support cancellation charge. **Simple Course: no sales incentive.** • "Simple Course Rate Plan" with the same free calls allowance and less basic charge can be selected (other plans also available). • 2 monthly points granted for each 100 yen of usage charge. • Various basic charge discounts not applicable with Simple Course.	New Super Bonus: Instalment sales method. A specific discount on basic charge, call charge, and communication charge, etc. is granted when a new SoftBank user or new Super Bonus subscriber purchases a handset at the New Super Bonus special price. In addition, cancellation fees for long-term subscription discounts, etc. are exempt.					
	Call charges	Compliance with the selected plan	Compliance with the selected plan	Compliance with the selected plan	Compliance with the selected plan	Compliance with the selected plan	Compliance with the selected plan	Free calls to SoftBank mobile phones between 1:00 and 21:00. * Free calls to SoftBank mobile phones of up to 200 minutes per month (21:00 to 1:00) * 21 yen (including tax) / 30 sec. for other than above	Free calls to SoftBank mobile phones between 1:00 and 21:00. * 21 yen (including tax) / 30 sec. for other than above
	E-mail communication charges	Compliance with the selected packet discount service	Compliance with the selected plan	Compliance with the selected plan	Compliance with the selected plan	Compliance with the selected plan	Compliance with the selected plan	Free of charge between SoftBank mobile phones	Free of charge between SoftBank mobile phones
Long-term subscription discount (1) * Per year contract	Discount rate of basic charges (from the first year to over 10th year at maximum)	10% to 25% (10% off the 1st year, 12% off the 2nd year, 14% off the 4th year, 20% the 6th year, and 25% off 10th year and over)	10% to 25% (15% the 1st year, additional 1% the following year, up to 25% 11th year on)	10% to 25%	10% to 25%	15% to 25% (* Orange WX) 15% to 35% (* 4th year on for Kids & Senior Plan)	-	37% to 70%	-
Long-term subscription discount (2) * Per 2 years contract	Discount rate of basic charges	50%	50%	50%	50%	50% to 52.9% (* Compliance with New Individual Discount)	-	-	-
Note on long-term subscription discount		Long-term subscription discount (1): New Ichinen Discount Long-term subscription discount (2): Hitoridemo Discount50	Long-term subscription discount (1): One-Year Discounted Subscription Long-term subscription discount (2): Everybody Discount	Long-term subscription discount (1): 1 Year Discount Long-term subscription discount (2): Individual Discount 50	Long-term subscription discount (1): 1 Year Discount Long-term subscription discount (2): Individual Discount 50	Long-term subscription discount (1): Yearly Discount Long-term subscription discount (2): New Individual Discount	-	-	-
Family discount (1)	Discount rate of basic charges	25%	25%	25%	25%	25%	25%	* Per year contract required	-
	Discount rate of basic charges * In case of per year contract	35% to 50% (* combined with New Ichinen Discount)	36.5% to 50% (* Combined with One-Year Discounted Subscription)	35% to 50% (* Combined with 1 Year Discount)	35% to 50% (* Combined with 1 Year Discount)	37% to 50% (* Orange WX) 36% to 52% (* 4th year on for Kids & Senior Plan) (* Combined with Yearly Discount)	Up to 50% (* Combined with Yearly Discount)	37% to 70%	-
	Call charges between family members	30% discount (voice calls, domestic video phone)	30% discount 60% if combined with designated number discount	30% discount	30% discount	30% discount	30% discount	-	Free of charge (* White Plan Family Discount 24)
	E-mail communication charges between family members	Free of charge (* i-mode mail only)	Free of charge (* C-mail only)	Free of charge (* S! mail, Sky Mail, and Long Mail only)	Free of charge (* S! mail, Sky Mail, and Long Mail only)	Free of charge (* SMS, Sky Mail, and Long Mail only)	Free of charge (* SMS, Sky Mail, and Long Mail only)	-	
Family discount (2) * Per 2 years contract	Discount rate of basic charges	50%	50% (* Compliance with Everybody Discount)	50%	50%	50% to 52.9% (* Compliance with New Individual Discount)	-	-	
	Call charges between family members	Free of charge (voice calls) 60% (domestic video phone)	Free of charge (voice calls) 60% (video phone) (* Combined with Family Discount and Everybody Discount (or Smile-heart Discount))	30% discount (call charges, Video Call)	30% discount (call charges, Video Calls)	30% discount (* Combining Family Discount and New Individual Discount)	-	-	
	E-mail communication charges between family members	Free of charge (* i-mode mail only)	Free of charge (* C-mail only) (* Combined with Family Discount and Everybody Discount (or Smile-heart Discount))	Free of charge (* S! mail, Sky Mail, and Long Mail only)	Free of charge (* S! mail, Sky Mail, and Long Mail only)	Free of charge (* SMS, Sky Mail, and Long Mail only)	-	-	
Note on family discount		Family discount (1): Family Discount Family discount (2): Fami-wari MAX50	Family discount (1): Family Discount Family discount (2): Combination of long-term subscription discount (2) and family discount (1)	Family discount (1): Family Discount Family discount (2): Family Discount MAX50	Family discount (1): Family Discount Family discount (2): Family Discount MAX50	Family discount (1): Family Discount Family discount (2): Combining long-term subscription discount (2) and family discount (1)	Family discount (1): Family Discount	-	
Kids/senior discount	Basic charges	1,575 yen (including tax) (* Fami-wari Wide) 735 yen (including tax) (* Fami-wari Wide Value) (The above price applies when combined with family discount to junior high school students or younger, and those aged 60 or older)	1,575 yen (including tax) (* Wide Support, CDMA 1X only) (The above price applies to junior high school students or younger and those aged 60 or older when Everybody Discount (or One-Year Discounted Subscription) and Family Discount are combined)) (No new acceptances after August 9, 2009)	1,470 yen (including tax) (* Kids & Senior Discount) (The above price applies when 1 Year Discount and Family Discount are combined to junior high school students or younger and those aged 60 or older)	1,470 yen (including tax) (* Kids & Senior Discount) (The above price applies when 1 Year Discount and Family Discount are combined to junior high school students or younger and those aged 60 or older)	1,478 yen (including tax) (* Kids & Senior Discount) (The above price applies when Yearly Discount and Family Discount are combined to junior high school students or younger and those aged 60 or older)	-	-	
Student discount	Details	-	50% discount (Basic charge, call charges (to subscribers of au), C-mail) 20% discount (Call charges (to subscribers of other business operators)) (* Student Discount) (No new acceptances after August 9, 2009)	-	-	50% discount (Basic charge, call charges (to subscribers of au), e-mail) 20% discount (Call charges (to subscribers of other business operators)) (* Student Discount)	-	-	Free of charge (Basic charge, e-mail between SoftBank mobile phones) (* White Plan Student Discount)
Discount for persons with disabilities	Details	60% discount (Basic charge, additional function charges) (* Hearty Discount)	50% discount (Basic charge, call charges (to subscribers of au), C-mail) 20% discount (Call charges (to subscribers of other business operators)) (* Smile-heart Discount)	50% discount (Basic charge, various procedures) (* Heart friend Discount)	50% discount (Basic charge) Free of charge (Administrative procedure) (* Heart friend Discount)	50% discount (Basic charge, call charges (to subscribers of au), e-mail) 20% discount (Call charges (to subscribers of other business operators)) (* Heart friend Discount)	50% discount (Basic charge, call charges (to subscribers of au), e-mail) 20% discount (Call charges (to subscribers of other business operators)) (* Heart friend Discount)	-	
Designated number discount	Discount rate of call charges	30% (Calls to NTT DOCOMO mobile phones, international calls using WORLD CALL) 10% (Calls to mobile phones of other business operators, calls to fixed telephones) (* 5 domestic numbers and 2 international numbers at maximum) (*Yu Yu Call Discount)	50% discount (Call charges, Video Phone call charges (excluding group Video Phone calls)) (Calls to mobile phones of au, calls to fixed telephones) (* 3 numbers at maximum) (* Call Designation Discount)	30% (Calls to SoftBank mobile phones, international calls using SoftBank International Call Service) 10% (Calls to mobile phones of other business operators, calls to fixed telephones) (* 5 domestic numbers and 2 international numbers at maximum)	30% (Calls to SoftBank mobile phones, international calls using SoftBank International Call Service) 10% (Calls to mobile phones of other business operators, calls to fixed telephones) (* 5 domestic numbers and 2 international numbers at maximum)	50% (Calls to mobile phones of au, calls to fixed telephones) (* 3 numbers at maximum)	50% (Calls to mobile phones of au, calls to fixed telephones) (* 3 numbers at maximum)	-	
Others (major discount)		* Carry over: Up to 2 months (applies to free communication and free packet portions of the charge plan, including Packet Pack (no new acceptance), unused portion remaining after 2 months can also be shared with family members if "Family Discount" applicable) * Kake-hodai: Unlimited use of PushTalk communication at a monthly charge of 1,000 yen (1,050 yen with tax included).	* Carry over: no expiration (maximum amount limited by individual plan). * au -> My Home Discount: 50% discount for calls from au mobile phone to "subscriber's home phone number". 50% discount for calls from au mobile phones to home via subscribing to KDDI fixed telephone (Metal-plus phone, HIKARI one phone, KDDI-IP phone, or Cable-plus phone, or three of more categories of MyLine Plus registered with KDDI) with au one net ADSL at home. With au Home Phone domestic calls from an au mobile phone to home are free 24 hours a day. * Talk & Discount: If monthly call charges exceed 10,000 yen an automatic discount is applicable (up to 32% discount of call charges if au long-term discount services are also applicable).	* Carry over: up to 2 months (maximum amount limited by free communications allowance for up to two months).	* Carry over: up to 2 months (maximum amount limited by free communications allowance for up to two months).	* Carry over: no expiration (maximum amount limited by plan). * Long-Term Discount: 5% (2nd year) to 15% (5th year on) discount on basic charge. No application required. * Calling Home Discount: 50% discount on calls to "BB phone" or "Otoku Line" at home.	* Calling Home Discount: 50% discount on calls to "BB phone" or "Otoku Line" at home.	-	* Double White: 50% discount on White Plan call charges on calls to mobile phones of other business operators and calls to SoftBank mobile phones between 21:00 and 1:00. * White Plan Family Discount 24: free calls to family members 24 hours a day. * White Plan Student & Family Discount: free domestic calls between 1:00 and 21:00 and free e-mail 24 hours a day to SoftBank mobile phones. * White Call 24: free domestic calls from SoftBank mobile phones with White Plan subscriptions to IP telephone services provided by SoftBank BB, etc.

(Note) As of the end of May 2010

[4] Packet charges

No significant change has been observed in the structure and level of packet fees.

[Figure II-21 Packet charges of respective business operators (3G mobile phones)]

Plan	NTT DOCOMO	au	SoftBank Mobile
Packet charges	FOMA 0.2 yen/packet	CDMA 1X WIN 0.2 yen/packet	0.2 yen/packet (* Blue/Gold/White) 0.1 yen/packet (* Orange)

* Packet charges with basic charge plan for voice calls.
(Source) Brochures and websites of respective business operators

[Figure II-22 Major packet charge discount services (3G mobile phones)]

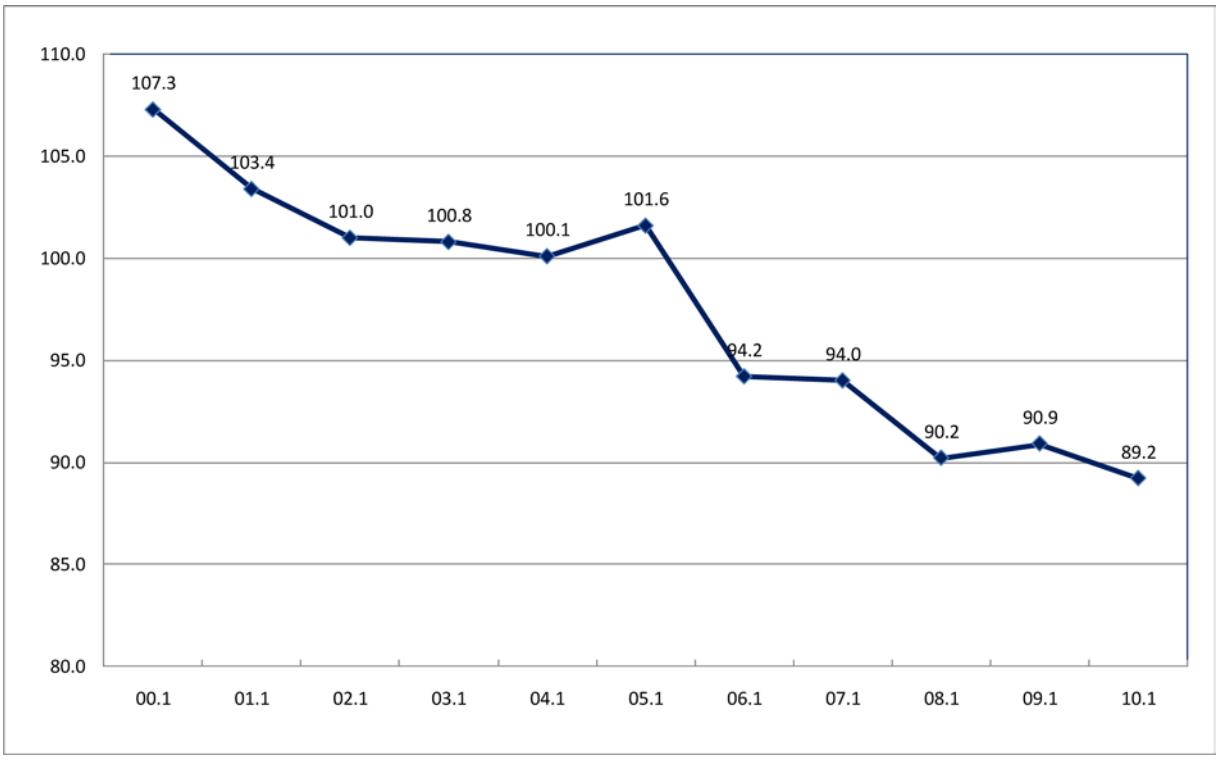
Business operator	Flat rate plan		Monthly charge	Details
NTT DOCOMO	Packet Pack (no new acceptances)		Packet Pack 10 (1,000 yen) Packet Pack 30 (3,000 yen) Packet Pack 60 (6,000 yen) Packet Pack 90 (9,000 yen)	0.1 yen/packet 0.05 yen/packet 0.02 yen/packet 0.015 yen/packet
	Pake-hodai		3,900 yen (flat rate)	Unlimited i-mode usage, 0.02 yen/packet for others
	Pake-hodai double		5,700 yen (flat rate)	i-mode Full Browser flat rate service
	Pake-hodai simple		5,700 yen (flat rate)	i-mode Full Browser flat rate service
	Biz-hodai		5,700 yen (flat rate)	FOMA packet communications other than i-mode free of charge
	Push Talk flat rate (Kake-Hodai)		1,000 yen (flat rate)	Free use of “Push Talk”, which enables single-direction voice communications between multiple persons using FOMA packet communications network.
NTT DOCOMO	Pake-hodai double		372 yen/month (flat rate charge = free communications)	[Upper limit] • i-mode: 4,200 yen/month • i-mode Full Browser: 5,700 yen/month • Packet communications with connection to PC/PDA: 13,000 yen/month [Packet charges] • 0.08 yen/packet up to 5,700 yen • 0.02 yen/packet for over 5,700 yen
	Biz-hodai double		372 yen/month (flat rate charge = free communications)	[Upper limit] • Biz-hodai flat rate support: 5,700 yen/month for communications via access points • i-mode, i-mode Full Browser, communication via connection to PCs and other external devices: 13,000 yen/month [Packet charges] • 0.08 yen/packet up to 5,700 yen • 0.02 yen/packet for over 5,700 yen
	Push Talk flat rate • Kake-hodai • Push Talk plus		1,000 yen (flat rate) 2,000 yen (flat rate)	Free use of “Push Talk”, which enables single-direction voice communications between multiple persons using FOMA packet communications network.
au	Double-Teigaku-Light		1,000 yen (used for free communications)	Packet communication charges: 0.08 yen/packet Maximum charge for EZweb and e-mail: 4,200 yen
	Double-Teigaku		2,000 yen (used for free communications)	Packet communication charges: 0.05 yen/packet Maximum charge for EZweb and e-mail: 4,200 yen
	Packet Discount WIN Middle		4,000 yen (used for free communications)	Packet communication charges: 0.025 yen/packet Maximum charge for EZweb and e-mail: 4,200 yen
	Packet Discount WIN Super		7,500 yen (used for free communications)	Packet communication charges: 0.015 yen/packet Maximum charge for EZweb and e-mail: 4,200 yen
au	Double-Teigaku-Super Light		372 yen/month (used for free communications)	Packet communication charges: 0.1 yen/packet Maximum charge for EZweb and e-mail: 4,200 yen/month Maximum charge for PC Site Viewer, EZweb, and e-mail: 5,700 yen/month Maximum charge for connection to mobile PCs, PDAs, or car navigation systems, PC Site Viewer, EZweb, and e-mail: 13,650 yen/month
	Double-Teigaku-Light		1,000 yen/month (used for free communications)	Packet communication charges: 0.08 yen/packet Maximum charge for EZweb and e-mail: 4,200 yen/month Maximum charge for PC Site Viewer, EZweb, and e-mail: 5,700 yen/month Maximum charge for connection to mobile PCs, PDAs, or car navigation systems, PC Site Viewer, EZweb, and e-mail: 13,650 yen/month
	Double-Teigaku		2,000 yen/month (used for free communications)	Packet communication charges: 0.05 yen/packet Maximum charge for EZweb and e-mail: 4,200 yen/month Maximum charge for PC Site Viewer, EZweb, and e-mail: 5,700 yen/month Maximum charge for connection to mobile PCs, PDAs, or car navigation systems, PC Site Viewer, EZweb, and e-mail: 13,650 yen/month
	Packet Discount		1,000 yen/month (used for free communications)	The flat rate includes full use free of communication charges. Packet communication charges 0.1 yen/packet all day.
SoftBank Mobile	Unlimited Packet Discount	E-mail, Web use	980 yen (used for free communications)	Packet communication charges: 0.08 yen/packet Maximum charge for e-mail and Yahoo! Keitai: 4,200 yen
		PC Site Browser/PC Mail	980 yen (used for free communications)	Maximum charge for e-mail, Yahoo! Keitai, viewing PC websites: 5,700 yen * Limited to specific handsets
		PC Site Direct	980 yen (used for free communications)	Maximum charge for e-mail and viewing PC websites: 9,334 yen * Limited to specific handsets
	Others: Packet Flat-rate (Blue Plan) Packet Flat-rate Full (Blue Plan) Packet Flat-rate Biz (Blue Plan) Packet Discount (Blue Plan) Packet Flat-rate (Orange Plan (WX)) Packet Flat-rate Light (Orange Plan (WX))		• “Packet Flat-rate”, “Packet Flat-rate Full”, “Packet Flat-rate Biz”, and “Packet Discount” in Blue Plan: same rate and content as “Pake-hodai”, “Pake-hodai full”, “Biz-hodai”, and “Packet Pack” of NTT DOCOMO * No new acceptances for “Packet Flat-rate Full” and “Packet Flat-rate Biz” after March 31, 2008. • “Packet Flat-rate” and “Packet Flat-rate Light” in Orange Plan: same rate and content as “Double-Teigaku” and “Double-Teigaku-Light” of au	
SoftBank Mobile	Unlimited Packet Discount		980 yen/month (used for free communications)	Packet communication charges: 0.08 yen/packet Maximum charge for regular use: 4,200 yen Maximum charge for PC Site Viewer: 5,700 yen * Limited to specific handsets (3G users (excluding X Series))
	Unlimited Packet Discount S		372 yen/month (used for free communications)	Packet communication charges: 0.1 yen/packet Maximum charge for regular use: 4,200 yen Maximum charge for PC Site Viewer: 5,700 yen * Limited to specific handsets (3G users (excluding X Series))
	Unlimited Packet Discount for SMARTPHONE		980 yen/month (used for free communications)	Packet communication charges: 0.08 yen/packet Maximum charges: 5,700 yen * Limited to specific handsets (X Series and iPhone users)
	Unlimited Packet Discount Flat		4,200 yen/month (flat rate)	PC Site Viewer: 5,700 yen/month

(Source) Brochures and websites of respective business operators

[5] Changes in Consumer Price Index (CPI)

The Consumer Price Index (2005-base) of mobile phone communication charges[3] has been on a downward trend. Respective business operators offer various charge plans but overall mobile communications service fees can be considered to have been generally decreasing.

[Figure II-23 Changes in Consumer Price Index (2005-base) of mobile phone communication charges]



(Source) Ministry of Internal Affairs and Communications

2) Data communication services using data communication cards

Increased use of wireless internet connections has led to the number of subscriptions of data communication services using data communications cards having significantly increased to approximately 3.13 million[4] including those provided by MVNOs as of the end of September 2009.

[3] Calculated as the weighted average of communication charges of the top three business operators with the largest number of subscriptions (NTT DOCOMO, KDDI, and SoftBank Mobile) by the number of subscriptions for respective business operators/systems (2G and 3G). Refer to the website of Statistics Bureau, Ministry of Internal Affairs and Communications (http://www.stat.go.jp/data/cpi/4.htm) for more details.

[4] Based on a provider-side survey of the Competition Review.

[Figure II-24 Outline of major data communication services provided by mobile phone business operators]

	Maximum speed (*1)	Plan (*2)	Basic charge (excluding tax) (*4)	Free communications/packets (*5)	Packet communication charges	Digital communication charges (64K data communications, video phones, etc.)	Note
NTT DOCOMO	• Packet communications: Receiving: up to 7.2 Mbps Sending: up to 5.7 Mbps • 64 K data communications: Up to 64 kbps	Data Plan SS	1,800 yen	None	0.1 yen/packet	30 yen/30 sec.	25% discount on basic charge if Family Discount applicable
		Data Plan S Packet Plus	2,900 yen	Equivalent to 5,000 yen/100,000 packets	0.05 yen/packet		
		Data Plan M Packet Plus	5,200 yen	Equivalent to 9,000 yen/450,000 packets	0.02 yen/packet		
		Data Plan L Packet Plus	7,400 yen	Equivalent to 18,000 yen/1,200,000 packets	0.015 yen/packet		
		Data Plan LL Packet Plus	13,900 yen	Equivalent to 30,000 yen/2,500,000 packets	0.012 yen/packet		
		Data Plan SS Value	1,100 yen	None	0.1 yen/packet		
		Data Plan S Value	2,200 yen	Equivalent to 5,000 yen/100,000 packets			
		Data Plan M Value	4,500 yen	Equivalent to 9,000 yen/450,000 packets			
		Data Plan L Value	6,700 yen	Equivalent to 18,000 yen/1,200,000 packets			
		Data Plan LL Value	13,200 yen	Equivalent to 30,000 yen/2,500,000 packets			
	Sending/receiving: up to 64 Kbps	Flat-rate Data Plan 64K	4,000 yen	-	0.02 yen/packet		
	Receiving: up to 7.2 Mbps Sending: up to 5.7 Mbps	Flat-rate Data Plan Standard	2,735 to 10,500 yen		0.042 yen/packet		Monthly usage charge after application of "Flat-rate Data Standard discount": 1,735 to 6,720 yen
		Flat-rate Data Plan HIGH-SPEED	4,000 to 10,000 yen		0.012 yen/packet		Monthly usage charge after application of "Flat-rate Data discount": 4,000 to 6,400 yen
	Sending/receiving: up to 64 Kbps	Flat-rate Data Plan 64K Value	3,300 yen	-	0.02 yen/packet		
	Receiving: up to 7.2 Mbps Sending: up to 5.7 Mbps	Flat-rate Data Plan Standard Value	2,000 to 9,765 yen		0.042 yen/packet		Monthly usage charge after application of "Flat-rate Data Standard discount": 1,000 to 5,985 yen
		Flat-rate Data Plan HIGH-SPEED Value	3,300 to 9,300 yen		0.012 yen/packet		Monthly usage charge after application of "Flat-rate Data discount": 330 to 5,700 yen
au	• Packet communications: Receiving: up to 2.4 Mbps Sending: 144 kbps • 64 K data communications: Up to 65 kbps	WIN Single SS	1,500 yen		0.1 yen/packet		Up to over 30% discount on basic charge with "Set Discount" when used in combination with an au phone.
		WIN Single S	2,500 yen	1,000 yen/12,500 packets	0.08 yen/packet		
		WIN Single M	5,500 yen	11,250 yen/450,000 packets	0.025 yen/packet		
		WIN Single L	8,000 yen	18,000 yen/1,200,000 packets	0.015 yen/packet		
		WIN Single LL	11,800 yen	24,000 yen/2,000,000 packets	0.012 yen/packet		
		WIN Module Plan S	800 yen	120 yen/800 packets	0.15 yen/packet		With the 1x Module Plan S/M and WIN Module Plan S/M a discount service for the basic charge according to the number of contracted lines under a comprehensive line group and the term of service agreed on beforehand is available.
		WIN Module Plan M	1,600 yen	960 yen/8,000 packets	0.12 yen/packet		
	• Packet communications: Receiving: up to 3.1 Mbps Sending: 1.8 Mbps	WIN Single-Teigaku (Simple)	2,100 yen		0.05 yen/packet	1,800 to 5,700 yen* 2,700 to 6,600 yen*	* After application of WIN Single Set Discount
		WIN Single-Teigaku (Full Support)	3,000 yen		0.05 yen/packet		
SoftBank Mobile	• Packet communications (*3): Receiving: up to 3.6 Mbps Sending: up to 384 kbps • 64 K data communications:	Data Value Pack Regular	5,800 yen	8,000 yen/320,000 packets	0.026 yen/packet	80 yen / min. * 60 yen / min. 40 yen / min.	15% discount with application of "Yearly Discount" for Value Pack and 25% discount with application of "Two-year Discount". * Charges for connection to Access Internet (Access Point *7300) using 64K Digital Data Communication Service are 1.8 times the charges on the left
		Data Value Pack Middle	8,000 yen	22,500 yen/1,500,000 packets	0.016 yen/packet		
		Data Value Pack Super	10,600 yen	42,000 yen/3,500,000 packets	0.013 yen/packet		
EMOBILE (*7)	• Packet communications: Receiving: up to 7.2 Mbps Sending: up to 384 kbps	Super Light Data Plan	1,905 yen (5,695 yen) *7	952 yen/23,825 packets	0.04 yen/packet		* Basic charges with "Annual Discount"and "Shin Ninen" are 1,000 yen (including tax) less than the basic charges on the left ("Basic" and "Ninen"). Figures in parenthesis indicate maximum charge.
		Light Data Plan *8	2,838 yen (6,171 yen) *7	934 yen/93,400 packets	0.01 yen/packet		
		Value Data Plan	3,790 yen (6,648 yen) *7	24,575 yen/2,457,600 packets	0.01 yen/packet		
		Giga Data Plan	4,743 yen (10,457 yen) *7	83,887 yen/8,388,700 packets	0.01 yen/packet		
		Data Plan	5,696 yen *7		Unlimited use		
	• Packet communications: Receiving: up to 7.2 Mbps Sending: up to 384 kbps	Super Light Data Plan 21	1,905 yen (6,648 yen) *7	952 yen/23,825 packets	0.04 yen/packet		Figure in parenthesis indicate maximum charge
		Value Data Plan 21	4,743 yen (7,600 yen) *7	24,575 yen/2,457,600 packets	0.01 yen/packet		
		Giga Data Plan 21	5,695 yen (7,600 yen) *7	83,887 yen/8,388,700 packets	0.01 yen/packet		
		Data Plan 21	6648 yen *7		Unlimited use		

*1 The above data is based on best effort method
*2 Charge plans for NTT DOCOMO are for both voice handsets and data communications cards whereas the charge plans for au, SoftBank Mobile, and EMOBILE are for data communications cards
*3 When the 3G data communications card C01SI (Compact Flash type data communications card by SoftBank Mobile) is used
*4 Charges before application of various discounts
*5 Free calls apply to packet-based communications only
*6 Flat rate plans of NTT DOCOMO are limited to sending/receiving e-mails and viewing text/still images on websites.
*7 Charges of EMOBILE are rounded off to the nearest yen
*8 No new acceptances of Light Data Plan of EMOBILE after January 2010

(Note) As of the end of May 2010

[Figure II-25 Outline of major data communication services provided by PHS business operators]

	Maximum speed (*1)	Plan	Basic charge (excluding tax) (*2)	Free communications, etc. (*3)	Communication charges (*4)	Note
WILLCOM	Packet communications: receiving up to 256 kbps (408 kbps *5 *6)	Unlimited Access [PRO]	12,300 yen	Flat rate	-	Yearly subscription discount available
		Net 25 [PRO]	6,900 yen	Flat rate applies to first 25 hours. Volume charges apply with over 25 hours.	10 yen/60 sec.	
	Packet communications: receiving up to 128 kbps (204 kbps *5)	Net 25	5,400 yen	Flat rate applies to first 25 hours. Volume charges apply with over 25 hours.	10 yen/60 sec.	
	Packet communications: receiving up to 128 kbps (204 kbps *5)	Unlimited Access [4x]	9,300 yen	Flat rate	-	
	Packet communications: receiving up to 64 kbps (102 kbps *5)	Unlimited Access	5,800 yen	Flat rate	-	
	Packet communications: receiving up to 128 kbps (204 kbps *5)	Pakekomi Net	4,700 yen	Free of charge up to 200,000 packets	0.03 yen/packet	
	Circuit switching method: receiving up to 64 kbps (102 kbps *5)	Data Pack	3,000 yen	Free communications 1,200 yen/ up to 140 min.	10 yen/70 sec.	
	Circuit switching method: receiving up to 64 kbps (102 kbps *4)	Data Pack mini	1,980 yen	Free communications 1,000 yen/ up to 77 min.	15.75 yen/70 sec.	
	Packet communications: receiving up to 256 kbps (408 kbps *5 *6)	New Unlimited Access	3,695 yen	Flat rate	Free of charge	Condition of for a two year contract, with the contract being automatically renewed every two years
	PIAFS method: up to 64 kbps	Two LINK DATA	980 yen	-	10.5 yen/70 sec.*	* PIAFS communication charges (packet communications cannot be used)
K-Opticom	Circuit switching method: receiving up to 64 kbps	Full Course	3,000 yen	Flat rate	-	Maximum charges of Petit Course: 4,000 yen (excluding tax)
		Petit Course	500 yen	-	5 yen/60 sec.	
Energia Communications	Circuit switching method: receiving up to 64 kbps	MEGA EGG64	3,000 yen	Flat rate	-	• No new acceptances after February 28, 2007 • Service ended September 30, 2007

*1 The above data is based on best effort method
*2 Charges before application of various discounts
*3 With packet communications plans free communications apply to packet-based communications only
*4 With packet communications plans communication charges apply to packet-based communications only
*5 W-OAM compatible terminals
*6 Up to 512 kbps for W-OAM type G compatible terminals (up to 800 kbps in areas with optical IP networks installed at base stations)

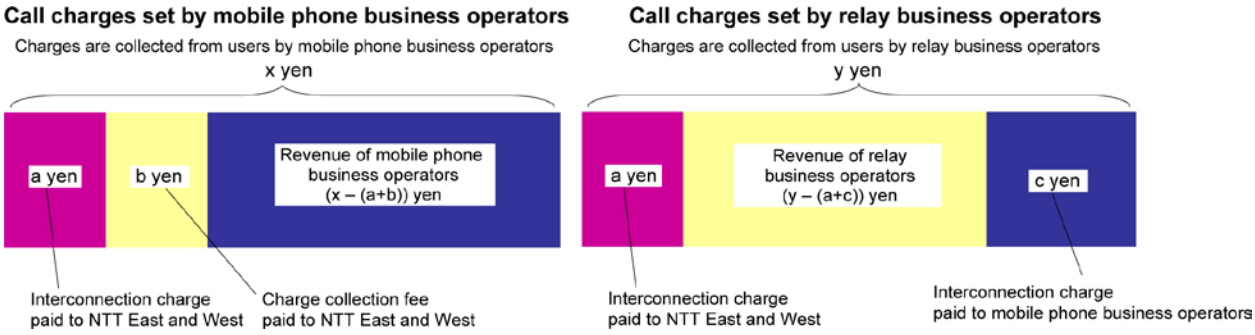
(Note) As of the end of May 2010

3) Charge level of calls from fixed telephones to mobile phones

Call charges for calls from fixed telephones to mobile phones (hereinafter referred to as "fixed-to-mobile calls") were conventionally only set by mobile phone business operators[5]. From April 2004 on[6], however, fixed telephone business operators could also set call charges for users dialling business operator recognition numbers.

Call charges set by mobile phones business operators remain higher than those set by fixed telephone business operators, with no change being observed in that trend.

[Figure II-26 Structure of fixed-to-mobile call charges (calls from subscriber telephones of NTT East and West)]



[Figure II-27 Major fixed-to-mobile call charges (set by fixed telephone business operators)]

As of the end of March 2010 (Unit: yen, excluding tax)

Fixed telephones / Mobile phones	NTT East (0036)	NTT Communications (0033)	KDDI (0077)	SoftBank Telecom (0088)	Fusion Communications (0038)
NTT DOCOMO	48	49.5	49.5	54	54
KDDI (including Okinawa Cellular)	52.5				
SoftBank Mobile	52.5				
EMOBILE	48				

In-prefecture call for 3 minutes on weekdays in daytime
Note: Not including direct access telephones.

[Figure II-28 Major fixed-to-mobile call charges (set by mobile phone business operators)]

(Unit: yen, excluding tax)

	Mar. 2000	Mar. 2001	Mar. 2002	Mar. 2003	Mar. 2004	Mar. 2005	Mar. 2006	Mar. 2007	Mar. 2008	Mar. 2009	Mar. 2010
NTT DOCOMO	110	80	80	80	70	70	70	70	70	70	70
KDDI (including Okinawa Cellular)	170	170	120	120	90	90	90	90	90	90	90
SoftBank Mobile	150	150	120	120	120	120	120	120	120	120	120
EMOBILE	–	–	–	–	–	–	–	–	90	90	90

In-prefecture call for 3 minutes on weekdays in daytime

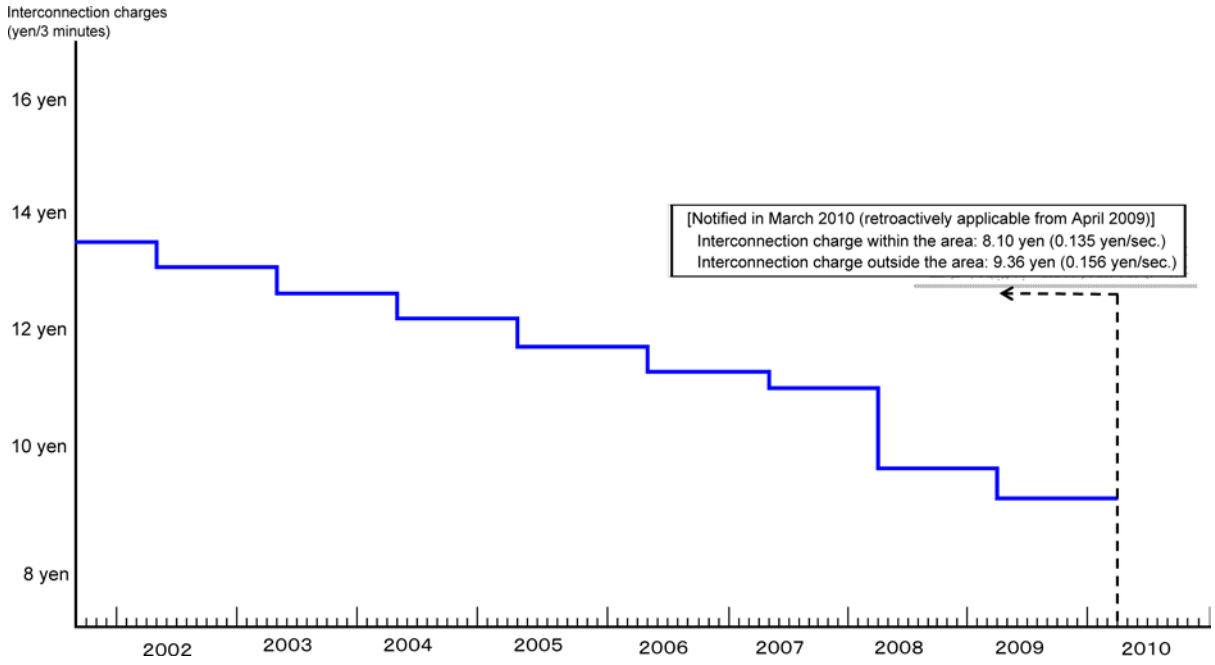
[5] Charges for calls from subscriber telephones of NTT East and West are collected on their behalf.
[6] Some business operators commenced services in November 2003.

4) Transactions between business operators (Interconnection charges of mobile phones)

Interconnection charges for mobile phones are basically negotiated between business operators. NTT DOCOMO, KDDI and Okinawa Cellular[7], however, are obliged to report/publish their interconnection provisions in accordance with the type 2 designated telecommunications facility system, and the interconnection charges of these business operators have been dropping every year. Interconnection charges for fixed telephones and mobiles phones cannot simply be compared due to the difference in cost, etc., but they do differ by approximately 5 times.

Guidelines such as “Guidelines on Handling of Sales Incentives in Telecommunications Business” (April 2008) and “Guidelines on Operation of Type 2 Designated Telecommunications Facility System” (March 2010) were formulated for the interconnection charges of fixed telephones. Whether these guidelines effectively function or not also needs to be considered when assessing interconnection charges.

[Figure II-29 Changes in interconnection charges of mobile phone business operators[8] (NTT DOCOMO)]



(Source) Ministry of Internal Affairs and Communications based on an announcement made by NTT DOCOMO

[7] KDDI and Okinawa Cellular have certain capital ties and hence are regarded as one company when calculating the share of number of subscriptions, etc. in the Competition Review. With the type 2 designated telecommunications facility system, however, they are regarded as separate companies.

[8] Interconnection charges vary depending on where the interconnections with networks of other business operators are located within the networks of the business operators of the receiving mobile phones. With NTT DOCOMO branch office mobile phones the interconnections are regarded to be “within the area” if the point of interconnection is located within the network of the branch office and “outside the area” if located outside the network.

[Figure II-30 Interconnection charges of fixed telephones and mobile phones]

		A 3 minute call	A 30 second call
Fixed telephones	GC connection	4.52 yen	0.75 yen
	IC (ZC) connection	6.38 yen	1.07 yen
Mobile phones	Within the area	24.3 yen	4.05 yen
	Outside the area	28.1 yen	4.68 yen

* Interconnection charges of fixed telephones are calculated using the interconnection charges of NTT East and West (apply to FY 2009) and that of mobile phones using the interconnection charges of NTT DOCOMO (apply to FY 2009).

* Interconnection charges of “GC connection” apply to connections made at subscriber switches, “ZC connection” to connections made at relay switches, “within the area” to “calls within the service area”, and “outside the area” to “calls outside the service area”.

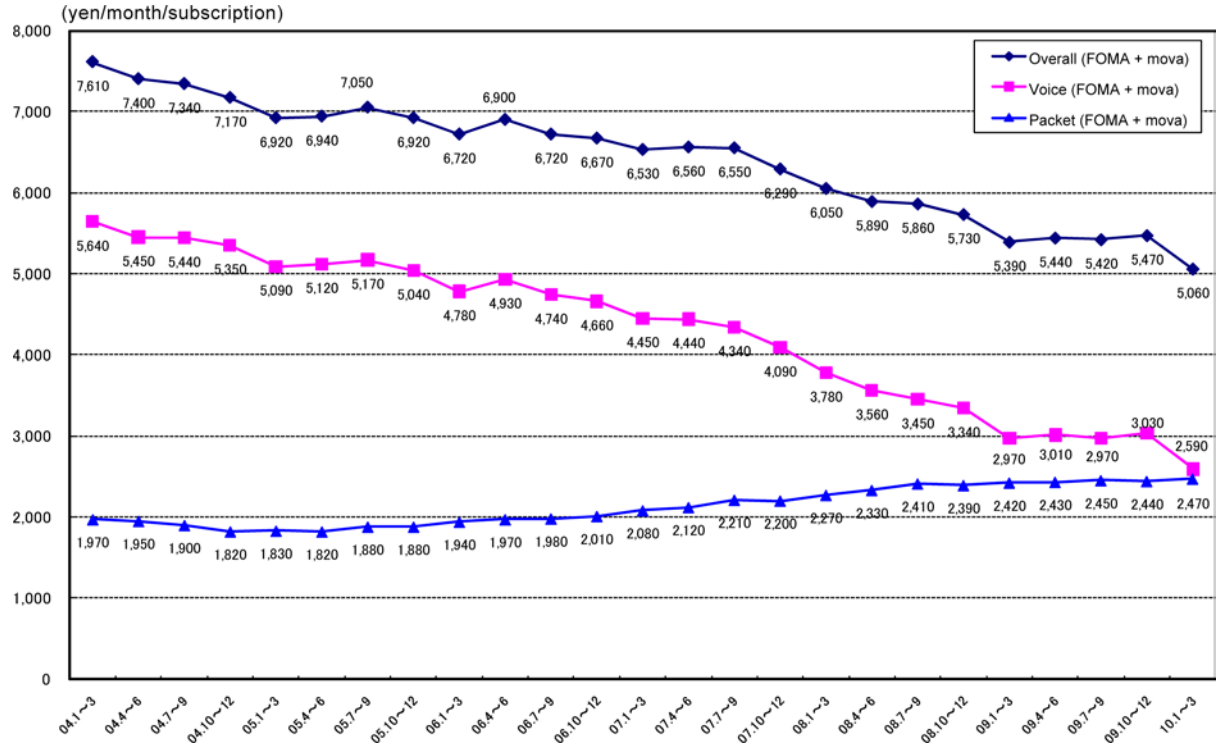
(Source) Websites of respective business operators

(3) Changes in ARPU of mobile phone business operators

The ARPU[9] (voice + data) of mobile phone business operators has generally been on a downward trend over the long-term, although some business operators did have a slight increase in ARPU in FY 2009. The ARPU of voice services has been on a downward trend for all business operators. Dissemination of various types of discounts, including flat rates and family discounts, etc., is considered to be the background cause of that trend.

The ARPU of data services has been on a slightly upward trend. The ARPU for data services slightly exceeds that for voice services for some business operators, but that rate of increase is slow, and does not cover the decline in ARPU for voice services.

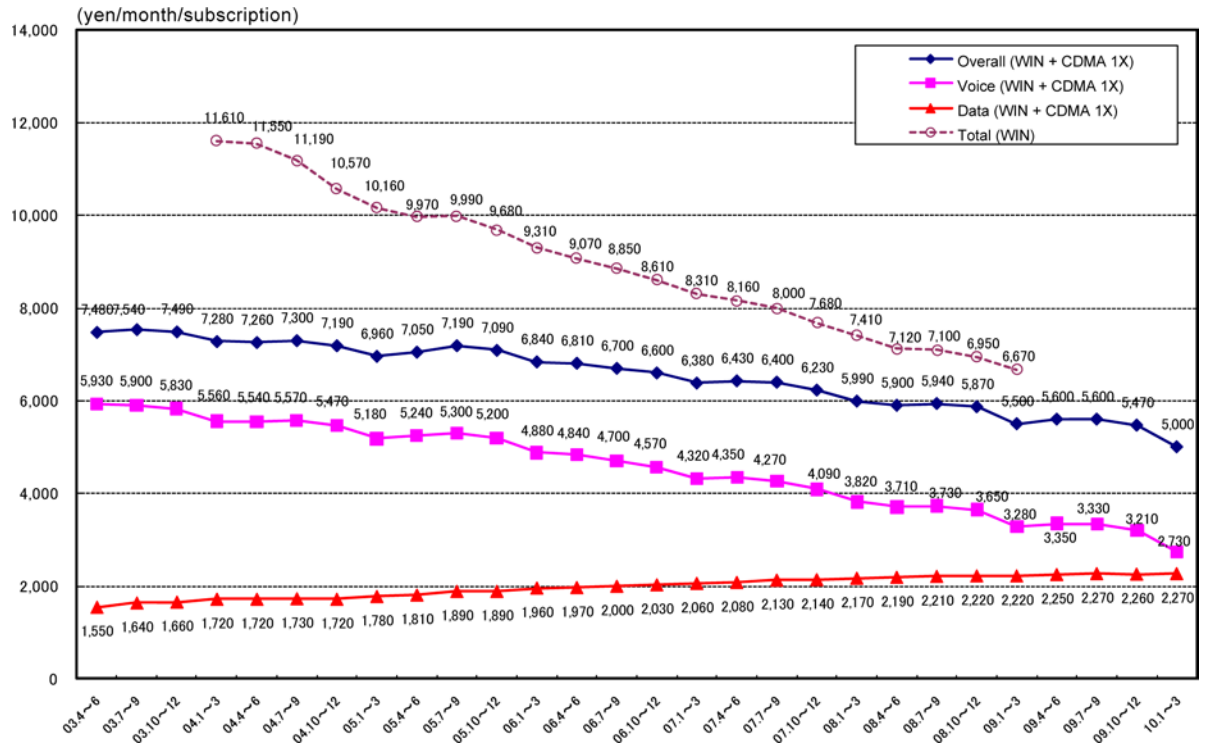
[Figure II-31 Changes in ARPU of NTT DOCOMO]



(Source) Accounting data of NTT DOCOMO

[9] Average Revenue Per User. Comparing business operators after making adjustments for common factors is the most appropriate here. However, they are still important management indicators and making adjustments is extremely difficult. The ARPUs published by respective business operators are therefore used as an indicator to view any changes, as has been done in the past.

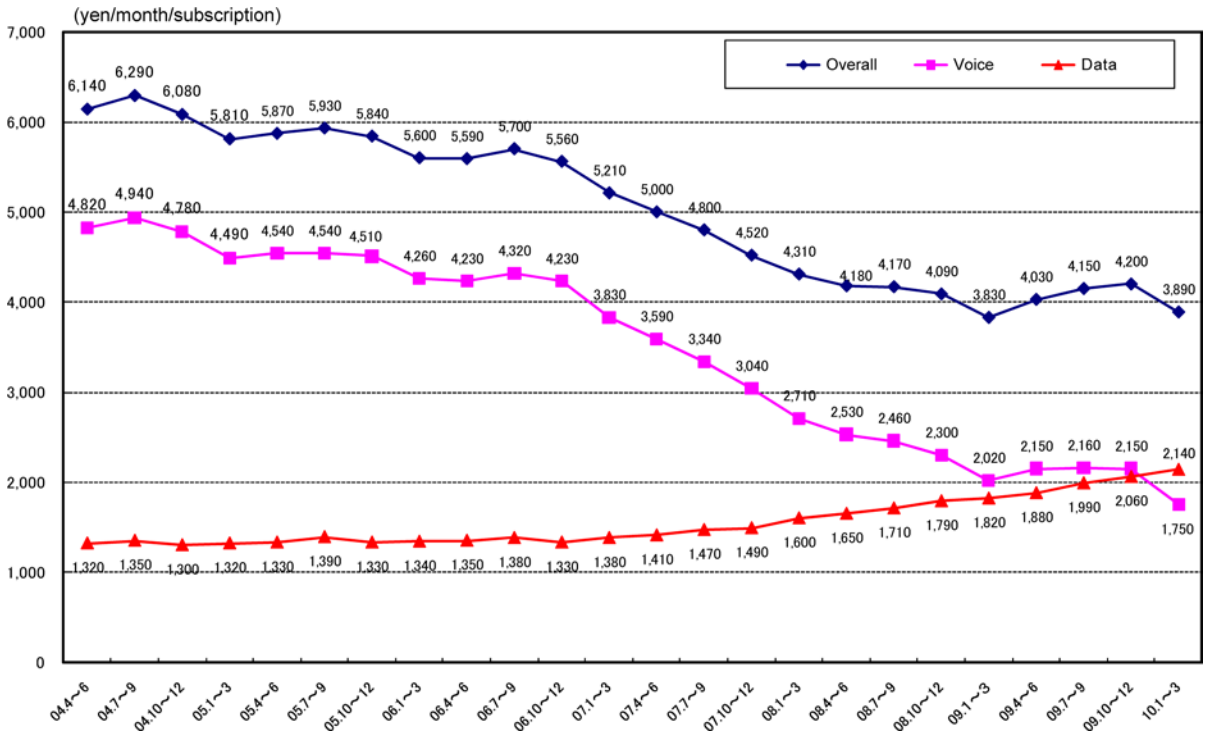
[Figure II-32 Changes in ARPU of KDDI (including Okinawa Cellular)]



(Source) Accounting data of KDDI

* Data on the ARPU of WIN only was not published after 2009 and thus the figures only provide data up to 2009.

[Figure II-33 Changes in ARPU of SoftBank Mobile]



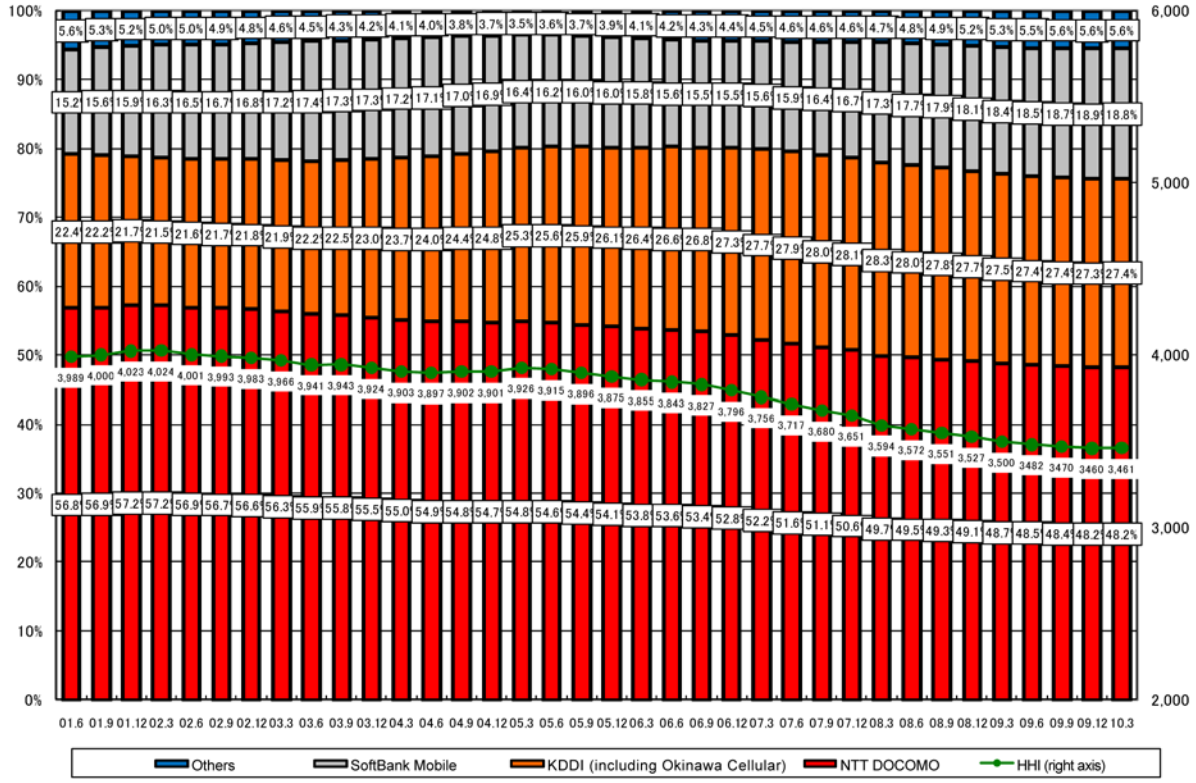
(Source) Accounting data of SoftBank Mobile

(4) Market concentration

The share of the top three business operators (NTT DOCOMO, KDDI (including Okinawa Cellular), and SoftBank Mobile) of the overall mobile communications market was 94.4% as of the end of March 2010, with an HHI of 3,461. Although they are on a slight downward trend, they still remained at high level and the market is oligopolistic.

The share of NTT DOCOMO has remained at basically the same level over the past year and was 48.2% as of the end of March 2010. However, they still have a share of a little less than 50% of the total market.

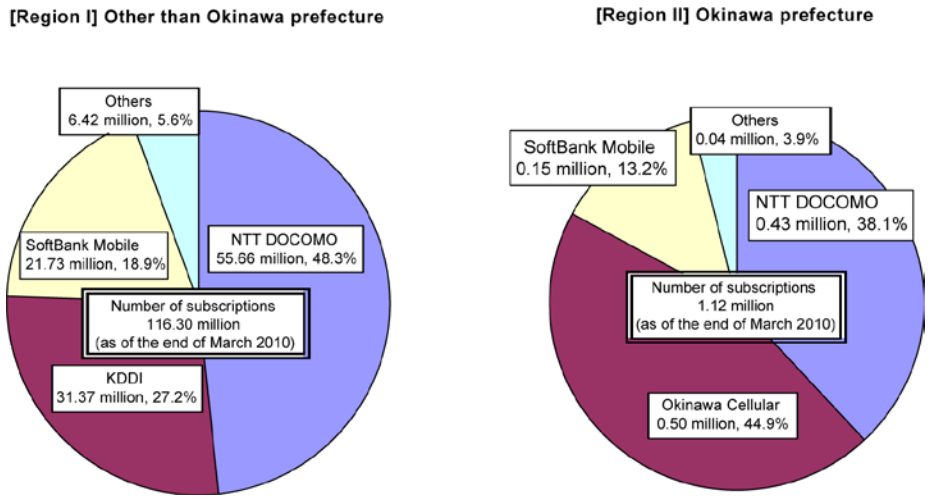
[Figure II-34 Changes in share and HHI of top three business operators in overall mobile communications market]



3. Analysis of geographical markets

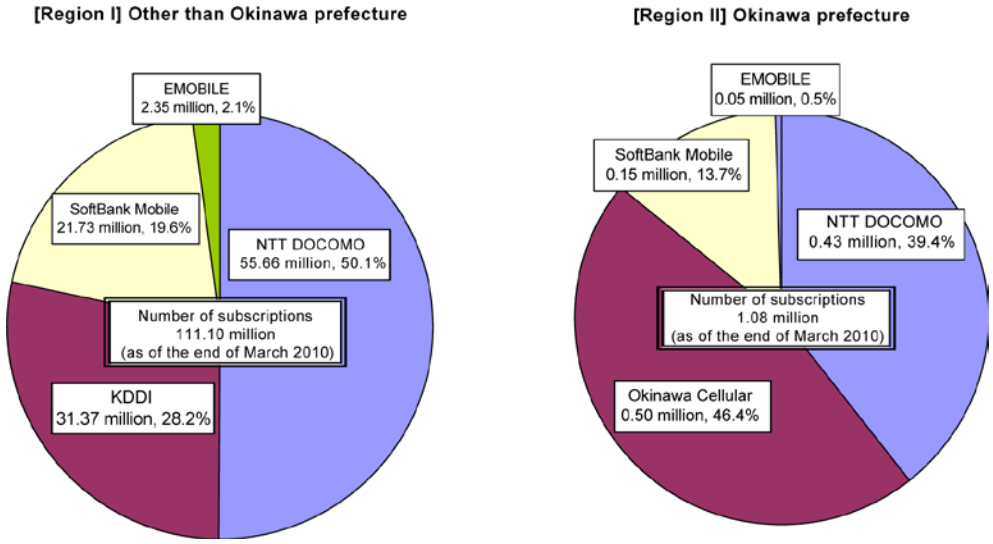
The number of subscriptions and share of business operators in geographical markets[10], as delimited in Chapter 1, of the overall mobile communications market and mobile phone market are as follows.

[Figure II-35 Current situation with geographical markets in the overall mobile communications market]



(Note) The number of PHS subscriptions does not include those of business operators that only provide data communication services.
(Source) Ministry of Internal Affairs and Communications and Telecommunications Carriers Association

[Figure II-36 Current situation with geographical markets in mobile phone market]



(Source) Ministry of Internal Affairs and Communications and Telecommunications Carriers Association

[10] The overall mobile communications market and mobile phone market were delimited into the two geographical markets of Okinawa prefecture (Region II) and others (Region I).

4. Assessment of status with competition

(1) Trends in FY 2009

1) Trends in the overall mobile communications market

Mobile communications services have now become essential tools in people's lives. The introduction of the number portability system in October 2006 resulted in more competition between business operators with respect to retaining/acquiring users.

Dissemination of new technologies, including LTE[11], etc., and smart phones, as represented by the iPhone, etc., could result in even more drastic changes in competition environment of mobile communications markets in the future, thus making close observation of those trends necessary.

2) MVNO trends

Following clarification of MVNO (Mobile Virtual Network Operator) rules in a decision on the MVNO business made by the Minister for Internal Affairs and Communications in November 2007 and a series of "Guidelines concerning Application of the Telecommunications Business, Law and the Radio Law pertaining to MVNO" revisions entries into the MVNO business, in which business operators that do not own networks provide wireless services as their own brands using the networks of other business operators, have been increasing.

A number of data communication services using the networks of NTT DOCOMO and EMOBILE have now commenced. In March 2009 SoftBank Mobile too commenced high-speed mobile data communication services using the networks of EMOBILE.

Data on the number of subscriptions has been collected since December 2009, and was 267,700 as of the end of March 2010, and had the rapid increase of 8.7% over the quarter period of December 2009.

More diverse services can be expected in the future that will facilitate even more competition in the mobile communications market.

[11] Long Term Evolution. Advanced 3rd generation mobile phones (3G) that enable high-speed data communications equivalent to the level of optical fiber (transmission speed of approximately 100 Mbps (downstream)). A mobile communications standard called "3.9G" that will succeed W-CDMA and HSPA standards.

[Figure II-37 Major entries to MVNO business]

MNO	MVNO (service)	Outline of service (business commencement date)
NTT DOCOMO	Zojirushi Corporation (Mimamori Hotline)	Installation of wireless mobile communication devices in pots in making information available for checking from mobile phones and
	Internet Initiative Japan (IIJ Mobile/Type D)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) for corporate use (Jan. 2008)
	ACCA Networks (ACCA mobile (D))	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) for corporate use (June 2008)
	NTT Communications (Mobile / Remote Access DoCoMo model)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) for corporate use (July 2008)
	Japan Communications (b-mobile3G)	High-speed data communication up to 3.6 Mbps downstream using 3.5G (HSDPA). Data communication terminals sold at prices including communication charges for 150 hours (Aug. 2008).
	NTTPC Communications (Master's ONE secure remote access service subscription FOMA data plan)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) for corporate use (Oct. 2008)
	Starnet (STAR Remote3G)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) for corporate use (Feb. 2009)
	WILLCOM (WILLCOM CORE 3G)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) for corporate use (Mar. 2009)
KDDI (au)	Isuzu Motors (Mimamori-kun Online Service)	Collect, analyze, and provide vehicle operational data in enabling an up to 40% reduction in fuel costs and safer operation.
	Japan Mayday Service (HELPNET)	Sends location information of vehicles in case of accidents or acute diseases
	SECOM (COCO-SECOM)	Location information of lost children, elderly persons, and vehicles through utilizing base station information and GPS functions
	Toyota Motor Corporation (G-BOOK)	[1] Sends location information of vehicles in case of accidents or acute diseases, [2] destination search by operators, and [3] hands free telephones, etc.
	Kyosera Communication Systems (KWINS	Data communications using special cards
SoftBank Mobile	Walt Disney Japan (Disney Mobile)	Mobile phones services utilizing Disney brand names and content (Mar. 2008)
	Wire and Wireless (Wi2 Mobile)	Conference room solution for corporate use (Mar. 2009)

MNO	MVNO (service)	Outline of service (business commencement date)
EMOBILE	NEC BIGLOBE (BIGLOBE High-Speed Mobile)	High-speed data communication up to 7.2 Mbps downstream (from Mar. 2008) using 3.5G (HSDPA) (Dec. 2007)
	NIFTY Corporation (@nifty Mobile BB)	High-speed data communication up to 7.2 Mbps downstream (from Mar. 2008) using 3.5G (HSDPA) (Dec. 2007)
	So-net (bitWarp(EM))	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) (Feb. 2008)
	Internet Initiative Japan (IIJ Mobile/Type E)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) for corporate use (Mar. 2008)
	ASAHI Net (Neo-Discount Mobile)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) (Mar. 2008)
	UNIADEX (JetSURF)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) (Mar. 2008)
	ACCA Networks (ACCA mobile (E))	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) (June 2008)
	NTT Plala (high-speed mobile options (EM))	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) (July 2008)
	NTT Communications (OCN Kousoku Mobile EM)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) (Aug. 2008)
	K-Opticom (eo mobile)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) (Sep. 2008)
	SoftBank Mobile (Flat-rate Data Bonus Pack)	High-speed data communication up to 7.2 Mbps downstream using 3.5G (HSDPA) (Mar. 2009)
WILLCOM	Japan Communications (b-mobile), NIFTY Corporation (@nifty Mobile P), etc.	Data communication using special PHS cards, etc.
	Cyber Space Communications (My Access)	Data collection and remote operation built into surveillance cameras, toys, and sensors.
	Jupiter Telecommunications (J:COM MOBILE)	Resale of “WILLCOM Flat Rate Plan”
	Ubqtus Corporation (Doko-Iruka), KATO-DENKI (Irukana)	Location information of children
	Rakuten/Fusion Communications (Rakuten Mobile for Business)	PHS business for corporate use (April 2009)

(Source) Ministry of Internal Affairs and Communications based on websites of respective business operators, etc.

[Figure II-38 Example MVNO charges (mobile phones)]

Business operator	Service	Communication method/speed	Charges (excluding tax)	Details
Toyota Motor Corporation	G-BOOK mX Pro / ALPHA Pro	CDMA 2000 1xEV-DO Up to 2.4 Mbps downstream	First year with a new car: free of charge Second year on, new contract: 12,000 yen/year (Unlimited packet use)	Installation of Data Communication Modules (DCMs) in vehicles. Sends location and route information, and plays music on demand, etc.
Japan Communications	b-mobile 3G	HSDPA Up to 3.6 Mbps downstream	39,900 yen (150 hours) 99,800 yen (500 hours)	Prepaid type data communication package
	Connect Mail	FOMA	4,572 yen/year (equivalent to 381 yen/month)	Sends/receives PC mail via FOMA
Zojirushi Corporation	Mimamori Hotline	FOMA	Initial contract charge: 5,250 yen (including tax) Monthly basic charge: 3,150 yen (including tax)	When a person uses an electric pot with a built-in wireless communication device their family members living in distant areas are notified of that information via the internet
Dream Train Internet	DTI high-speed mobile plan	HSDPA Up to 7.2 Mbps downstream	Monthly charges: 790 yen to 4,770 yen	Provides MVNO-type high-speed internet connection services using data communication services provided by EMOBILE
SECOM	COCO-SECOM		Monthly charges: from 500 yen	Location search and emergency personnel dispatch services via use of mobile phones, PC browsers, and on-call support assistance
K-Opticom	eo mobile	HSDPA Up to 7.2 Mbps downstream	Monthly charge: 1,000 yen to 4,680 yen (upper limit) Basic charge: 1,000 yen/month (includes packet communication charge of 1,000 yen) Packet communications charge: 0.042 yen/packet (usage-based)	High-speed mobile communications services of up to 7.2 Mbps downstream speed using HSDPA
Internet Initiative Japan	IIJ Mobile/Type D	FOMA high-speed networks	Monthly charges: 8,500 yen/line (example flat rate plan)	For corporate use, uses NTT DOCOMO network
	IIJ Mobile/Type DS	FOMA high-speed networks	Monthly charge: 19,500 yen/line	For corporate use, uses NTT DOCOMO network, fixed IP
	IIJ Mobile/Type E	HSDPA Up to 7.2 Mbps downstream	Monthly charge: 5,600 yen/line (example flat rate plan)	For corporate use, uses EMOBILE network
ACCA Networks	ACCA mobile (D)	HSDPA Up to 7.2 Mbps downstream	Monthly charges: 4,500 yen to 8,000 yen (excluding tax)	Flat fixed amount plan (Standard, 1 year contract, 2 year contract) Group Packet Share Plan (Standard, 1 year contract, 2 year contract)
	ACCA mobile (E)	HSDPA Up to 7.2 Mbps downstream	Monthly charges: 743 yen to 6,458 yen (excluding tax)	Step fixed amount plan (Standard, 1 year contract)
Walt Disney Japan	White Plan (D)	-	Monthly charge: 980 yen	Basic charge plan and the only service plan available for Disney Mobile.
	Double White (D)	-	Monthly charge: 980 yen	Call charge discount services.
	White Plan Corporate Discount 24+ (D)	-	Monthly charge: 924 yen/line	Discount services for corporate group contracts of 11 lines or more
	Unlimited Packet Discount (D)	-	Monthly charges: 1,029 yen to 4,410 yen	Flat rate packet service
	Monthly Discounts (D)	-	Set according to handset	Fixed monthly discount on communication charges based on handset
	Disney basic option pack	-	Monthly charge: 498 yen	Provide lost handset location service, safety remote locking, address book backup, and call-waiting function, etc.
	Disney Backup Service Package	-	Monthly charge: 498 yen/month	Damage/water damage repair and services to allow repurchase of lost handset at discount price

Business operator	Service	Communication method/speed	Charges (excluding tax)	Details
USEN	Mobile access type EM	HSDPA Up to 7.2 Mbps downstream	Monthly charges: from 4,980 yen	High-speed mobile internet connection services. Resale of EMOBILE services.
	Mobile access type AJ	HSDPA Up to 7.2 Mbps downstream	Monthly charge: 10,500 yen	High-speed mobile internet connection services dedicated to office use. Resale of IIJ services.
GMO Internet	Two step flat rate plan	HSDPA Up to 7.2 Mbps downstream	Monthly charges: 2,480 yen to 6,300 yen	Usage based charge system according to the number of packets used with upper limit.
	Complete flat rate plan	HSDPA Up to 7.2 Mbps downstream	Monthly charge: 5,775 yen	Flat rate charge system regardless of number of packets used.
NEC BIGLOBE	“BIGLOBE High-Speed Mobile” flat rate plan	HSDPA Up to 7.2 Mbps downstream	Monthly charge: 4,883 yen	Services for BIGLOBE connection service users. * Additional handset rental fees (735 yen/month) required.
	“BIGLOBE High-Speed Mobile” two step flat rate plan	HSDPA Up to 7.2 Mbps downstream	Lower limit: 1,985 yen/month (up to approx. 90,000 packets/11 MB) Upper limit: 5,492 yen/month (over approx. 420,000 packets/52 MB)	Services for BIGLOBE connection service users. * Additional handset rental fees (735 yen/month) required.
NTT Plala	Plala high-speed mobile options (EM)	HSDPA Up to 7.2 Mbps downstream	Initial administrative charge: 2,835 yen (including tax) Monthly basic charge: 5,365 yen (including tax) =>(“flat rate plan basic charge” + “data terminal rental fee”)	High-speed mobile internet connection services. Monthly flat rate charge system (flat rate regardless of volume of communication data). Data communication cards rented.
NIFTY	@nifty Mobile BB	HSDPA Up to 7.2 Mbps downstream	Initial administrative charge: 2,835 yen Monthly charge: 5,712 yen (USB/PC card type device), 5,817 yen (Express Card type device)	High-speed data communication services using mobile phone data communication cards.
So-net Entertainment	bitWarp (EM)	HSDPA Up to 7.2 Mbps downstream	Initial charge: 2,835 yen (including tax) Monthly charges: 1,155 yen to 5,355 yen	High-speed mobile internet connection services.
Kyosera Communication Systems	KWINS 3G plan	CDMA 1X WIN Up to 3.1 Mbps downstream CDMA 1X Up to 144 kbps downstream	Monthly charges: from 4,700 yen (Packet step)	High-speed mobile internet connection services.
NTT Communications	OCN Kousoku Mobile EM (EM plan)	HSDPA Up to 7.2 Mbps downstream	Monthly charge: 5,820.15 yen	High-speed mobile internet connection services.
	OCN Kousoku Mobile EM (EM option)	HSDPA Up to 7.2 Mbps downstream	Monthly charge: 5,610.15 yen	High-speed mobile internet connection services. Optional services that can be used in combination with other OCN connection plans, including optical fiber and ADSL.
	DOCOMO model	HSDPA Up to 7.2 Mbps downstream	Monthly charge: 7,140 yen	Flat rate closed user group services for connection with enterprise VPN using FOMA high-speed packet communication (FOMA HIGH-SPEED).
Inphonix	JAL MILE PHONE		Initial administrative charge: 2,835 yen (including tax) Price of purchasing mobile phone	Users can use the same service area/discount services as au and earn JAL miles according to monthly usage chares. au charge plan “Everybody Discount” automatically applies.
Inphonix	Tigers-Keitai, GIANTS-Keitai		Initial administrative charge: 2,835 yen (including tax) Price of purchasing mobile phone	Users can use the same service area/discount services as au and earn JAL miles according to monthly usage chares. au charge plan “Everybody Discount” automatically applies.

[Example MVNO charges (PHS)]

Business operator	Service	Communication method/speed	Charges (excluding tax)	Details
NIFTY	@nifty Mobile P	Packet-based Up to 128 kbps downstream	Initial charge: card purchase price 0 yen, administrative charge 1,050 yen Monthly charges: 3,990 yen (64 kbps), 6,825 yen (128 kbps)	Data communication services up to 128 kbps using PHS data communication cards.
KATO-DENKI	Human location search service	Packet-based	Monthly charges: from 525 yen	Services that provides location information via small terminals over PHS lines.
	Vehicle location search service	Packet-based	Monthly charges: from 1,029 yen	Services that provide location information when vehicles are stolen via terminals installed in vehicles.
Fujitsu	mobile+PHS	Packet-based Up to 32 kbps, 128 kbps downstream	Initial charges: mobile+PHS user ID initial charges 3,000 yen/ID (initial contract of 10 IDs or more) mobile+PHS cards (MC-C450) 26,000 yen/card Monthly charges: mobile+PHS 32 kbps user ID usage charges 5,000 yen/ID mobile+PHS 128 kbps user ID usage charges 8,500 yen/ID	Remote access lines for corporate IP networks secured by MPLS.
So-net Entertainment	bitWarp (W)	Packet-based 64 kbps to 204 kbps downstream	Initial charges (device fees): 15,540 yen Monthly charges: 2,108 yen to 5,258 yen	High-speed mobile communication services.
Kyosera Communication Systems	KWINS 4x / KWINS 8x plan: personal use	Packet-based	Monthly charges: 11,550 yen to 119,800 yen (Licensed for 6 or 12 months)	
	KWINS 4x / KWINS 8x plan: corporate use	Packet-based	Monthly charges: from 2,100 yen (Packet flat-rate/Packet step)	
NTT Communications	NTT Com type 32k plan	Packet-based Up to 32 kbps downstream	Monthly charge: 4,095 yen	Corporate data oriented mobile solution using wireless IP connection services/MVNO methods.
	NTT Com type 128k plan	Packet-based Up to 128 kbps downstream	Monthly charge: 6,825 yen	
WILLCOM	WILLCOM model integrated VPN New Unlimited Access course	Packet-based	Monthly charge: 3,880 yen	Corporate data oriented mobile solution. In addition to data cards smart phone W-ZERO3 can also be used.
	WILLCOM model integrated VPN Unlimited Access (ultra-high-speed) course		Monthly charge: 12,705 yen	
	WILLCOM model integrated VPN Unlimited Access (high-speed) course		Monthly charge: 9,555 yen	
	WILLCOM model integrated VPN Unlimited Access (standard) course		Monthly charge: 5,880 yen	
	WILLCOM model integrated VPN 25 hour connection (ultra-high-speed) course		Monthly charge: 7,035 yen	
	WILLCOM model integrated VPN 25 hour connection (high-speed) course		Monthly charge: 5,460 yen	
	WILLCOM model MOVE light connection pack course	Circuit switching-based	Monthly charge: 2,940 yen	
	WILLCOM model MOVE light connection pack mini course		Monthly charge: 1,869 yen	
	WILLCOM model MOVE light connection limited course		Monthly charge: 819 yen	
	.Phone Ubiquitous course		Monthly charge: 2,200.8 yen	050 mobile IP telephone services for making calls to offices free of charge.

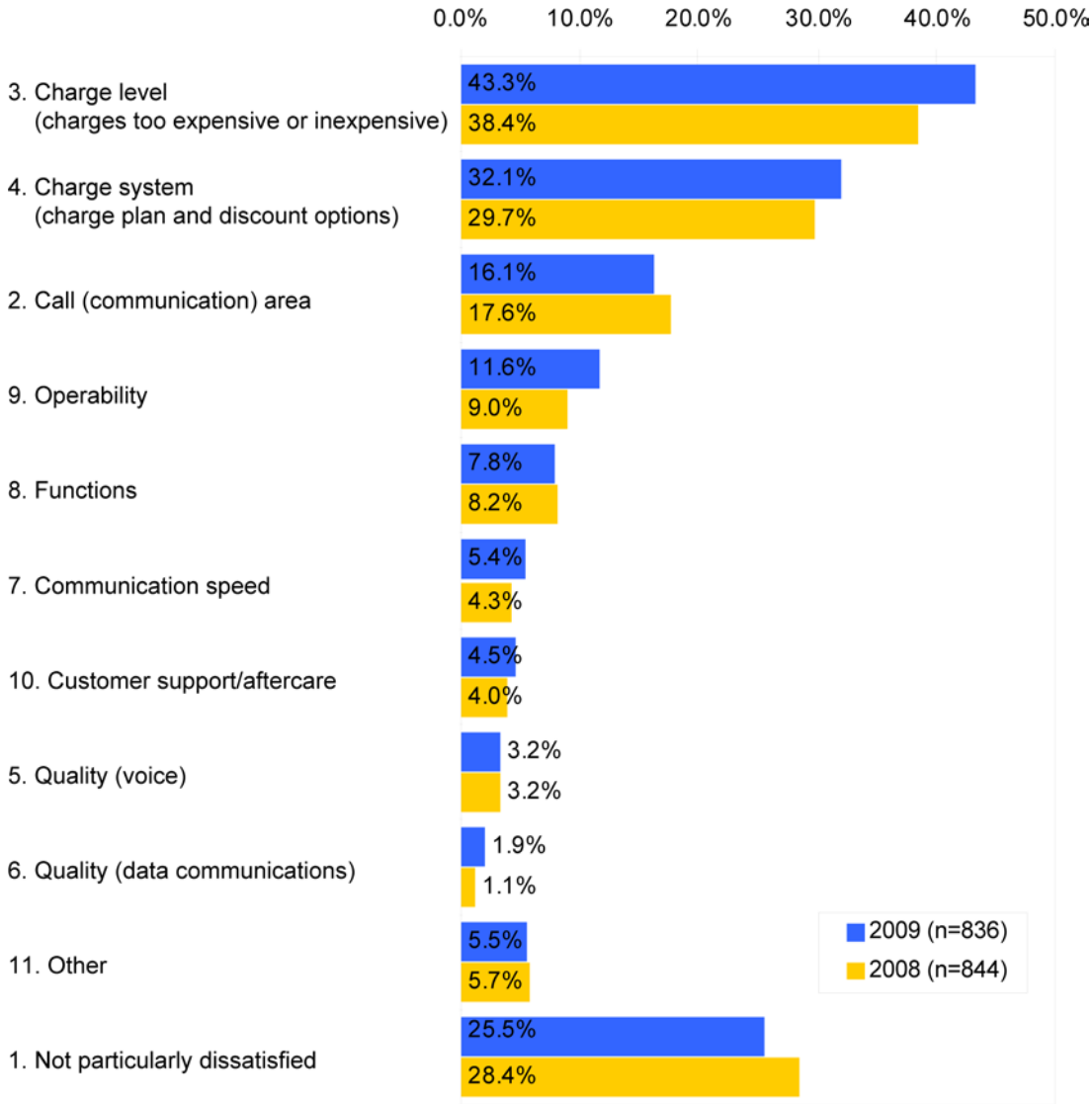
(2) Examination from users' point of view

The "FY 2009 Results of the First Telecommunications Service Monitor Questionnaire Survey"[12] conducted by the Ministry of Internal Affairs and Communications revealed the number of users dissatisfied with the "call (communication) area" to have decreased while that of those dissatisfied with "charge levels" and "charge system" to have increased, thus indicating charge related matters are of great interest of users.

Of opinions related to charges, "charge systems are too complex to understand" was the largest in number, and then followed by "flat rate communication charges are too expensive". Those types of trends of being interested in charge related matters have consistently been observed over the last few years.

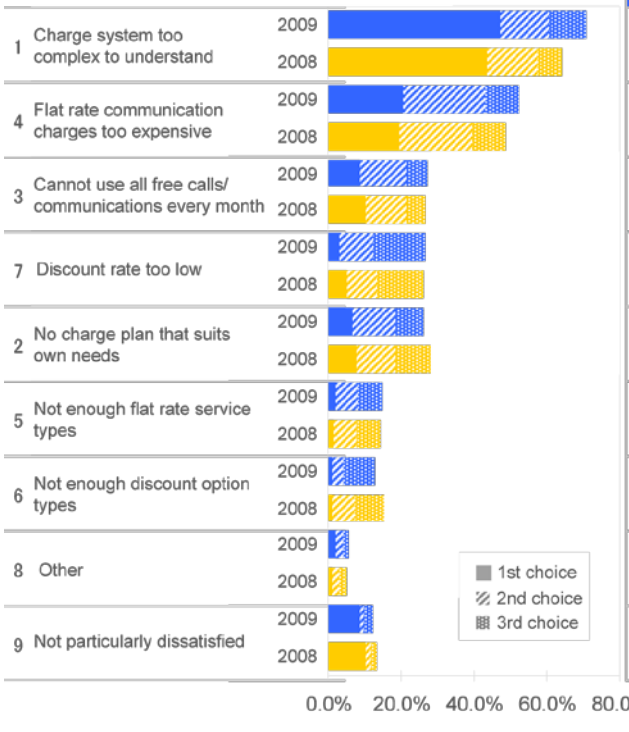
[12] Published on May 19, 2010. Refer to http://www.soumu.go.jp/menu_news/s-news/02kiban08_02000040.html.

[Figure II-39 Dissatisfaction points with mobile communication terminals used (up to two choices)]



(Source) "FY 2009 Results of the First Telecommunications Service Monitor Questionnaire Survey" by the Ministry of Internal Affairs and Communications

[Figure II-40 Opinions of charge systems (charge plans and charge options) (up to three choices)]



	2009 (n=789)			2008 (n=849)		
	1st choice	2nd choice	3rd choice	1st choice	2nd choice	3rd choice
1 Charge system too complex to understand	47.4%	13.1%	10.5%	43.5%	14.0%	6.8%
4 Flat rate communication charges too expensive	20.5%	22.4%	9.5%	19.3%	20.1%	9.4%
3 Cannot use all free calls/ communications every month	8.5%	13.2%	5.3%	10.1%	11.2%	5.4%
7 Discount rate too low	3.2%	8.9%	14.7%	5.3%	8.2%	12.7%
2 No charge plan that suits own needs	6.6%	11.9%	7.9%	7.5%	10.7%	9.8%
5 Not enough flat rate service types	1.8%	6.5%	6.8%	1.7%	5.8%	6.7%
6 Not enough discount option types	1.1%	3.2%	8.5%	1.1%	5.9%	8.2%
8 Other	2.2%	1.8%	1.8%	1.2%	2.1%	1.8%
9 Not particularly dissatisfied	8.7%	1.3%	2.5%	10.4%	1.2%	1.6%

* Number of valid answers used as the denominator in "2nd choices" and "3rd choices"

(Source) "FY 2009 Results of the First Telecommunications Service Monitor Questionnaire Survey" made by the Ministry of Internal Affairs and Communications

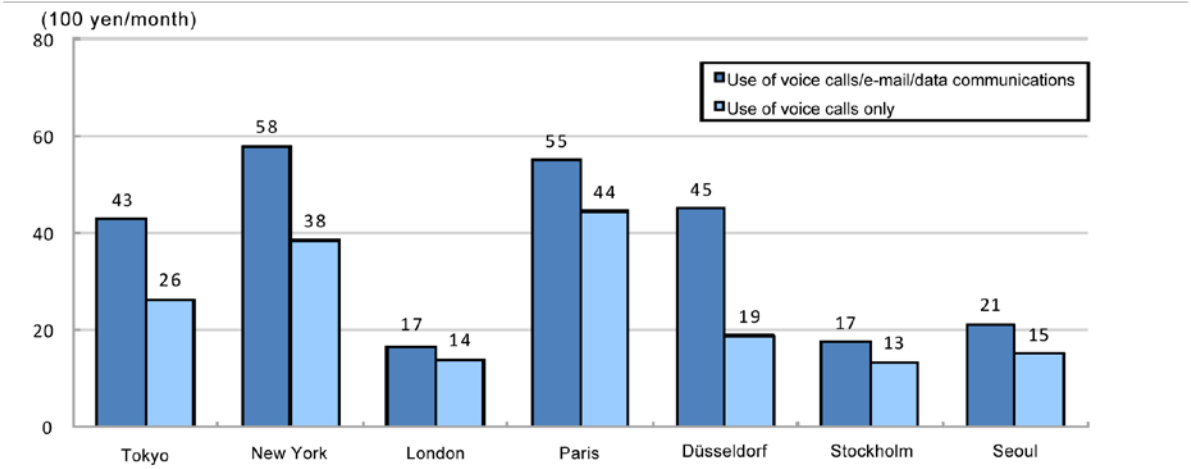
Charge systems of mobile communications services are becoming more diverse and complex due to the increase in number of various discounts resulting from competition between business operators, etc., introduction of charge plans after review of the sales incentive system, and instalment terminal sales plans, etc. This will increase the range of available options from the point of view of users, but it will also make understanding charge levels and comparing business operators difficult, and thus may not actually benefit users.

As observed in 2 (2) 1) no significant structural changes can be seen in the charge level other than the introduction of new charge plans in FY 2007. After taking the increase in number of flat rate systems and various discounts into account, however, the charge level can be considered to be in general on a downward trend. Comparing the charge level of mobiles phones with other countries using the "FY2008 Survey on Price Variances between Domestic and Overseas Telecommunications Services"[13] revealed the charge level is Japan to be at about average. Comparison with consideration given to the average number of minutes used in respective countries, however, revealed the per minute charge in Japan to be at a high level.

[13] Published on August 11, 2009. Refer to http://www.soumu.go.jp/menu_news/s-news/02kiban03_000015.html.

[Figure II-41 International comparison of charge level of mobile phones]

Use of voice calls and e-mail (medium use: 95 minutes voice calls, 385 e-mails (of which 140 e-mails are outgoing), and 16,000 packets data communications per month)



Note 1) A charge comparison model was also set by OECD but the Tokyo model established based on the actual situation with the use of mobile phones in Japan was adopted in being a more appropriate reflection of the actual situation with usage in Japan and used in comparing charges for the use of voice calls, e-mail, and internet connections.

2) All figures are charges for general consumers. Call plans that do not limit usage, including the area, destination, and subscriber's age, etc. were selected for comparison, except for prepaid mobile phones, and excluding discounts for online application/billing, etc. (Sending bills cots an additional 19 kronas in Stockholm)

3) With voice calls the lowest charge required for the use of a mobile phone determined in accordance with the usage status based on the actual situation with the average use of mobile phones by distance, time of day, and destination in Japan in FY 2007 was used in the comparison.

4) With e-mail the lowest charge was compared by assuming use of a mobile phone and common usage method of each city, which resulted in i-mode mail (text only, e-mail with photographs or videos attached excluded) being assumed for Tokyo and short messages (SMS) for other cities.

5) With e-mail average use was assumed and the number of e-mails (medium use) set be to the average number of e-mails calculated by adjusting the results of the research involved in the "K-tai white paper 2009" (Impress R&D, Mobile Content Forum, December 2008) using the "FY 2008 Results of the First Telecommunications Service Monitor Questionnaire Survey" (Ministry of Internal Affairs and Communications, April 2009).

6) Receiving e-mail is free of charge except in Tokyo and New York.

7) The number of packets used by the average user was assumed to be 16,000 packets/month (average number of packets used excluding users whose data usage was extremely large; including number of packets used for e-mail) based on the web questionnaire survey made by the Ministry of Internal Affairs and Communications.

8) Only data usage by mobile phones counted and that via PDA or PC connections ignored. Data viewing/download use was assumed in calculating the charges in principle (the use of VOD, etc. requires additional charges in some cities with the charges differing from the above in that case).
In addition, the charges may include communication charges, content charges, or flat rate charges as they can apply with certain websites in some cases, with the charges differing from the above in those cases.

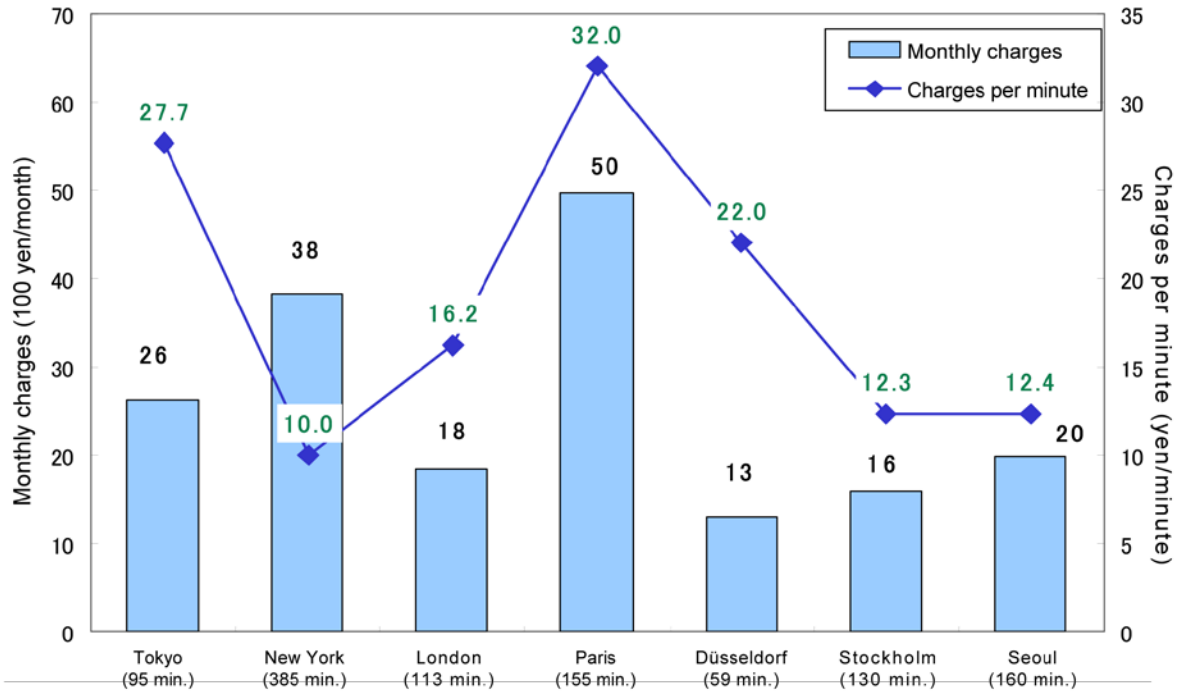
9) In Seoul the usage based charges differ depending on the type of data downloaded (VOD, etc.) but flat rate plans were assumed as the average use.

10) The charges for using voice calls only indicate the most inexpensive plans. In London the charges include free use of SMS in addition to voice calls.

11) Refer to the "FY 2008 Survey on Price Variances between Domestic and Overseas Telecommunications Services" for the charge plans in the respective cities.

(Source) "FY 2008 Survey on Price Variances between Domestic and Overseas Telecommunications Services" made by the Ministry of Internal Affairs and Communications

[Figure II-42 Comparison of charges based on average number of minutes used in respective countries]



Note 1) The use of a specific model enables comparison of charges incurred for the same number of minutes used, but the charges calculated using that model could be separated from the average charge for users in the respective cities as the number of minutes mobile phones are used for significantly differ in those cities. In order to compare the charge level for the average user in the respective city, therefore, the most inexpensive charges for the monthly average number of minutes used per contract in that country were used in the comparison.

2) The charges for using voice calls only were used in the comparison.

3) The monthly average number of minutes used per contract in the respective countries indicates the number of minutes mobile phones were used for making calls in the respective cities, excluding New York. In New York 1/2 the sum of the number of minutes mobile phones were used for making calls and that for receiving calls were used.

4) Refer to the "FY 2008 Survey on Price Variances between Domestic and Overseas Telecommunications Services" for the charge plans in the respective cities and the monthly average number of minutes used per contract in them.

(Source) "FY 2008 Survey on Price Variances between Domestic and Overseas Telecommunications Services" made by the Ministry of Internal Affairs and Communications

The above makes the development of an environment in which users can select the appropriate charge plan according to their respective usage status important. The situation with the charge level could change due to the development of new charge plans, etc. in the future, however, and thus continuing to observe those trends for a specific period would be considered appropriate.

In addition, an increase in the use of data communications rather than voice calls can be expected, and thus trends in the charge plans of respective mobile phone business operators will need to be closely observed in the future.

(3) Market dominance

1) Existence of market dominance

[1] Independent market dominance

After taking into general consideration the following determining factors, etc. NTT DOCOMO was deemed to be in a position of being capable of independently exercising market dominance. The current market structure and status with competition between business operators makes the probability of NTT DOCOMO, having the top share of the market, being in the position of being able to control the price and other conditions quite high.

a) Quantitative criteria

The share of NTT DOCOMO of the number of subscriptions in the overall mobile communications market has been on a downward trend but was still much higher than that of other competing business operators at 48.2% as of the end of March 2010. NTT DOCOMO continues to be in a dominant position in the market.

b) Other major determining factors

The structure of the mobile communications market tends to be oligopolistic due to the existence of barriers to entry, including scarcity of frequencies, the existence of hidden costs, and economy of scale, etc.

In addition, although the introduction of the number portability system lowered switching costs for users to a certain extent[14] they are still considered to exist, including the existence of contract cancellation charges and long-term discount services, inability to transfer content such as music and games, etc., and unavailability of portable e-mail addresses, etc., as analyzed in the Competition Review 2007[15].

The charge systems are also becoming more diverse and complex and thus making understanding of charge levels and comparisons between business operators difficult. And hence even if the difference actually exists, for example, it may not necessarily immediately lead to users switching business operators.

In consideration of the above the influence of NTT DOCOMO, an existing business operator with a large share, on the mobile communications market is considered quite large.

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[14] Refer to “Chapter 8 Analysis on changes in competition status due to the introduction of number portability system of mobile phones“ of the “Competition Review in the Telecommunications Business Field of FY 2006”.

[15] Refer to “V Analysis on Impact of Platform Functions on Competition” of the “Competition Review in the Telecommunications Business Field of FY 2007” for the impact of these platform functions.

However, the dissemination of new smart phones in the future, etc. could have a significant impact on and result in changes in the mobile communications market, including the share of the different business operators. Close observation of future market trends is therefore considered necessary.

[2] Cooperative Market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. multiple business operators with the top share were deemed to be in the position of cooperatively being capable of exercising market dominance.

a) Quantitative criteria

The share of the top three business operators (NTT DOCOMO, KDDI (including Okinawa Cellular), and SoftBank Mobile) in mobile communications market was 94.4% as of the end of March 2010 and the HHI was 3,461, thus indicating the market to be oligopolistic.

b) Other major determining factors

In additions to the factors listed in [1] b) attention should also be paid to the fact that increases in the number of subscriptions is slowing down and the market is changing from being in a period of expansion to reaching maturity. In addition, the emergence of smart phones has brought about some changes but the business strategies and business models of all the respective business operators are very similar as they all basically adopted business models that are based on vertical integration. This then leads to it being deemed that the business operators with the top share could possibly have the incentive to cooperate in dominating the market.

2) Exercise of market dominance

[1] Independent market dominance

After taking into general consideration the following determining factors, etc. the possibility of NTT DOCOMO independently exercising market dominance can be considered to be low because of the current regulations that are in place and the market environment.

The provisions for reporting interconnection provisions and action regulations, including prohibition of any unreasonable discriminatory treatment, etc., in accordance with the type 2 designated telecommunications facility system of the Telecommunications Business Act already apply to NTT DOCOMO. In addition, “Guidelines on Operation of Type 2 Designated Telecommunications Facility System” were formulated in March 2010 to clarify the idea behind the establishment of interconnection charge calculation methods and standard connection

locations, etc. It is therefore considered that any exercising of market dominance by NTT DOCOMO can be restrained.

Active competition already exists between business operators in the mobile communications market, including an improved variety of discount services and the introduction of new functions/services, etc. This then leads to NTT DOCOMO, because of its declining share, is considered to be acting toward securing profits by retaining/expanding their share of the market through competition rather than to secure a profit through exercising any influence on prices, etc.

As described in 1), however, the situation with the complexity of the charge systems and platform functions could have an impact on competition and thus attention needs to continue to be paid to the market situation.

[2] Cooperative Market dominance between multiple business operators

The following determining factors, etc. lead to the possibility of the multiple business operators with the top shares exercising cooperative market dominance being considered to be low.

The introduction of the number portability system resulted in extremely active competition with regard to acquiring new customers and retaining existing customers due to an increase in the availability flat rate systems and various discount services, etc. The available discount services, however, tend to be very similar. The introduction of improved services by business operators could therefore contribute to improved user benefits. Attention also needs to be paid to the fact that new types of competition actions could lead to mutual restraint.

In addition, NTT DOCOMO and KDDI, etc. are obliged to report/publish their interconnection provisions that specify conditions for interconnections, including interconnection charges, etc., in accordance with the type 2 designated telecommunications facility system.

Similarly to the discussion above in [1], however, the situation with the complexity of the charge systems and platform functions could have a negative impact on competition, and thus attention continues to be needed to be paid to the situation.

(4) Matters requiring close observation in the future

External factors, including the introduction of new services through technological innovations, are having the biggest impact on market competition in the mobile communications market. Matters requiring close observation in the future in consideration of this situation include the following.

1) Impact through technological innovations, etc.

Technological innovations develop very rapidly in the mobile communications market. The combination of the commencement of provision of LTE (Long Term Evolution) services, known as 3.9G, and the future dissemination of new smart phones, etc. could have a significant impact on user mobile communications service needs. Introduction of new technologies and market trends associated with it will continue to require close observation.

In addition, the establishment of femtocell ultra-small base stations that connect broadband networks is expected to proceed in the future and thus the status with competition in adjacent markets could have an effect on competition in the mobile communications market. Trends with the service provision, etc. will therefore need to be closely observed.

2) Securing users' benefits

The charge systems of mobile communications services have become extremely complex and diverse, thus making understanding charge levels and comparing business operators difficult, which could have a negative impact on users' benefits.
Ideal charge systems and results of these measures, etc. will also continue to require close observation in the future.

3) Trends in MVNO business

Entries to the MVNO business have been increasing in the mobile communications market, which can be expected to contribute to further revitalization of the market via the creation of new markets and provision of diverse services. The status with entries to the MVNO business and the existence of any factors obstructing new entries will therefore continue to require close observation.

4) Unlocking SIM cards

At present the majority of mobile phones are sold with a so-called SIM (Subscriber Identity Module) lock place in Japan that blocks them from being used with the SIM cards of other telecommunications business operators.

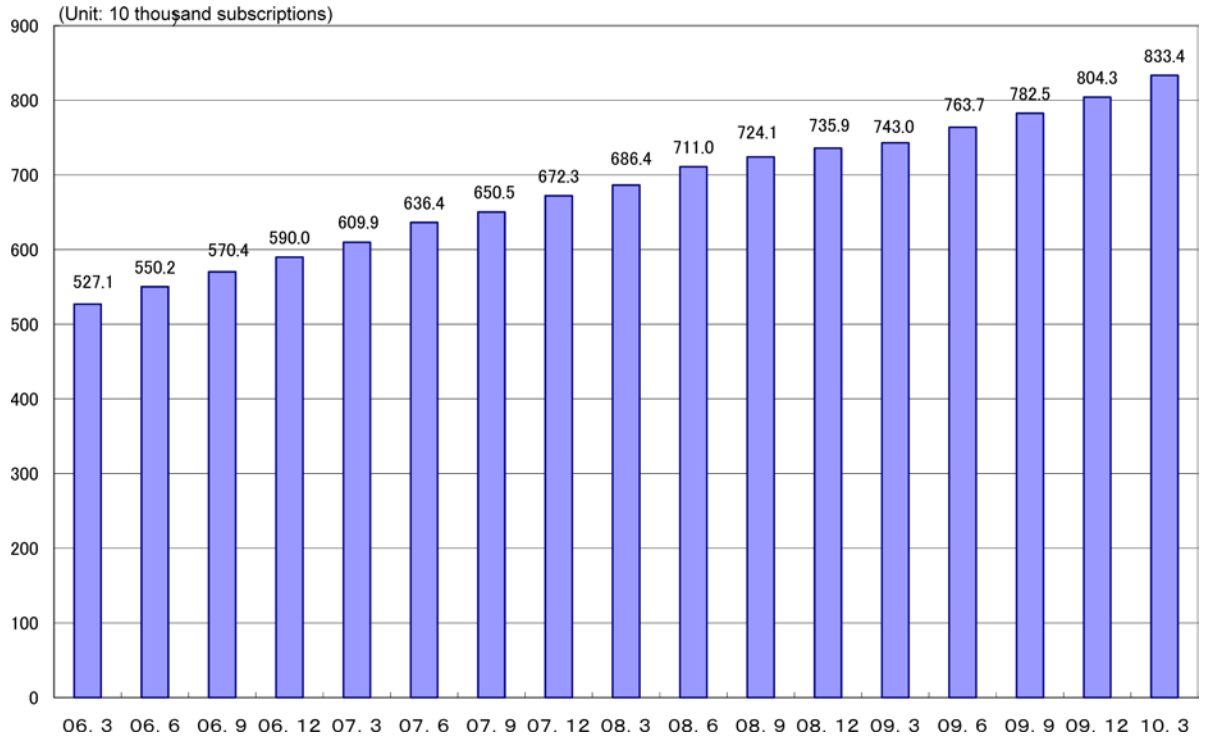
The Ministry of Internal Affairs and Communications held hearings with mobile phone business operators in April 2010 and obtained a certain consensus for the policy that business operators would voluntarily unlock the SIM card blocking because of the assumption of users requesting them to do so. This then resulted in the "Guidelines for Unlocking SIM Cards"[16] being formulated and published at the end of June 2010.

[16] Published June 30, 2010. Refer to
http://www.soumu.go.jp/menu_news/s-news/02kiban02_02000046.html.

The guidelines apply to mobile phone handsets sold from FY 2011 on. The impact that efforts being made by the respective business operators will have on mobile phone/PHS markets in the future because of that is considered to require close observation.

[Reference] Changes in Number of Public Wireless LAN Subscriptions and Outline of Business

[Figure II-43 Changes in number of public wireless LAN subscriptions (Note)]



(Note) The above figures concern data reported in accordance with the Rules for Reports from the Telecommunications Business. In the current report on public wireless LAN access service subscriptions, etc., however, the inclusion of the number of end users of wholesale services is voluntary when other business operators are provided with wholesale telecommunications services. Attention therefore needs to be paid to data consistency and continuity not necessarily being secured and reality of the figures being limited.

(Source) Ministry of Internal Affairs and Communications

[Figure II-44 Outline of major public wireless LAN service business operators[17]]

Business operator	Service	Charge plan	Charges (as of the end of May 2010, excluding tax)	Note
NTT Communications	HOTSPOT	Course 1: Casual areas	1,500 yen/month	McDonald's, etc.
		Course 2: Express areas	780 yen/month	N700 series trains and waiting rooms and concourses in 17 Tokaido Shinkansen stations (between Tokyo and Shin-Osaka)
		Course 3: (monthly flat rate) All areas	1,600 yen/month	All domestic HOTSPOT areas (approx. 8,000 access points nationwide)
	1 DAY PASSPORT	Standard areas, express areas	500 yen/day (24H, including tax) * Per single ID	Standard areas: MOS BURGER, TULLY'S COFFEE, PRONT, airports, and subway stations in Tokyo, etc.
NTT DOCOMO Group	Mzone	Monthly charge plan	1,500 yen/month	Approx. 6,800 access points nationwide
		Daily charge plan	500 yen/day	
	mopera U (U "Public Wireless LAN" course)	"Public Wireless LAN" course + U Standard Plan	800 yen/month (Total of U Standard Plan and U "Public Wireless LAN" course)	FOMA subscribers Access points shared with Mzone
NTT East/West	FLET'S SPOT		900 yen/month (800 yen/month for subscribers of FLET'S Access services)	Approx. 9,000 access points nationwide (total of NTT East and West) * As of February 1, 2010
SoftBank Telecom	BB Mobile Point		200 yen/month (Yahoo! Premium members)	Approx. 4,000 access points nationwide • McDonald's nationwide: approx. 3,400 stores * As of May 18, 2010 • Tokaido Shinkansen (between Tokyo and Shin-Osaka): N700 series trains and 17 stations • New Narita Express (E259 series): inside trains Charges differ depending on ISP
SoftBank BB	Odekake Access (public wireless LAN service)		304 yen/month (including tax) (Yahoo! BB option) 1 free ID with subscription to wireless LAN pack (rental)	Roaming with BB mobile points
Yahoo!	Yahoo! Wireless LAN Spot		500 yen/month (200 yen/month for Yahoo! Premium members)	Roaming with BB mobile points
livedoor	livedoor Wireless		500 yen/month	Mainly in Tokyo but expanding to Chiba, Kanagawa, and Saitama areas 2,200 access points at coffee shops, restaurants, large-scale commercial facilities, and large-scale home appliance stores, etc.

(Source) Ministry of Internal Affairs and Communications and websites of respective business operators

[17] With some business operators roaming services are available at an additional charge that enables the use of the wireless LAN services of affiliate business operators.

III Internet Connection Domain

Table of Contents

Chapter 1 Market Delimitation within the Internet Connection Domain

This chapter concerns delimitation of the internet connection domain market.

1. Delimitation of service markets

Conventional delimitation was adopted for use in service markets.

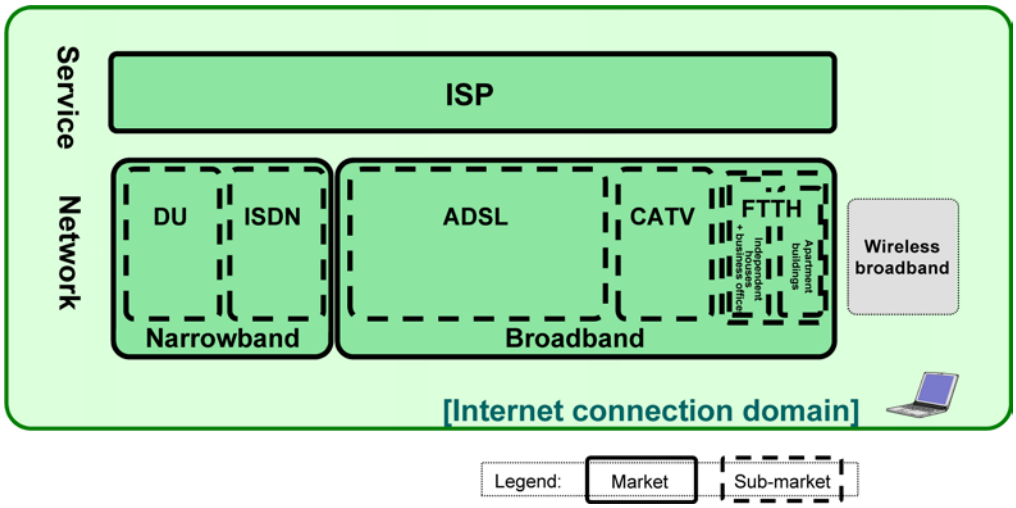
Access network services were first delimited into the narrowband market, consisting of Dial Up (DU) and full-time ISDN (ISDN) connection services, and the broadband market, consisting of ADSL, FTTH, and CATV internet (CATV) services. Those five services were then also delimited into respective sub-markets. FTTH was further delimited into a sub-market of independent houses + business offices and a sub-market of apartment buildings. The reason for that FTTH delimitation is the different situation with the way the services are provided. The business operator and access speed can be selected as the residents' own decision with independent houses + business offices while physical limitations such as an agreement or permission from the other residents or management companies exist with apartment buildings.

The overall internet connection service market was then delimited into a single ISP market.

Wireless broadband services are at present not subjected to any market delimitation as they are considered to be relatively new services that are still in their infancy, etc.

Figure III-1 illustrates the market delimitation of the above service markets.

[Figure III-1 Market delimitation within internet connection domain]



2. Delimitation of geographical markets

The market delimitation made in FY 2006 was adopted for geographical markets.

The narrowband market, cable internet market, and ISP market of the broadband market were first delimited as a nationwide market. The reason cable internet services were geographically delimited into a nationwide market is that although in actuality CATV business operators exclusively provide services in municipalities, recent alliances of CATV business operators, the emergence of Multiple System Operators (MSO) that own/operate broadcast facilities in multiple regions, and increased alternative use to FTTH, etc. within the broadband market, etc. needed to be taken into consideration.

The ADSL market, a sub-market of the broadband market, was then delimited into two regions, namely Eastern Japan and Western Japan, or the business zones of NTT East and West. Figure III-2 illustrates the segmentation of these two regions.

(i) Eastern Japan region
Hokkaido, Aomori, Iwate, Miyagi, Akita, Yamagata, Fukushima, Ibaraki, Tochigi, Gunma, Saitama, Chiba, Tokyo, Kanagawa, Niigata, Yamanashi, and Nagano

(ii) Western Japan region
Shizuoka, Aichi, Mie, Gifu, Toyama, Ishikawa, Fukui, Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama, Tottori, Okayama, Hiroshima, Yamaguchi, Tokushima, Kagawa, Ehime, Kochi, Fukuoka, Saga, Nagasaki, Kumamoto, Oita, Miyazaki, Kagoshima, and Okinawa

[Figure III-2 Geographical segmentation of ADSL market]

To ensure appropriate identification/analysis of the status with competition the overall broadband market and FTTH sub-market were delimited into geographical markets that instead of being based on the business zones of NTT East and West were based on the business zones of

electrical power-related business operators [1]. More concretely, the delimitation took place into the 10 following blocks of Hokkaido, Tohoku, Kanto, Tokai, Hokuriku, Kinki, Chugoku, Shikoku, Kyushu, and Okinawa based on the business zone of the electricity business of the parent electrical power-related business operator (or relevant business operator if they also engaged in the telecommunications business). Figure III-3 illustrates those 10 blocks.

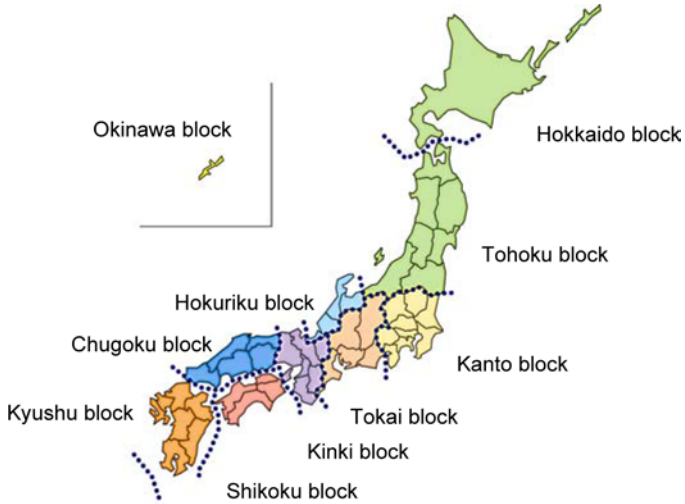
(i)	Hokkaido block:	Hokkaido
(ii)	Tohoku block:	Aomori, Iwate, Akita, Miyagi, Yamagata, Fukushima, Niigata
(iii)	Kanto block:	Ibaraki, Tochigi, Gunma, Saitama, Chiba, Tokyo, Kanagawa, Yamanashi, Shizuoka[2] (east of Fuji River)
(iv)	Tokai block:	Nagano[3], Gifu, Shizuoka (west of Fuji River), Aichi, Mie
(v)	Hokuriku block:	Toyama, Ishikawa, Fukui
(vi)	Kinki block:	Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama
(vii)	Chugoku block:	Tottori, Shimane, Okayama, Hiroshima, Yamaguchi
(viii)	Shikoku block:	Kagawa, Tokushima, Ehime, Kochi
(ix)	Kyushu block:	Fukuoka, Saga, Nagasaki, Kumamoto, Oita, Miyazaki, Kagoshima
(x)	Okinawa block:	Okinawa

[1] Electrical power-related business operators refer to Hokkaido Telecommunication Network, Tohoku Intelligent Telecommunication, Family Net Japan, Hokuriku Telecommunication Network, K-Opticom, Energia Communications, STNet, Kyushu Telecommunication Network, and Okinawa Telecommunication Network. The mansion ISP business of TEPCO Systems was succeeded by Family Net Japan in January 2009. With the aggregation of market share, etc. the figures of Chubu Telecommunications were counted as being for KDDI because of a partial assignment of stock that took place in April 2008.

[2] The figures for Shizuoka prefecture were proportionally distributed into two blocks according to the ratio of households with the Fuji River used as a borderline, and calculated based on the "Population Summary of Basic Resident Registers" (March 2009). Although Shizuoka prefecture lays within the business zone of NTT West the figures for regions west of the Fuji River were added to the Tokai block whereas those east of the Fuji River to the Kanto block when calculating the number of subscriptions for the 10 blocks. Therefore, although the Kanto block is basically included in the business zone of NTT East the number of subscriptions in the Kanto block includes the Shizuoka prefecture (east of Fuji River) subscriptions that are not included in the business zone of NTT East.

[3] Although Nagano prefecture lies within the business zone of NTT East it was included in the Tokai block in this geographical market delimitation. Therefore, although the Tokai block is basically included in the business zone of NTT West the number of subscriptions in the Kanto block includes the Nagano prefecture subscriptions that are not included in the business zone of NTT West.

[Figure III-3 Geographical segmentation of overall broadband market and FTTH market]



3. Markets subjected to assessment/analysis

All delimited markets were subjected to analysis apart from the narrowband market. The narrowband market was not subjected to any assessments or analysis because the status with competition is basically the same as with the fixed telephone market and its importance has been decreasing because of the development of broadband services.

4. Structure of assessment and analysis

With the internet connection network services the assessment and analysis first took place of the overall broadband market and then on the sub-markets of ADSL, FTTH, and cable internet. Assessment and analysis also took place on the ISP market with regard to internet connection services.

5. Treatment of business operator data

(1) Overall broadband market

NTT East and NTT West were treated as being one company, namely NTT East and West, in the nationwide assessment/analysis. Electrical power-related business operators were also treated as one company, collectively “electrical power-related business operators”, after having totalled the data of the respective business operators.

The reason NTT East and West and electrical power-related business operators were respectively treated as one company is as follows. At present NTT East and West provide separate services in Eastern Japan and Western Japan, respectively, and electrical power-related business operators in respective regional blocks. Because of this a single nationwide geographical market being analysed would result in NTT East and NTT West, whose business zones do not overlap,

being regarded as having a competitive relationship, along with the respective electrical power-related business operators too. Electrical power-related business operators do not have mutual capital ties, and thus treating them as one company leaves more room for discussion. From the users' point of view, however, the services of electrical power-related business operators in other regions cannot be selected as an alternative, and hence they are in the same situation as NTT East and West. They were therefore treated as one company when calculating the indices.

In addition, if multiple CATV business operators were deemed to be operating under the same MSO they were treated as a single group company when calculating the share and HHI of the number of subscriptions, etc. and when the numbers of subscriptions of those business operators were totalled.

(2) ADSL market

As with the overall broadband market NTT East and NTT West were treated as one company, namely NTT East and West, in the nationwide assessment/analysis.

(3) FTTH market

As with the overall broadband market NTT East and NTT West were treated as one company, namely NTT East and West, in the nationwide assessment/analysis, and electrical power-related business operators also as one company, namely "electrical power-related business operators", when totalling the data of the respective business operators.

(4) Cable internet market

If multiple business operators in the cable internet market were deemed to be operating under the same MSO they were treated as a single group company when calculating the share and HHI of the number of subscriptions, etc. and when the numbers of subscriptions of those business operators were totalled.

Chapter 2 Analysis of Major Indices in Broadband Market

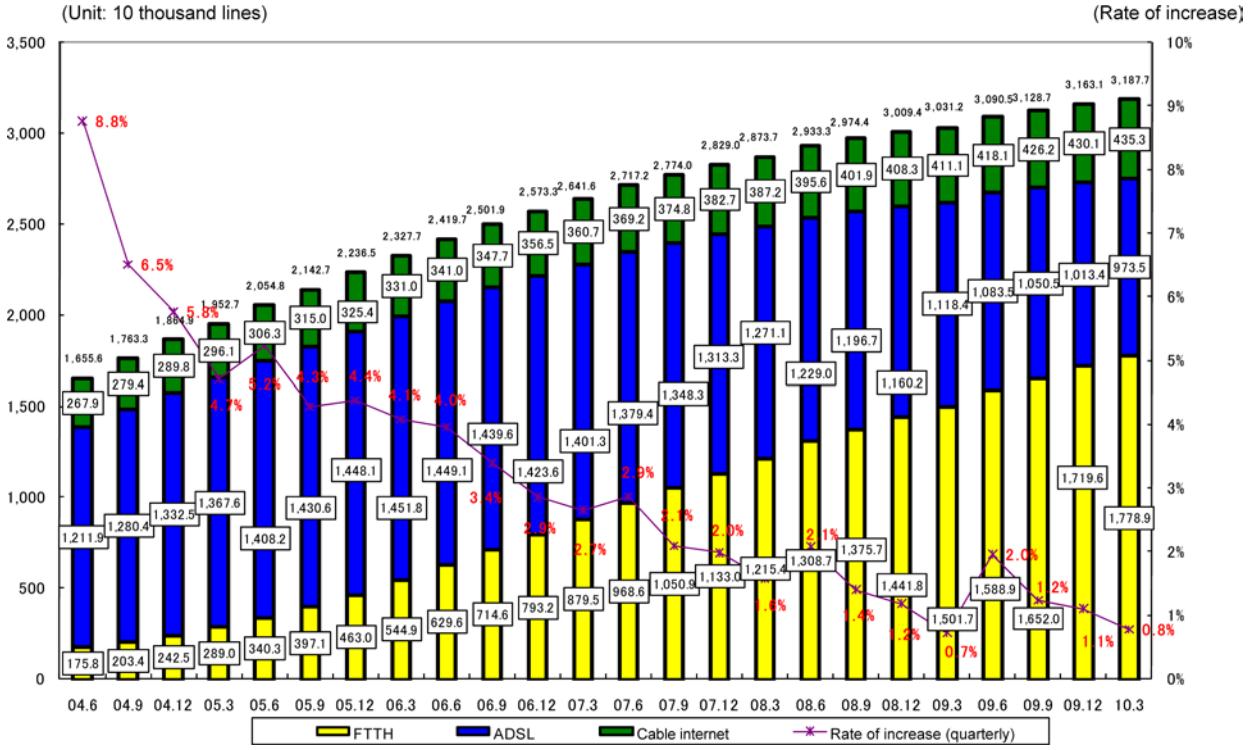
This chapter analyzes major indices in the overall broadband the internet connection domain market.

1. Market size

(1) Changes in number of subscriptions

The number of subscriptions in the overall broadband market was 31.877 million and is increasing, although the rate of increase has been declining. By service the FTTH market has been increasing while the ADSL market started decreasing in March 2006.

[Figure III-4 Changes in number of subscriptions in broadband market]



(Source) Ministry of Internal Affairs and Communications

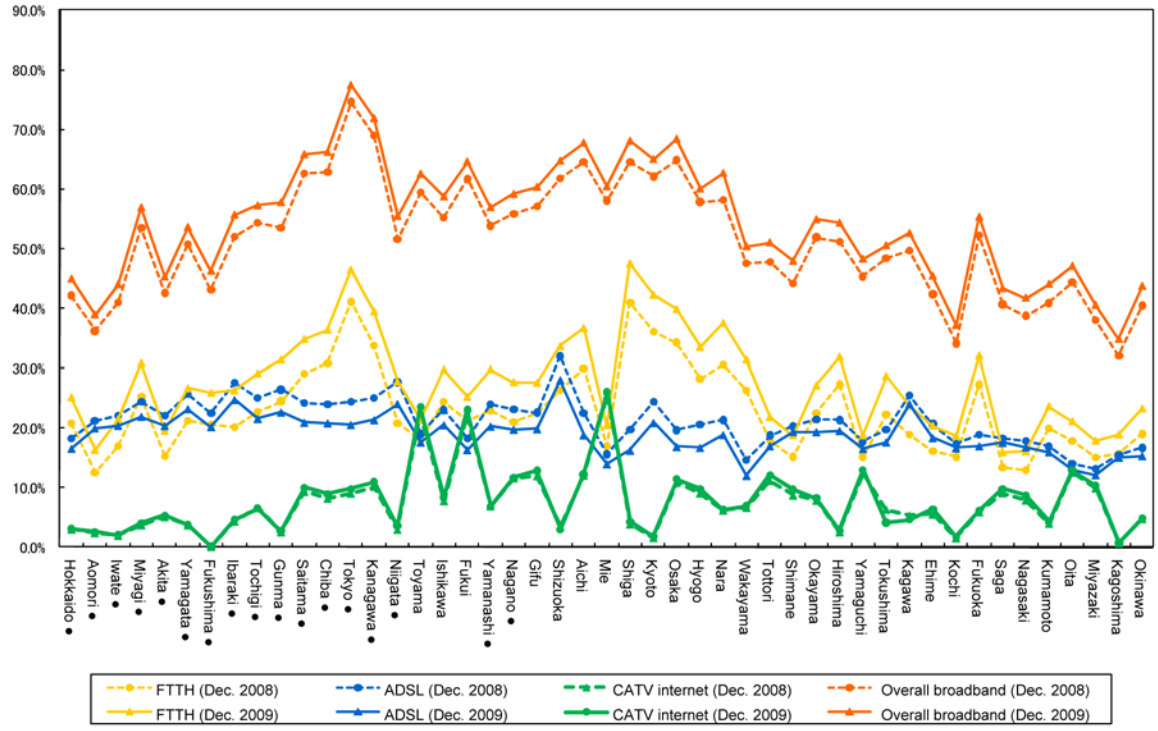
(2) Penetration rate with number of subscriptions by prefecture

Comparing the penetration rate by prefecture in the broadband market in December 2008 and also December 2009 revealed the penetration rate of FTTH to be increasing in every prefecture. Conversely, however, the penetration rate of ADSL has been decreasing in every prefecture. In addition, prefectures with high FTTH penetration rates are concentrated in the Kanto and Kinki areas where competition is considered to be relatively good. The penetration rate of broadband

overall is also relatively high in those regions.

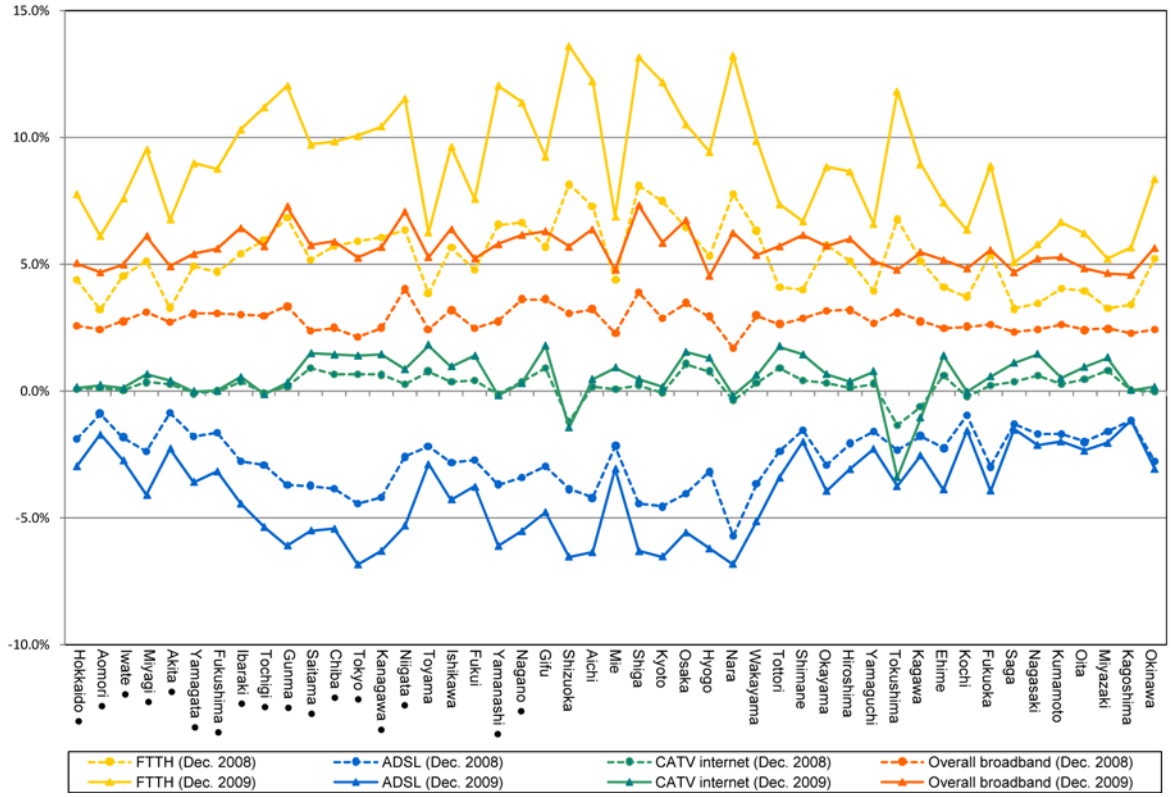
Examining the difference between the rate of present increase with that of the previous term (hereinafter referred to as the “penetration increase rate” and “penetration decrease rate”) revealed prefectures with high FTTH penetration increase rates tended to have high ADSL penetration decrease rates while prefectures with low FTTH penetration increase rates tended to have low ADSL penetration decrease rates. This indicates that a migration from ADSL is actively taking place in regions where the penetration of FTTH is progressing while the contract cancellation rate of ADSL is low in regions where penetration of FTTH is not progressing very fast.

[Figure III-5 Penetration rate in number of subscriptions in broadband market by prefecture]



(Note) Figures are calculated by (number of subscriptions in present term / number of households in the prefecture) x 100
(Source) Ministry of Internal Affairs and Communications

[Figure III-6 Penetration increase rate in number of subscriptions in broadband market by prefecture]



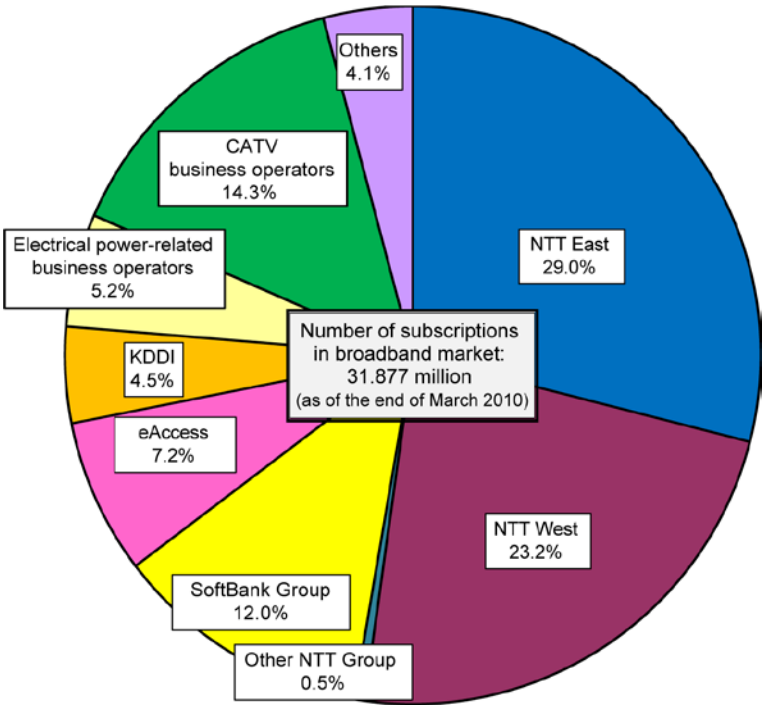
(Note) Figures indicate the difference between the penetration rate of present term with that of the same term in the previous year.
(Source) Ministry of Internal Affairs and Communications

2. Analysis of status with competition

(1) Share of business operators of number of subscriptions

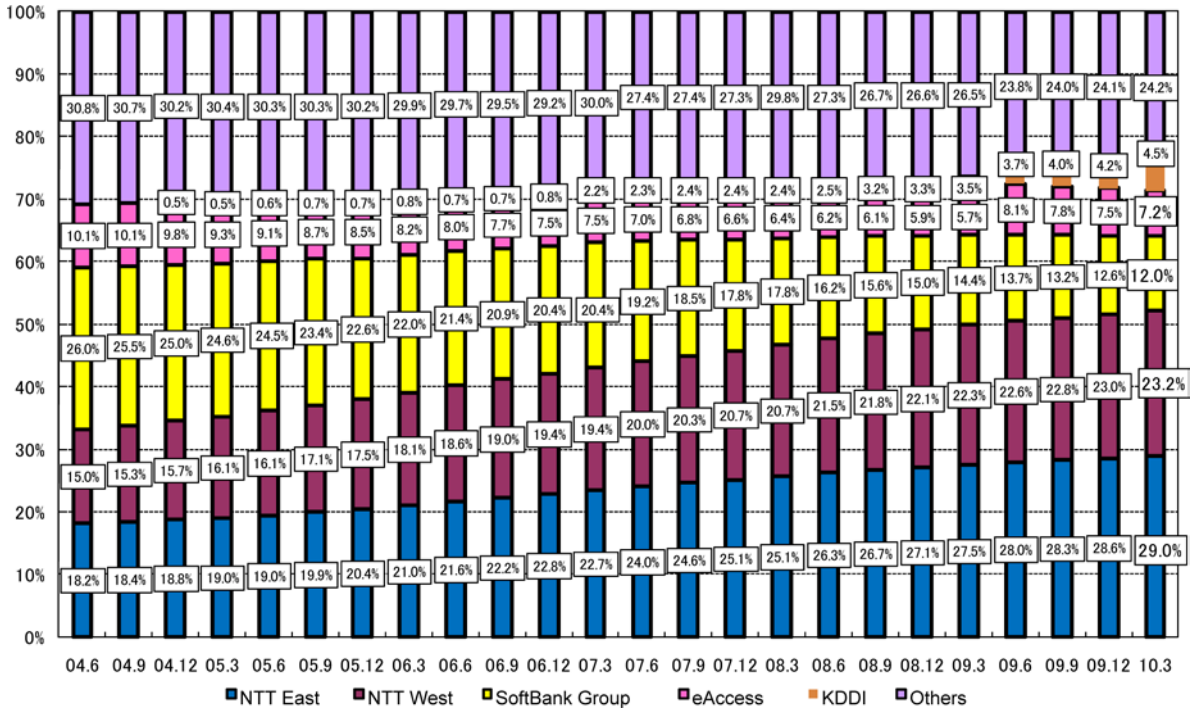
Examining the share of business operators of number of subscriptions in the broadband market revealed the share of NTT East and West to be 52.2% as of the end of March 2010. The share of NTT East and West has been consistently increasing since March 2004, in contrast to other major business operators whose share has been declining. The rise in the share of NTT East and West with FTTH is considered to be a direct result of an increase in the percentage of FTTH subscriptions, which will be discussed in more detail in Chapter 4.

[Figure III-7 Share of business operators of number of subscriptions in broadband market (as of the end of March 2010)]



(Source) Ministry of Internal Affairs and Communications

[Figure III-8 Changes in share of business operators of number of subscriptions in broadband market]



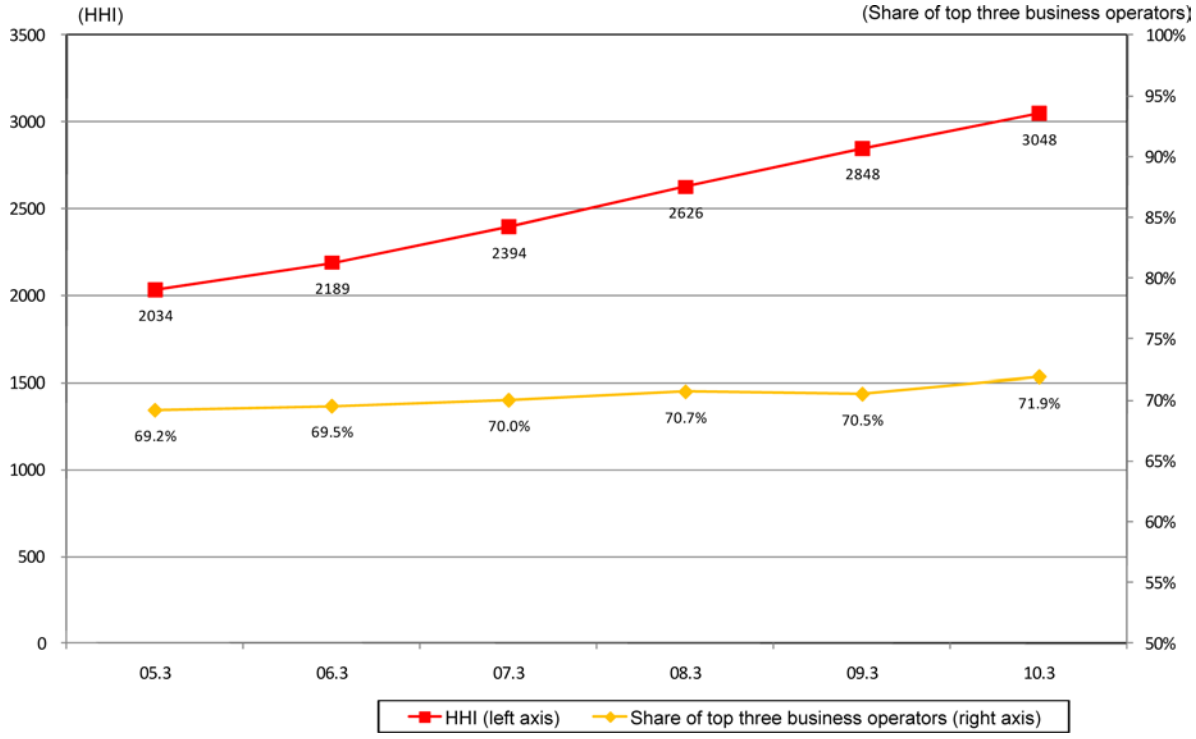
(Source) Ministry of Internal Affairs and Communications

(2) Changes in market concentration (share and HHI of top three business operators)

The total share of the top three business operators (NTT Group, SoftBank Group, and eAccess) of the number of subscriptions in the broadband market was 71.9% as of the end of March 2010. Their share has remained at about 70% since June 2004, and hence can be seen to have only slightly risen.

The HHI of the number of subscriptions in the broadband market was 3,048 as of the end of March 2010 and continues to be on an upward trend.

[Figure III-9 Changes in share and HHI of top three business operators of number of subscriptions in broadband market]



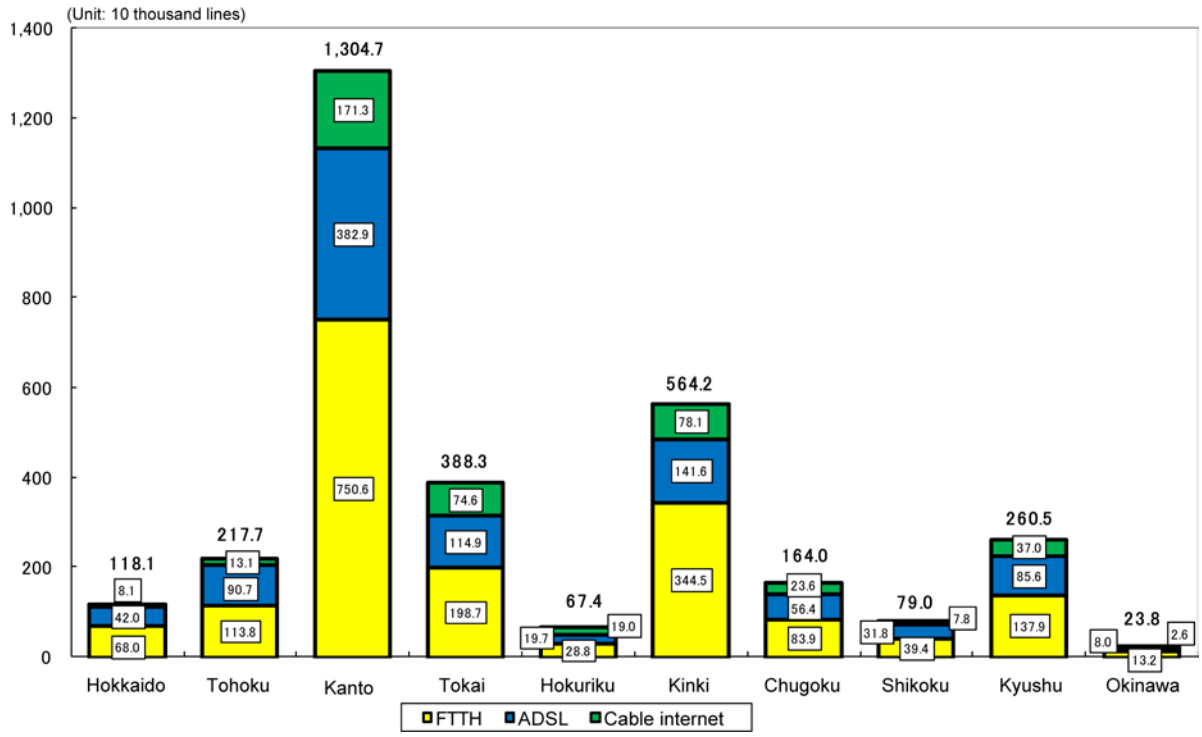
3. Analysis of indices by geographical market

(1) Number of subscriptions by regional block

Examining the number of subscriptions by regional block revealed the number to be the largest in Kanto with 13.047 million as of the end of March 2010, followed by Kinki with 5.642 million, and Tokai with 3.883 million, thus indicating large numbers of subscriptions tending to be concentrated in the greater metropolitan regions.

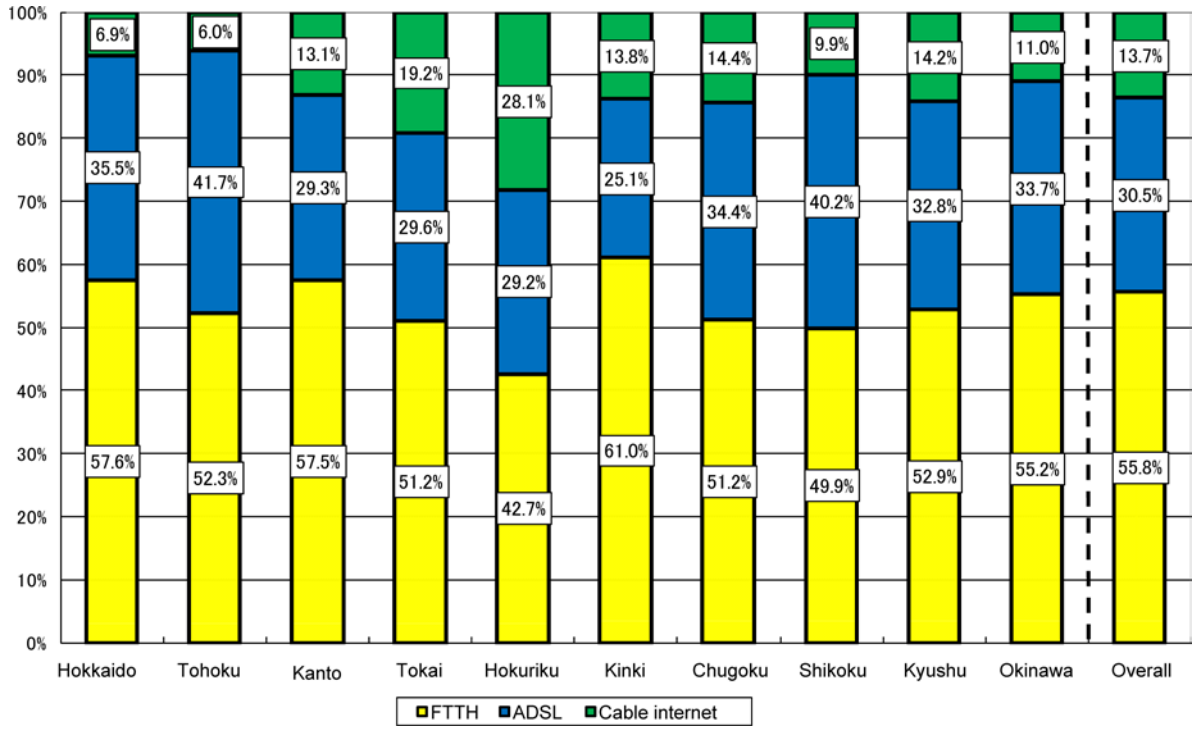
Examining broadband methods by regional block revealed ADSL to have a relatively high percentage in Tohoku (41.7%), FTTH relatively high in Kinki (61.0%), and cable internet relatively high in Hokuriku (28.1%).

[Figure III-10 Number of subscriptions in broadband market by regional block (as of the end of March 2010)]



(Source) Ministry of Internal Affairs and Communications

[Figure III-11 Percentage distribution of number of subscriptions in broadband market by regional block (as of the end of March 2010)]



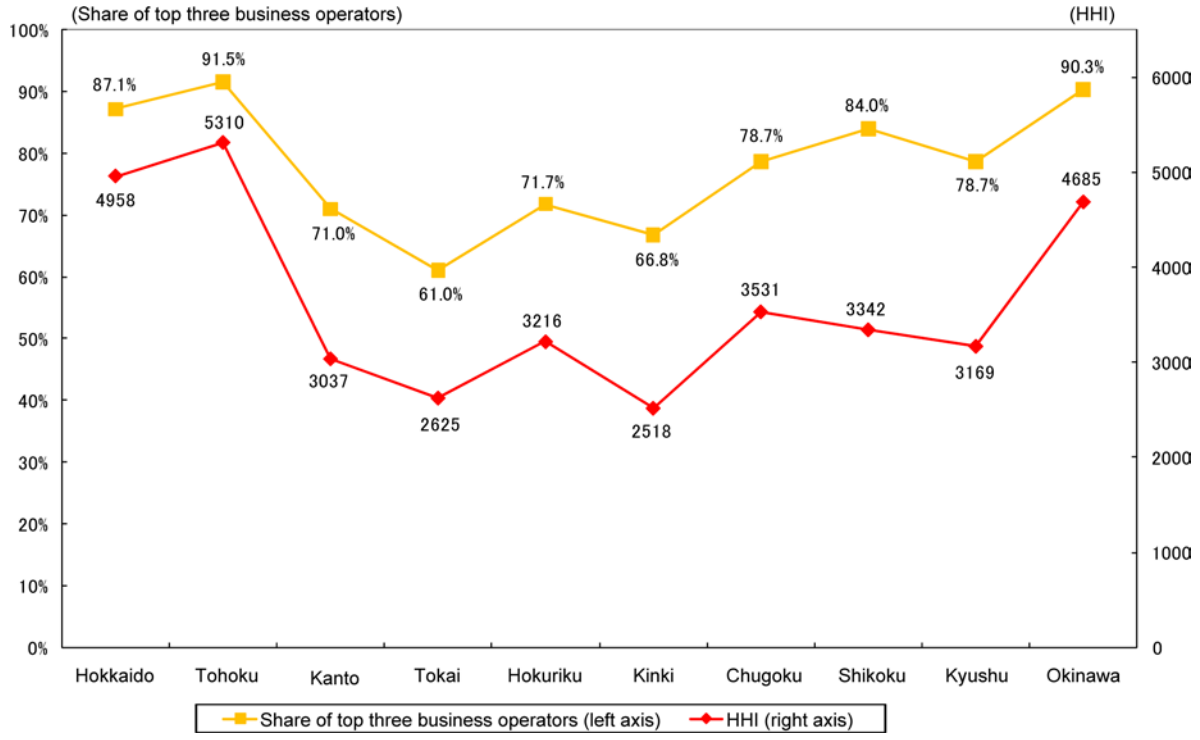
(Source) Ministry of Internal Affairs and Communications

(2) Market concentration by regional block (share and HHI of top three business operators)

By regional block the share of the top three business operators of the number of subscriptions was at least 60% in every regional block and exceeded 90% in Tohoku and Okinawa, in particular.

The HHI, however, varies with the region. It was relatively low in Kanto (3,037), Tokai (2,625), and Kinki (2,518), thus indicating the high level of competition in those blocks when compared to other regions. After taking into considering the overall high level of the share of the top three business operators, however, the market can basically be considered to be oligopolistic in every regional block.

[Figure III-12 Share and HHI of top three business operators of number of subscriptions in broadband market by regional block]



(Source) Ministry of Internal Affairs and Communications

4. Assessment of status with competition

(1) Trends in FY 2009

1) Number of subscriptions

The number of subscriptions continues to increase in the broadband market, although the rate of increase is on a declining trend. Examining the percentage of respective services reveals the percentage of ADSL to be decreasing while that of FTTH to be on an upward trend.

2) Share

Because of the rise in percentage of FTTH in the broadband market NTT East and West also had as increase in their share of the number of subscriptions of FTTH which then lead to their share of the overall broadband market rising (52.2% as of the end of March 2010).

SoftBank Group and eAccess, with certain shares of the number of ADSL subscriptions, have the second and third share, respectively, after NTT East and West of the overall broadband market. With the net decrease in total number of ADSL subscriptions, however, their shares have both been on a declining trend.

3) Dissemination of services using NGN by NTT East and West

NTT East and West commenced services (“FLET’S Hikari Next”) using the Next Generation Network (NGN), which enables Hi-Vision equivalent video phone services and video picture distribution services with QoS (Quality of Service), to be provided in March 2008, and have been providing the services nationwide, although mainly in metropolitan areas.

Telecommunications business operators that provide broadband network services using NGN and content providers that provide video picture distribution services using “FLET’S Hikari Next” entering the market can be expected to further revitalize the market, although mainly FTTH, in the future.

(2) Market dominance

1) Existence of market dominance

[1] Independent market dominance

After taking into general consideration the following determining factors, etc., NTT East and West were deemed to be in a position of being capable of independently exercising market dominance. The current market structure and status with competition between business operators makes the probability of NTT East and West, with the top share of the number of subscriptions in

the market, being in a position of being capable of controlling the price and other relevant conditions quite high.

a) Quantitative criteria

The share of NTT East and West of the number of subscriptions in the broadband market has been consistently increasing with the migration from high-speed broadband to ultra-high-speed broadband, represented by FTTH, that has been taking place, being 52.2% as of the end of March 2010, while the difference with the shares of the other business operators (12.0% for SoftBank Group and 7.2% for eAccess) has been increasing.

b) Other major determining factors

The share of NTT East and West of overall subscriber lines (total of metal lines and optical fiber lines) was 87.9% as of the end of March 2010.

ADSL and FTTH services being provided by competing business operators largely depends on open access to the subscriber lines of NTT East and West. NTT East and West can, therefore, impose on competing business operators via the various procedures, etc. involved in the use of those facilities.

[2] Cooperative market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. business operators with the top share were deemed to be in the position of being capable of cooperatively exercising market dominance.

a) Quantitative criteria

The share of the top three business operators of broadband market was 71.9% as of the end of March 2010, thus indicating the market to be oligopolistic. In addition, the share of the top three business operators has been levelling off since the end of June 2004, although it had slightly risen as of the end of March 2010. The HHI, however, was 3,048 as of the end of March 2010 and continues to be on an upward trend.

b) Other major determining factors

A certain homogeneity in the terms of the service content and flat rate charge systems, etc. is considered to have tended to have occurred with the broadband services provided by individual business operators.

2) Exercise of market dominance

[1] Independent market dominance

Measures to restrain/check any exercising of market dominance have been taken with NTT East and West through application of regulations on connections, actions, and services in accordance with the type 1 designated telecommunications facility system.

The increase in the share of NTT East and West of the growing FTTH market along with the decrease in total number of ADSL subscriptions has resulted in the share of NTT East and West of the overall broadband market exceeding 50%.

After taking into consideration these factors, etc., and although to a certain extent measures to restrain any exercising of market dominance have been taken, the possibility of NTT East and West independently exercising market dominance cannot be denied and concerns over leveraging fixed telephones, etc. are considered to exist.

[2] Cooperative market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. the possibility of the multiple business operators with the top shares exercising cooperative market dominance is considered low.

The broadband market is gradually expanding and competition for market share is expected to continue between business operators while the difference between the largest share and the second largest share is also increasing, thus making cooperation between multiple business operators being deemed unlikely.

However, competition for market share may change in the future and hence close observation of market trends is still necessary. It should be noted in particular that the total number of ADSL subscriptions is on a decreasing trend and the possibility of cooperation between business operators is considered to be relatively high.

(3) Examination from users' point of view

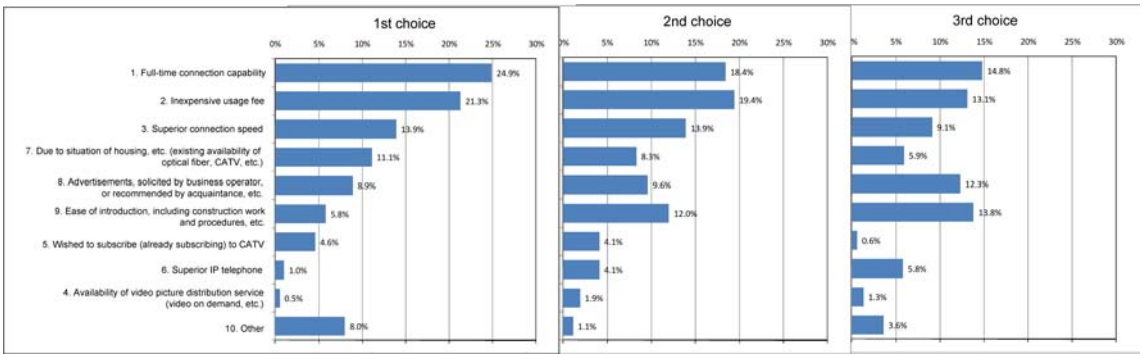
User intentions with respect to the internet connection domain are considered here based on the results of the "FY 2009 Results of the Second Telecommunications Service Monitor Questionnaire Survey"[4].

The results of the survey shown in Figure III-13 reveal the top reasons for selecting an internet

[4] Published June 30, 2010. Refer to http://www.soumu.go.jp/menu_news/s-news/02kiban08_02000044.html.

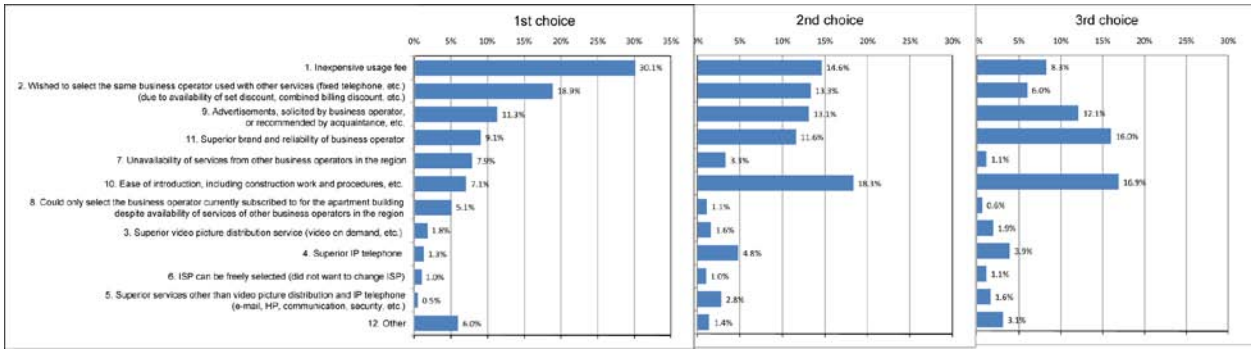
connection network service to be the service conditions, including full-time connection, usage charges, and connection speed. In addition, the number of those listing ease of introduction, including construction work and procedures, as second and third choices was also relatively large. Furthermore, the results of the survey shown in Figure III-14 reveal that many listed usage charges as their first reason for selecting a business operator and many listed the ease of introduction, including construction work and procedures, as their second and third reasons.

[Figure III-13 Reasons for selecting internet connection networks currently subscribed to]



(Source) "FY 2009 Results of the Second Telecommunications Service Monitor Questionnaire Survey" by the Ministry of Internal Affairs and Communications

[Figure III-14 Reasons for selecting internet connection business operators currently subscribed to]



(Source) "FY 2009 Results of the Second Telecommunications Service Monitor Questionnaire Survey" by the Ministry of Internal Affairs and Communications

(4) Matters requiring close observation in the future

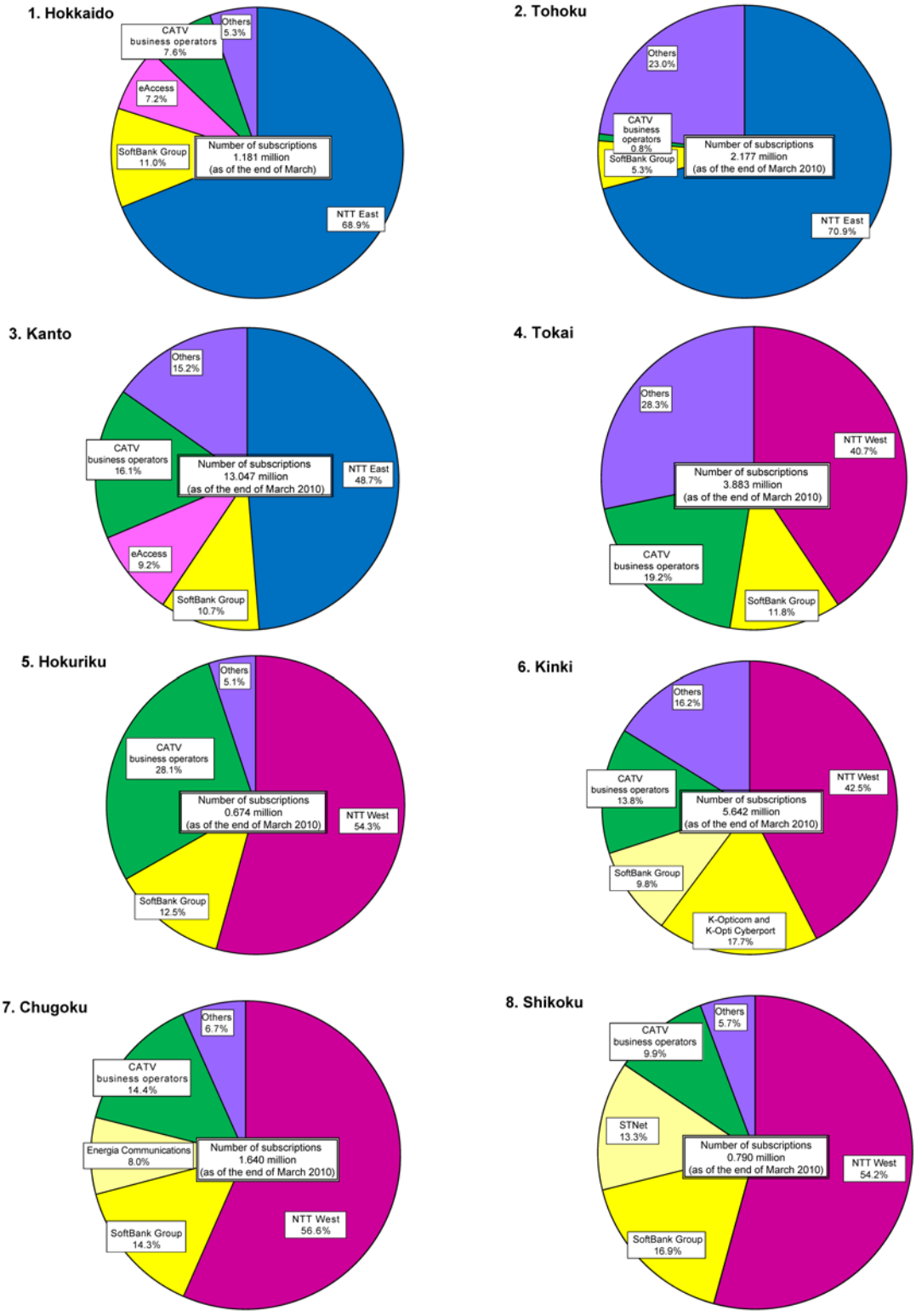
Although measures to restrain/check any exercising of market dominance, including regulation on connections, actions, and services in accordance with the type 1 designated telecommunications facility system, have been taken with NTT East and West an order to improve their business activities was issued to NTT West regarding the handling of information obtained from other telecommunications carriers as part of its business in connection to telecommunications facilities in February 2010. The status with compliance of the competition rules therefore needs to continue to be closely observed in the future.

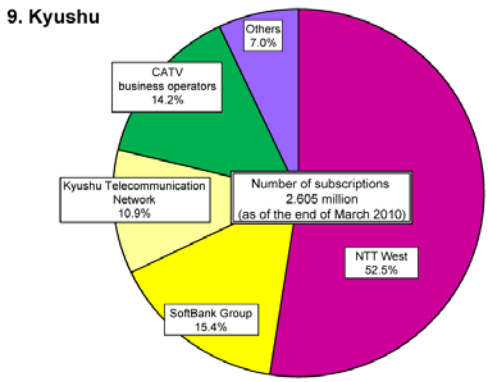
In addition, the share of NTT East and West of the broadband market has been on an upward trend with a rise in their share of the FTTH market and thus analysis of changes in competition trends in the market will also be important.

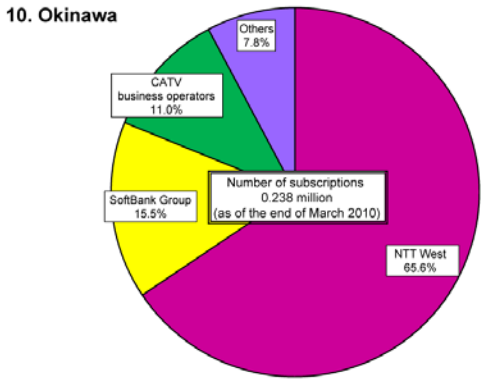
Furthermore, attention should also be paid to the impact that the dissemination of the “FLET’S Hikari Next” services of NTT East and West using NGN will have on the broadband market. The use of these services is expected to increase with the expansion of the areas they are provided in the future, and hence the possibility of leveraging fixed telephones, etc. should continue to be closely observed.

In addition, wireless broadband services, including BWA, etc., are being disseminated and the impact these new services will have on the broadband market, etc. will also need to be closely observed.

[Reference III-1 Major indices by regional block (broadband market, as of the end of March 2010)]







(Source) Ministry of Internal Affairs and Communications

Chapter 3 Analysis of Major Indices in ADSL Sub-Market

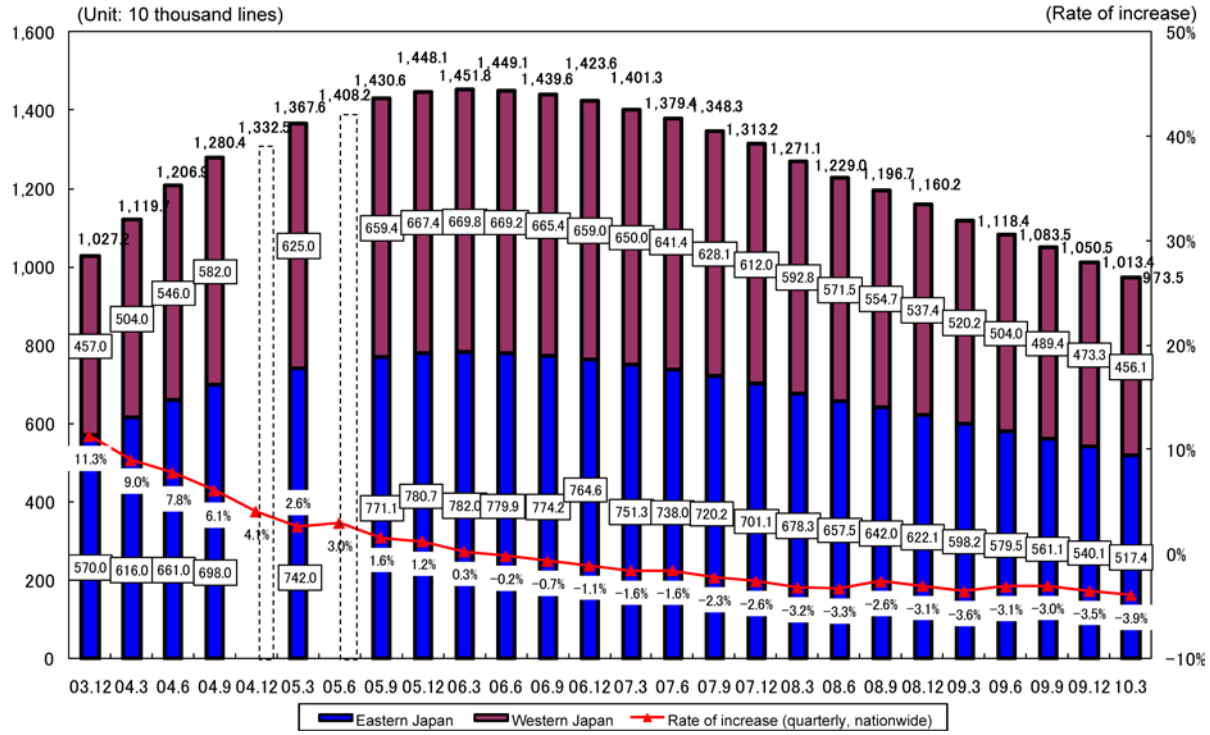
This chapter involves the analysis of major indices in the ADSL sub-market with the internet connection domain.

1. Market size

(1) Changes in number of subscriptions

The number of subscriptions in the overall ADSL market has continued to decrease and was 9.735 million as of the end of March 2010.

[Figure III-15 Changes in number of subscriptions in ADSL market]



(Note 1) Figures for NTT East and West in March 2004 or earlier partially include estimates.
(Note 2) The number of subscriptions by region was not calculated for December 2004 and June 2005 because no data aggregation by prefecture was made in accordance with the Rules for Reports from the Telecommunications Business.
(Source) Ministry of Internal Affairs and Communications

2. Analysis of status with competition

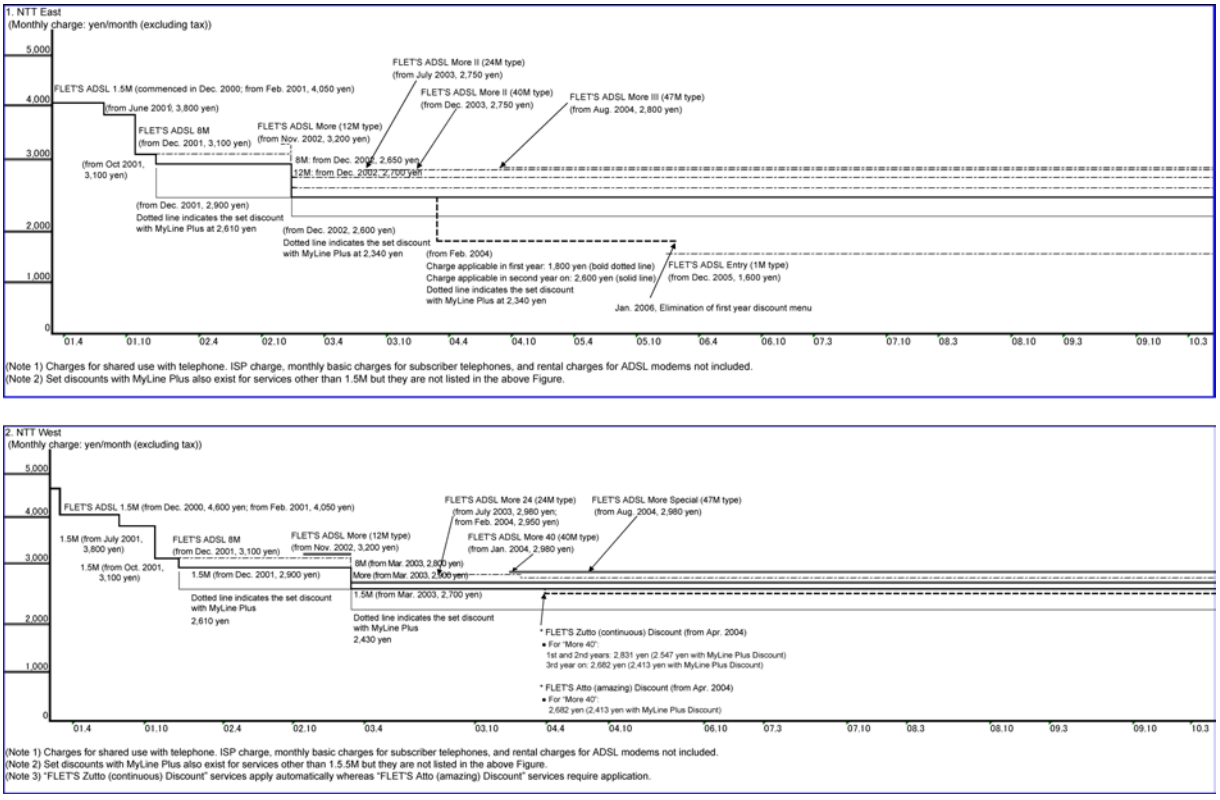
(1) Status with charges

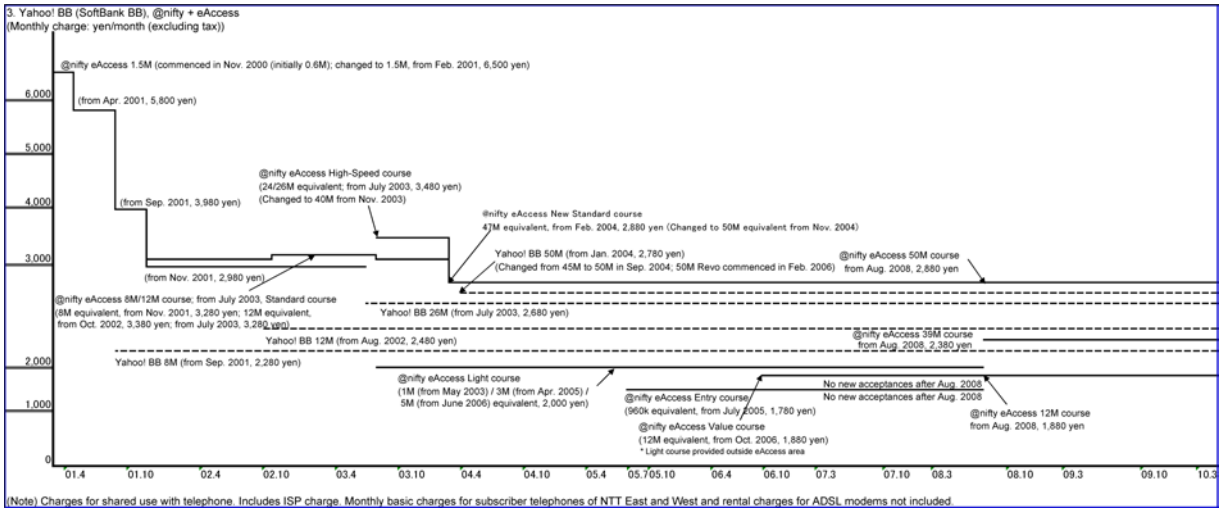
1) Changes in charge level

Figure III-16 illustrates changes in charges of major business operators.

No improvement in transmission speed has been observed since 2006 and charges have also reached their lowest.

[Figure III-16 Changes in ADSL charges]





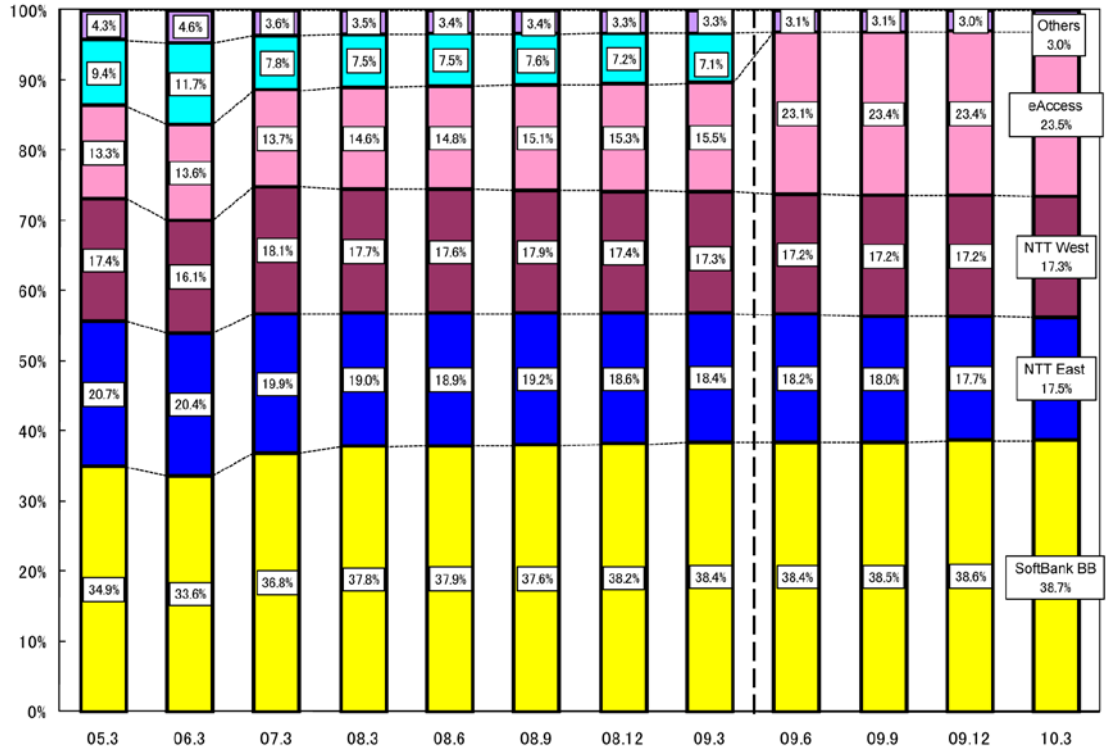
(Source) Websites of respective business operators.

(2) Share of business operators of number of subscriptions

Examining the share of business operators with regard to their number of subscriptions in the ADSL market reveals SoftBank BB to have the largest nationwide share and the difference with NTT East and West, who have the second largest share, to be increasing.

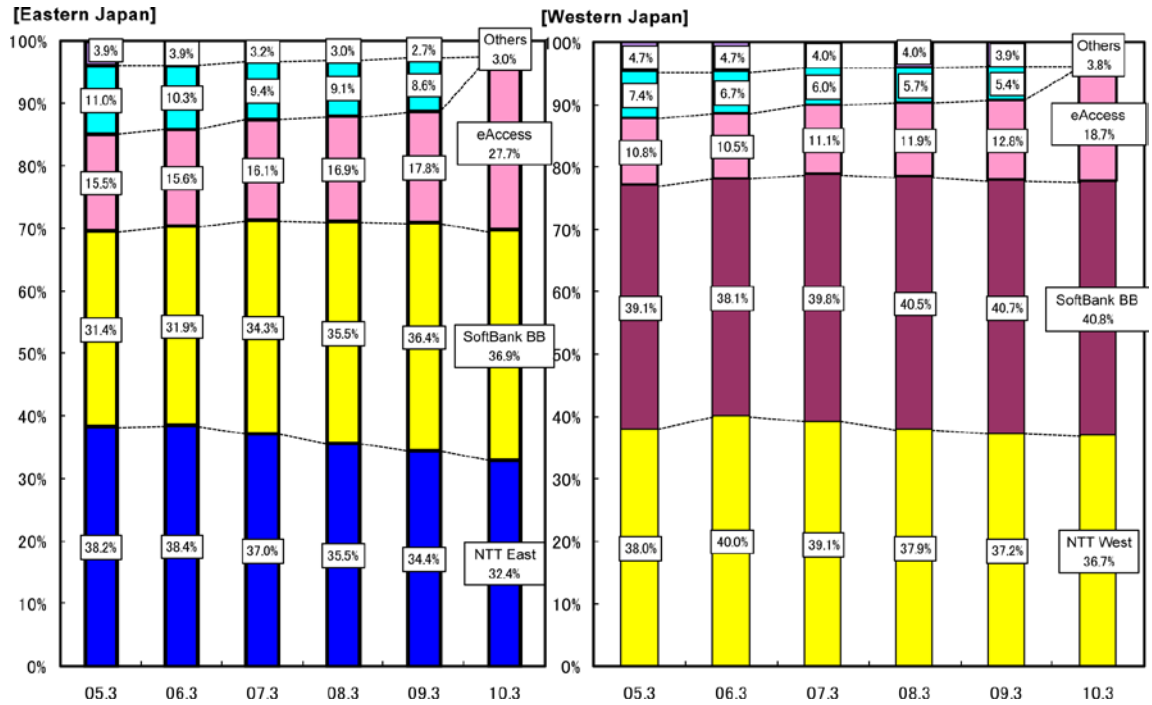
By region the decrease in the share of NTT East and West is common to both Eastern Japan and Western Japan.

[Figure III-17 Changes in share of business operators of number of subscriptions in ADSL market (nationwide)]



(Source) Ministry of Internal Affairs and Communications

[Figure III-18 Changes in share of business operators of number of subscriptions in ADSL market (Eastern/Western Japan)]



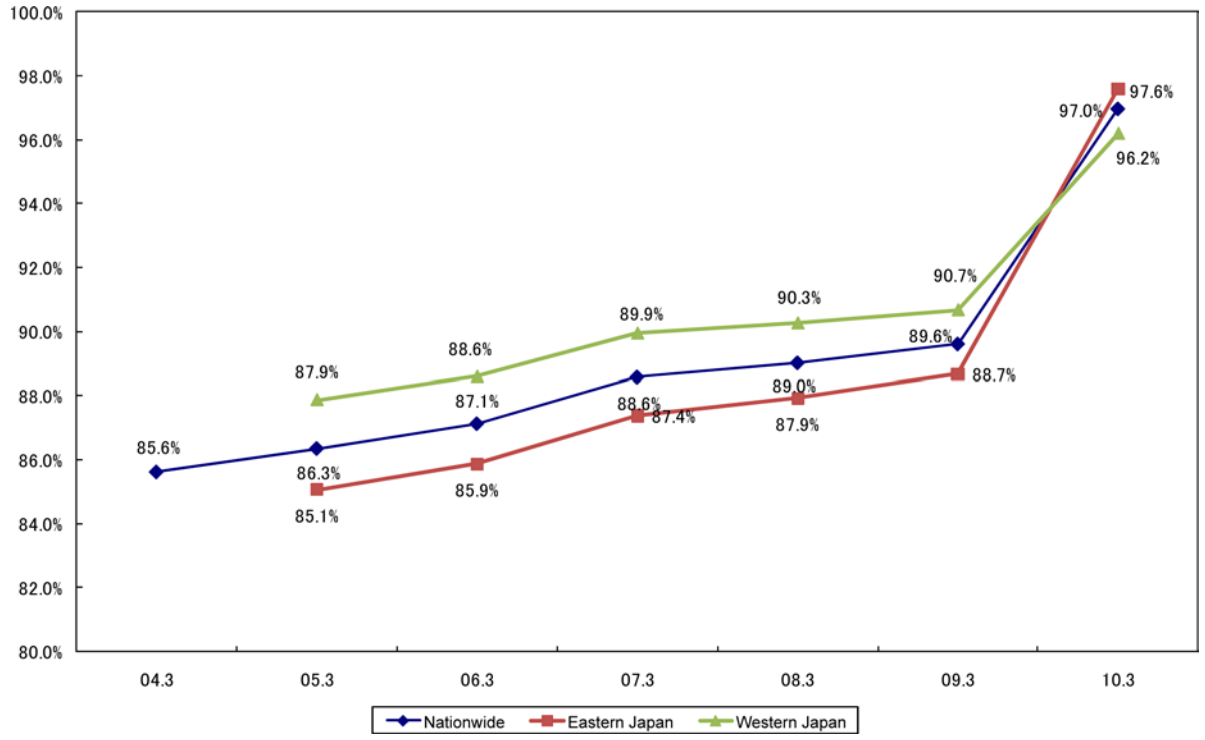
(Source) Ministry of Internal Affairs and Communications

(3) Changes in market concentration (share and HHI of top three business operators)

1) Changes in share of top three business operators

The share of the top three business operators (SoftBank BB, NTT East and West, and eAccess) of the number of subscriptions in the ADSL market was 97.0% nationwide as of the end of March 2010, that in Eastern Japan 97.6%, and Western Japan 96.2%. In June 2009 eAccess took over ACCA Networks.

[Figure III-19 Changes in share of top three business operators of number of subscriptions in ADSL market]

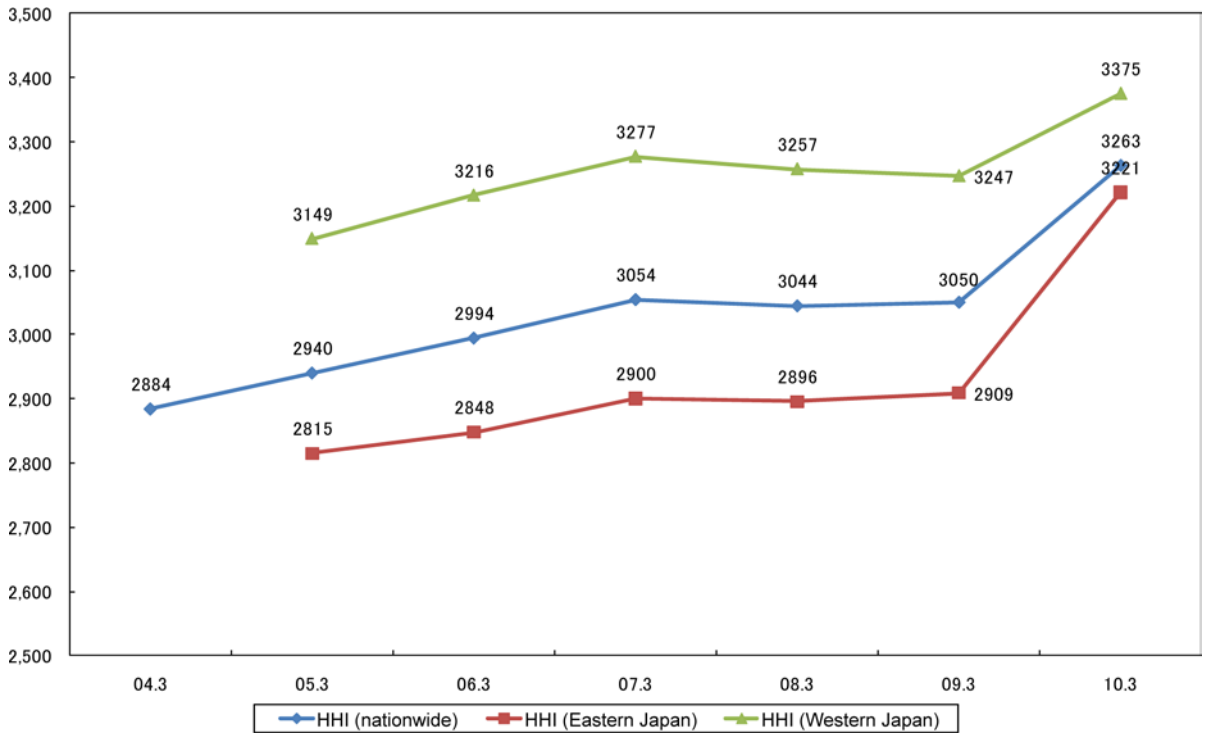


(Note) NTT East and West are regarded as one company when calculating share.
(Source) Ministry of Internal Affairs and Communications

2) Changes in HHI

The HHI with the number of subscriptions in ADSL market was 3,263 nationwide as of the end of March 2010, that of Eastern Japan 3,221, and Western Japan 3,375.

[Figure III-20 Changes in HHI with number of subscriptions in ADSL market]



(Note) NTT East and West are regarded as one company when calculating share.
(Source) Ministry of Internal Affairs and Communications

3. Assessment of status with competition

(1) Trends in FY 2009

1) Number of subscriptions

The number of subscriptions in the ADSL market was 9.735 million as of the end of March 2010. It has been decreasing since June 2006 and has fallen below 10 million.

2) Share

SoftBank continues to have the largest share nationwide. The future migration from ADSL to FTTH and dissemination of wireless broadband services, including BWA, etc., in however, could significantly impact the competitive structure of the ADSL market.

(2) Market dominance

1) Existence of market dominance

[1] Independent market dominance

After taking into general consideration the following determining factors, etc. SoftBank BB was deemed to be not in a position of being capable of independently exercising market dominance whereas NTT East and West were.

a) Quantitative criteria

SoftBank has the largest share (38.7%) of the number of subscriptions in ADSL market as of the end of March 2010, followed by NTT East and West (34.8%).

b) Other major determining factors

With subscriber lines NTT East and West have a share of 99.9% (as of the end of March 2010) of the metal lines used for ADSL.

The provision of ADSL services by competing business operators largely depends on open access to the subscriber lines of NTT East and West. NTT East and West can therefore impose on competing business operators through various procedures, etc. involved in the use of those facilities.

Subscriber access to networks involving metal lines owned by NTT East and West[5] is exclusive and even SoftBank BB, the business operator with the top share of number of subscriptions, could

[5] Networks here include not only those used for broadband services but also PSTN (Public Switched Telephone Networks) and corporation networks, etc.

face difficulty in consistently providing services without certain competition rules being in place.

[2] Cooperative market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. business operators with the top share were deemed to be in the position of being capable of exercising cooperative market dominance.

a) Quantitative criteria

The share and HHI of the top three business operators in the ADSL market were 71.9% and 3,263 as of the end of March 2010, thus indicating the market to be oligopolistic.

b) Other major determining factors

The market has already in matured as the number of subscriptions has continued to decrease and the number of business operators entering the market has been on a declining trend. With the progress of the migration to FTTH, however, business operators may shift from competing to cooperating in order to survive in the ADSL market.

2) Exercise of market dominance

[1] Independent market dominance

After taking into general consideration the following factors, etc. the possibility of NTT East and West independently exercising market dominance is considered low because of current regulations and the market environment.

Measures to restrain/check any exercising of market dominance to a certain extent have already been taken with NTT East and West through application of regulations on connections, actions, and services in accordance with the type 1 designated telecommunications facility system.

This has resulted in powerful business operators that can compete with them already existing in the ADSL service market as SoftBank BB maintains the largest share of number of subscriptions and eAccess, with the third largest share, took over ACCA Networks in June 2009.

In addition, competition pressure from FTTH and cable internet is also considered to make raising the price difficult.

[2] Cooperative market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. the possibility of multiple business operators with the top shares exercising cooperative market dominance is

considered low.

Active competition in acquiring new customers has to date already taken place in the SDAL market, including active campaigning for new subscriptions, substantially lowering charges but improving speeds, and collaboration services concerning fixed telephones and mobile phones, and thus the possibility of cooperation is considered low.

In addition, regulations on connections, actions, and services in accordance with the type 1 designated telecommunications facility system apply to NTT East and West, and thus the barrier to entry is not considered to be very high. The past status with competition makes cooperation between multiple business operators very unlikely.

(3) Matters requiring close observation in the future

The possibility of a further increase in the share of certain highly competitive business operators and of implicit cooperation between multiple business operators with the price in the mature market, etc. will need to be continued to be closely observed in the future. In addition, the possibility of NTT East and West leveraging their dominance in the fixed telephone market in increasing their dominance in the ADSL market also needs to be continued to be closely observed.

Chapter 4 Analysis of Major Indices in FTTH Sub-Market

This chapter involves analysis of major indices in the FTTH sub-market of the internet connection domain.

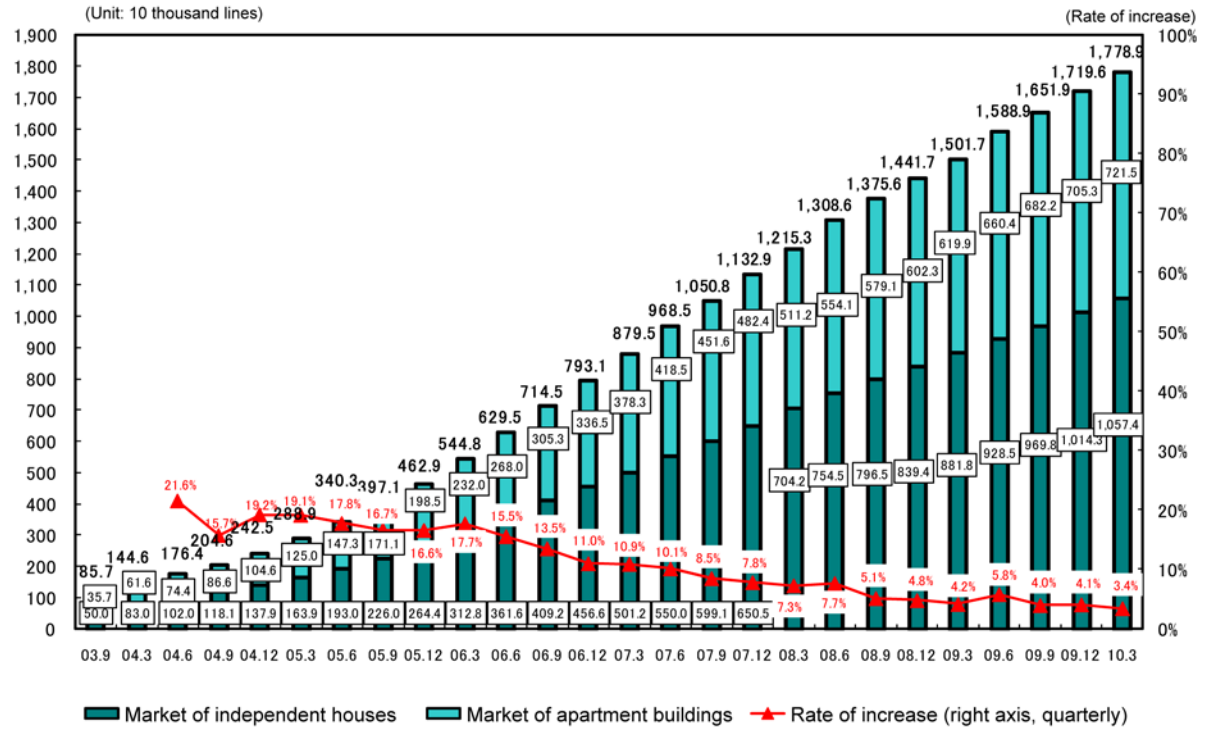
1. Market size

(1) Changes in number of subscriptions

The number of subscriptions in the overall FTTH market has continued to increase and was 17.789 million as of the end of March 2010. The rate of increase, however, is on a downward trend, being just 3.4% from December 2009 to March 2010.

By sub-market the number of subscriptions in the sub-market of independent houses + business offices exceeds that of the sub-market of apartment buildings (the percentage of the sub-market of independent houses + business offices within the overall FTTH market was 40.6% and that of the sub-market of apartment buildings 59.4%).

[Figure III-21 Changes in number of subscriptions in FTTH market]



(Note) Figures before June 2004 partly include estimates.
(Source) Ministry of Internal Affairs and Communications

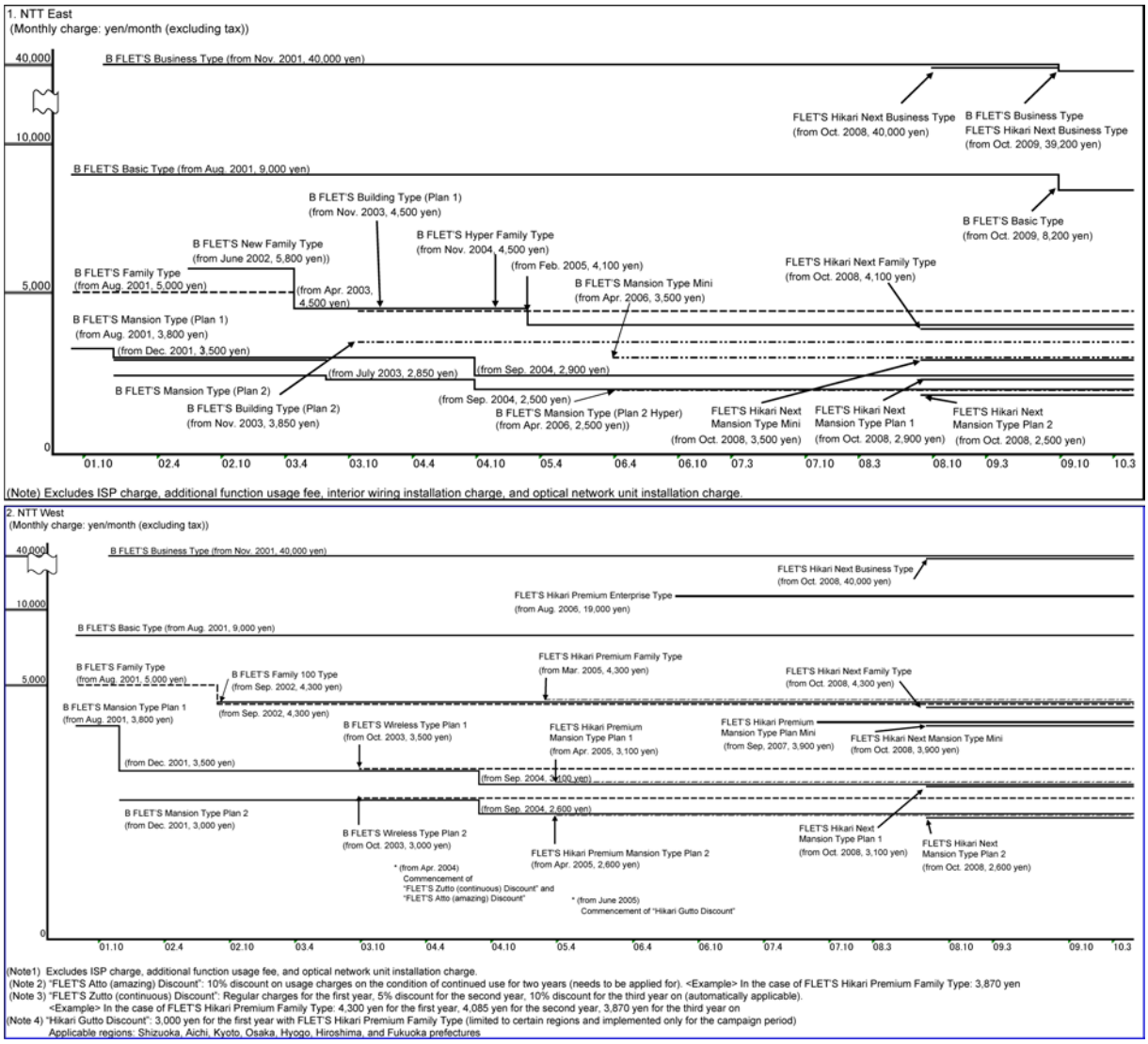
2. Analysis of status with competition (overall FTTH market)

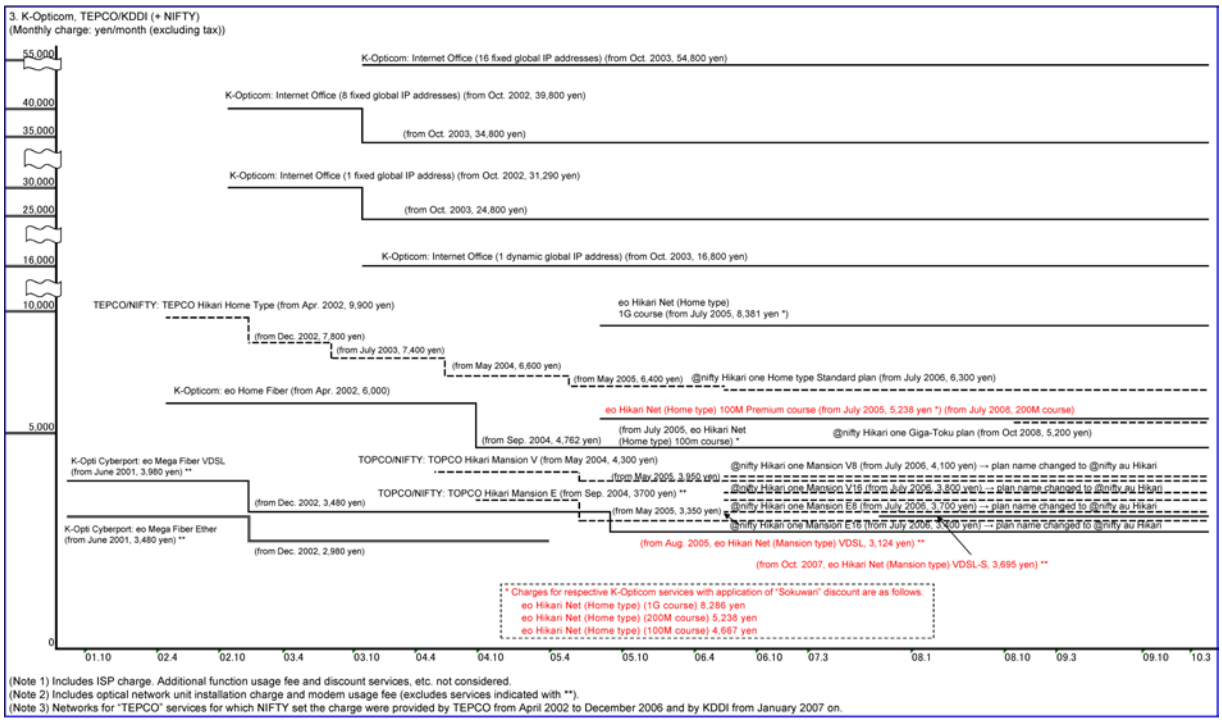
(1) Status with charges

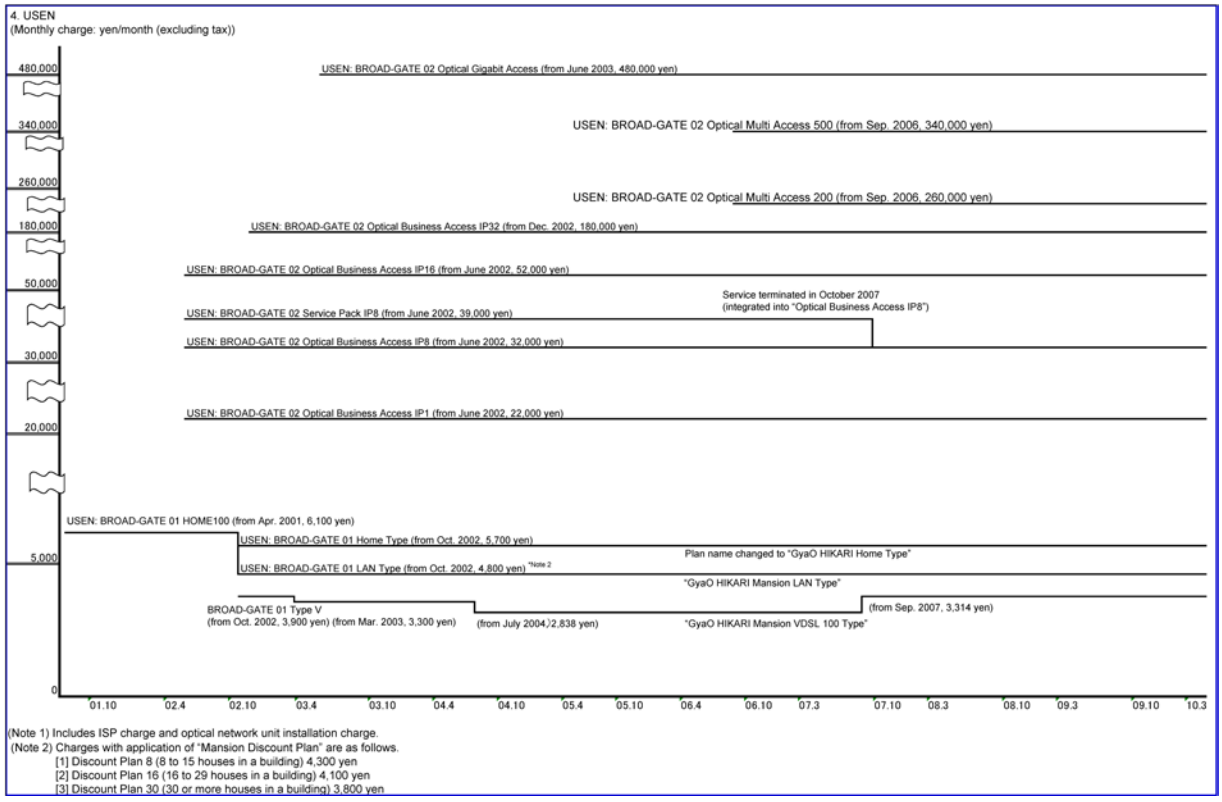
Figure III-22 illustrates changes in the charges of major business operators. In addition, Figure III-31 compares the charges for the major services of major business operators.

Each business operator steadily increased their charges from 2001 on but they have remained at basically the same level since 2005.

[Figure III-22 Changes in charges for major FTTH services]







(Source) Websites of respective business operators.

[Figure III-23 Comparison of charges for major FTTH services (as of April 2010)]

Providers	Service	Charges (excluding tax)	Note
NTT East	B FLET'S Hyper Family Type	5,200 yen	• Includes interior wiring installation charge and optical network unit installation charge • Excludes ISP charge
	B FLET'S Mansion Type LAN Wiring System, up to 100 Mbps upstream/downstream Plan 1 (with subscription of 8 houses or more)	2,900 yen	• Excludes ISP charge
	B FLET'S Mansion Type LAN Wiring System, up to 1 Gbps upstream/downstream Plan 2 Hyper (with subscription of 16 houses or more)	2,500 yen	
	B FLET'S Mansion Type VDSL System, up to 100 Mbps upstream/downstream Plan 1 (with subscription of 8 houses or more)	3,250 yen	• Includes optical network unit installation charge • Excludes ISP charge
	B FLET'S Mansion Type VDSL System, up to 1 Gbps upstream/downstream *1 Plan 2 Hyper (with subscription of 16 houses or more)	2,850 yen	
NTT West	FLET'S Hikari Premium *2 Family Type	5,400 yen (4,970 yen *3)	• Includes interior wiring installation charge and optical network unit installation charge • Excludes ISP charge
	FLET'S Hikari Premium Mansion Type LAN Wiring System, up to 100 Mbps upstream/downstream *4 Plan 1 (with subscription of 8 houses or more)	3,500 yen (3,190 yen *3)	
	FLET'S Hikari Premium Mansion Type LAN Wiring System, up to 100 Mbps upstream/downstream *4 Plan 2 (with subscription of 16 houses or more)	3,000 yen (2,740 yen *3)	
	FLET'S Hikari Premium Mansion Type VDSL System, up to 100 Mbps upstream/downstream *4 Plan Mini (with subscription of 6 houses or more)	4,500 yen (4,110 yen *3)	
	FLET'S Hikari Premium Mansion Type VDSL System, up to 100 Mbps upstream/downstream *4 Plan 1 (with subscription of 8 houses or more)	3,700 yen (3,390 yen *3)	
	FLET'S Hikari Premium Mansion Type VDSL System, up to 100 Mbps upstream/downstream *4 Plan 2 (with subscription of 16 houses or more)	3,200 yen (2,940 yen *3)	
	FLET'S Hikari Premium Mansion Type Optical Wiring System, up to 100 Mbps upstream/downstream *4 Plan 1 (with subscription of 8 houses or more)	4,000 yen (3,690 yen *3)	
	FLET'S Hikari Premium Mansion Type Optical Wiring System, up to 100 Mbps upstream/downstream *4 Plan 2 (with subscription of 16 houses or more)	3,500 yen (3,240 yen *3)	• Includes equipment usage fee • Excludes ISP charge

Providers	Service	Charges (excluding tax)	Note
KDDI	au Hikari (au one net) Home Type (1 Gbps)	6,300 yen	• Includes ISP charge and ONU/HGW rental charge • With application of “bank transfer/credit card discount” a reduction of 100 yen • With application of “KDDI Collective Discount Service” a reduction of 100 yen • With Giga-Toku plan a reduction of 1,100 yen
	au Hikari (au one net) Mansion Type V, 8 subscriptions or more	4,100 yen	• Includes ISP charge and VDSL/HGW rental charge • With application of “bank transfer/credit card discount” a reduction of 100 yen • With application of “KDDI Collective Discount Service” a reduction of 100 yen
	au Hikari (au one net) Mansion Type V, 16 subscriptions or more	3,800 yen	• Includes ISP charge and VDSL/HGW rental charge • With application of “bank transfer/credit card discount” a reduction of 100 yen • With application of “KDDI Collective Discount Service” a reduction of 100 yen
	au Hikari (au one net) Mansion Type E, 8 subscriptions or more	3,700 yen	• Includes ISP charge and HGW rental charge • With application of “bank transfer/credit card discount” a reduction of 100 yen • With application of “KDDI Collective Discount Service” a reduction of 100 yen
	au Hikari (au one net) Mansion Type E, 16 subscriptions or more	3,400 yen	• Includes ISP charge and HGW rental charge • With application of “bank transfer/credit card discount” a reduction of 100 yen • With application of “KDDI Collective Discount Service” a reduction of 100 yen
	au Hikari (au one net) Mansion Type F	3,800 yen	• Includes ISP charge and ONU/HGW rental charge • With application of “bank transfer/credit card discount” a reduction of 100 yen • With application of “KDDI Collective Discount Service” a reduction of 100 yen
K-Opticom	eo Hikari Net (Home type) 1G course *6	8,381 yen (8,286 yen *7)	Includes ISP charge and optical network unit installation charge
	eo Hikari Net (Home type) 100M Premium course *8	5,239 yen (5,143 yen *7)	Includes ISP charge and optical network unit installation charge
	eo Hikari Net (Home type) 200M course	5,333 yen (5,238 yen)	Includes ISP charge and optical network unit installation charge
	eo Hikari Net (Home type) 100M course	4,762 yen (4,667 yen *7)	Includes ISP charge and optical network unit installation charge
	eo Hikari Net (Mansion type) VDSL System *9	3,124 yen	Includes ISP charge

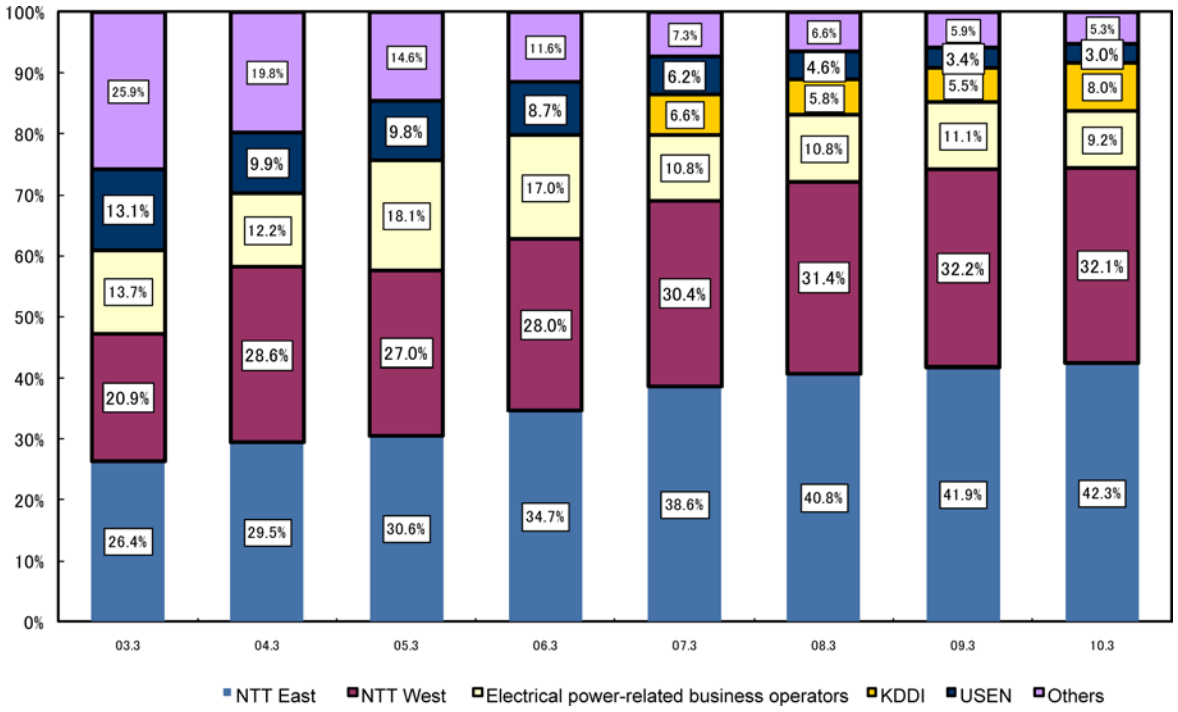
*1 – Up to 100 Mbps communication speed inside the houses.
*2 – “B FLET’S” plans are omitted because they have the same charges as “FLET’S Hikari Premium” plans.
*3 – Charges with “FLET'S Atto (amazing) Discount” applicable (10% discount on usage charges on the condition of continued use for two years).
The subscription remaining in force after the two years results in the “FLET’S Zutto (continuous) Discount” being automatically applicable and a 10% discount continuing to be granted.
*4 – Technical specification of optical network units installed inside the houses is up to 100 Mbps.
*5 – FTTH services provided by SoftBank Telecom.
*6 – Communication speed of up to 1 Gbps (best effort method) to PC interfaces.
*7 – Charges with the “Sokuwari” discount applicable (discount on the condition of continued use for at least two years).
*8 – Communication speed of up to 1Gbps to optical network units and 100 Mbps from optical network units to PC interfaces.
*9 – Provided by K-Opti Cyberport.

(Source) Websites of respective business operators.

(2) Share of business operators of number of subscriptions

Examining the share of business operators of the number of subscriptions in the FTTH market reveals the share of NTT East and West to be 74.4% as of the end of March 2010. The share of NTT West has decreased from March 2009, but remains at a high level.

[Figure III-24 Changes in share of business operators of number of subscriptions in FTTH market (nationwide)]



(Note 1) FTTH business of TEPCO was succeeded to by KDDI in January 2007 and thus subscriptions of former TEPCO from March 2007 on count for KDDI.
(Note 2) The shares of Family Net Japan were transferred from Daikyo to TEPCO Systems and PoweredCom in April 2008. The category in which figures of Family Net Japan were included was changed from "others" to "electrical power-related business operators" from the end of September 2004 on.
(Source) Ministry of Internal Affairs and Communications

(3) Changes in market concentration (share and HHI of top three business operators)

1) Changes in share of top three business operators

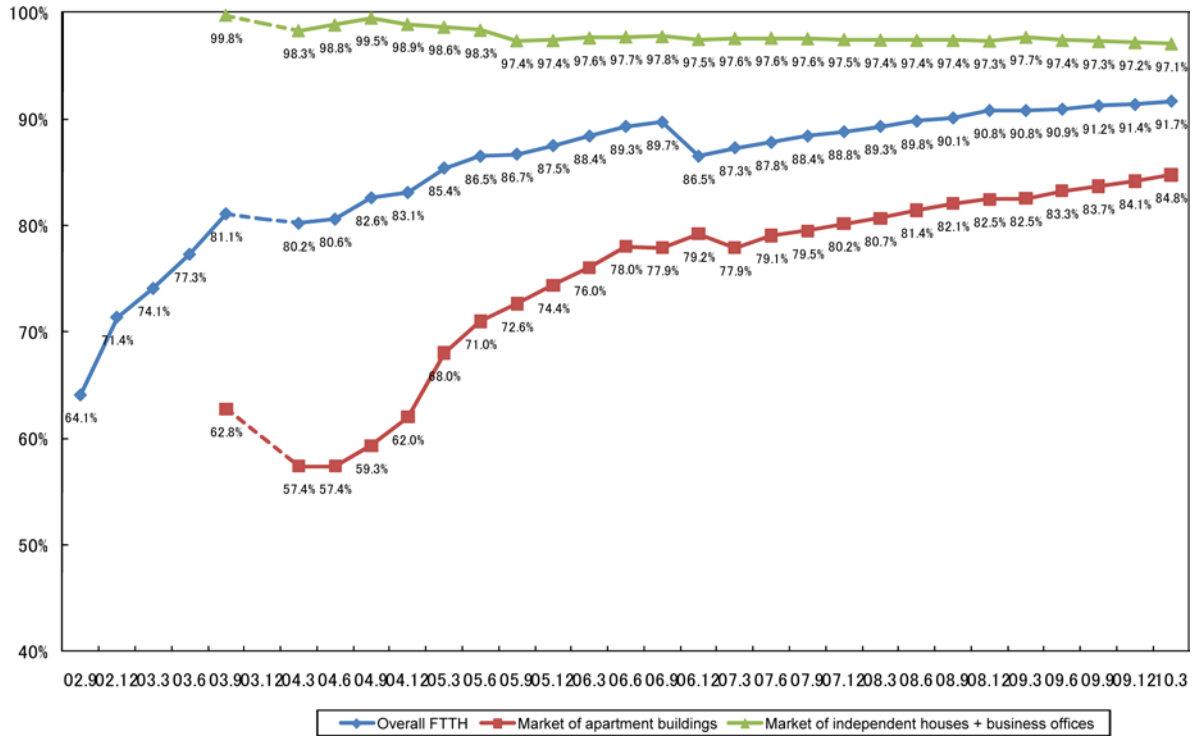
The share of the top three business operators (NTT East and West, electrical power-related business operators, and KDDI) of the number of subscriptions in the overall FTTH market was 91.7% as of the end of March 2010 and is increasing.

The rise in the share of the top three business operators in the independent house market contributed to the rise in their share of number of subscriptions in the FTTH market. The share of the major telecommunications carriers, and NTT East and West in particular, of services provided

at independent houses has been rising, thus resulting in the rise of the share of the top three business operators.

The share of the top three business operators in the independent house + business office market, however, has remained at the high level of close to 100%.

[Figure III-25 Changes in share of top three business operators of number of subscriptions in FTTH market]



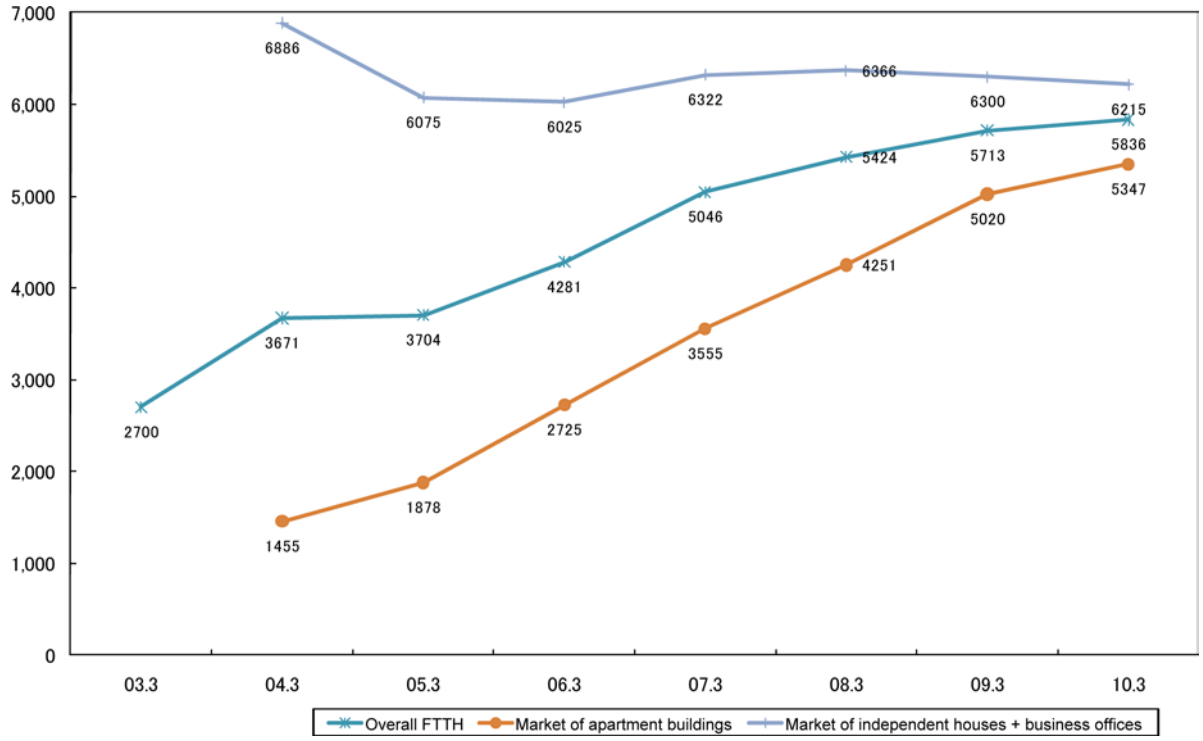
(Note) NTT East and West and electrical power-related business operators were regarded as one company when calculating the shares.
(Source) Ministry of Internal Affairs and Communications

2) Changes in HHI

The HHI with the number of subscriptions in the FTTH market was 5,836 for the overall FTTH market as of the end of March 2010 and 6,215 for the independent house + business office market. In the overall FTTH market it has been declining since September 2003 but then turned to an upward trend in 2005.

By sub-market the rise in HHI in the independent house market is remarkable.

[Figure III-26 Changes in HHI with number of subscriptions in FTTH market]



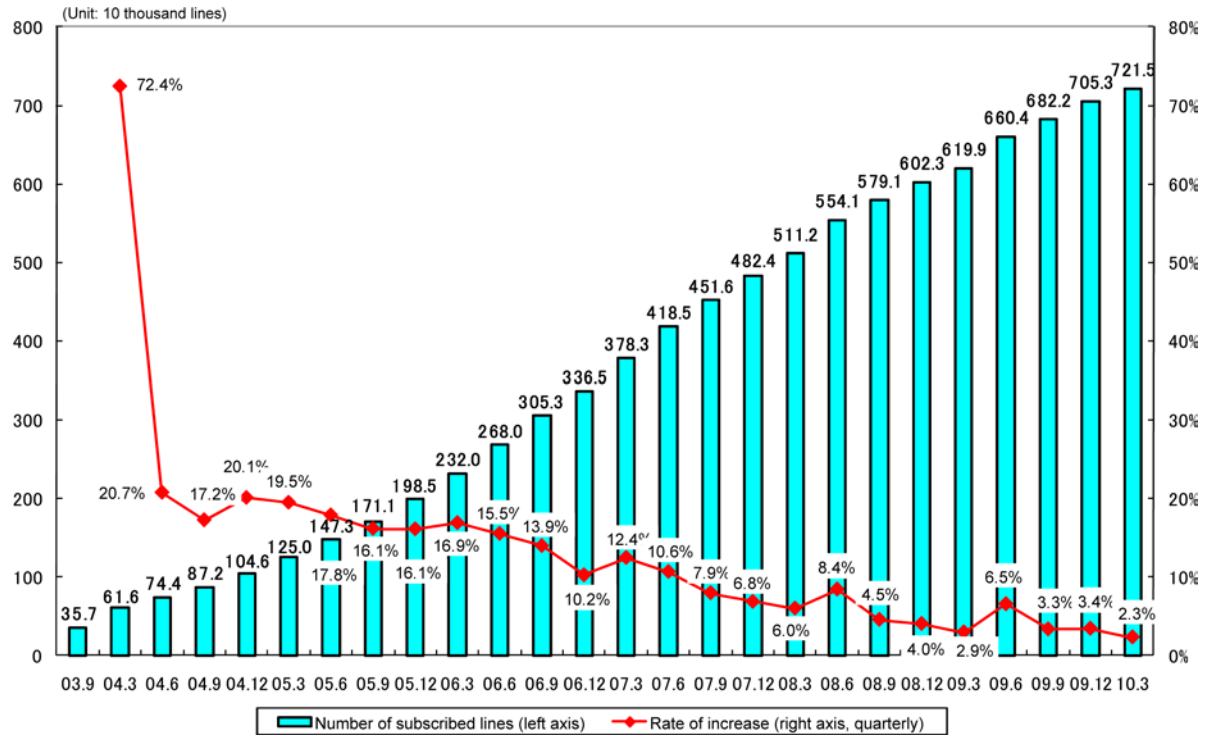
(Note) NTT East and West and electrical power-related business operators were regarded as one company when calculating the shares.
(Source) Ministry of Internal Affairs and Communications

3. Analysis of status with competition (in sub-market of apartment buildings)

(1) Changes in number of subscriptions

The number of subscriptions in the apartment building market was 7.215 million as of the end of March 2010 and has been on an increasing trend. The rate of increase in number of subscriptions (quarterly), however, has been on a downward trend, and was 2.3% as of the end of March 2010.

[Figure III-27 Changes in number of subscriptions in apartment building market]



(Note) Figures before June 2004 partly include estimates.
(Source) Ministry of Internal Affairs and Communications

(2) Status with charges

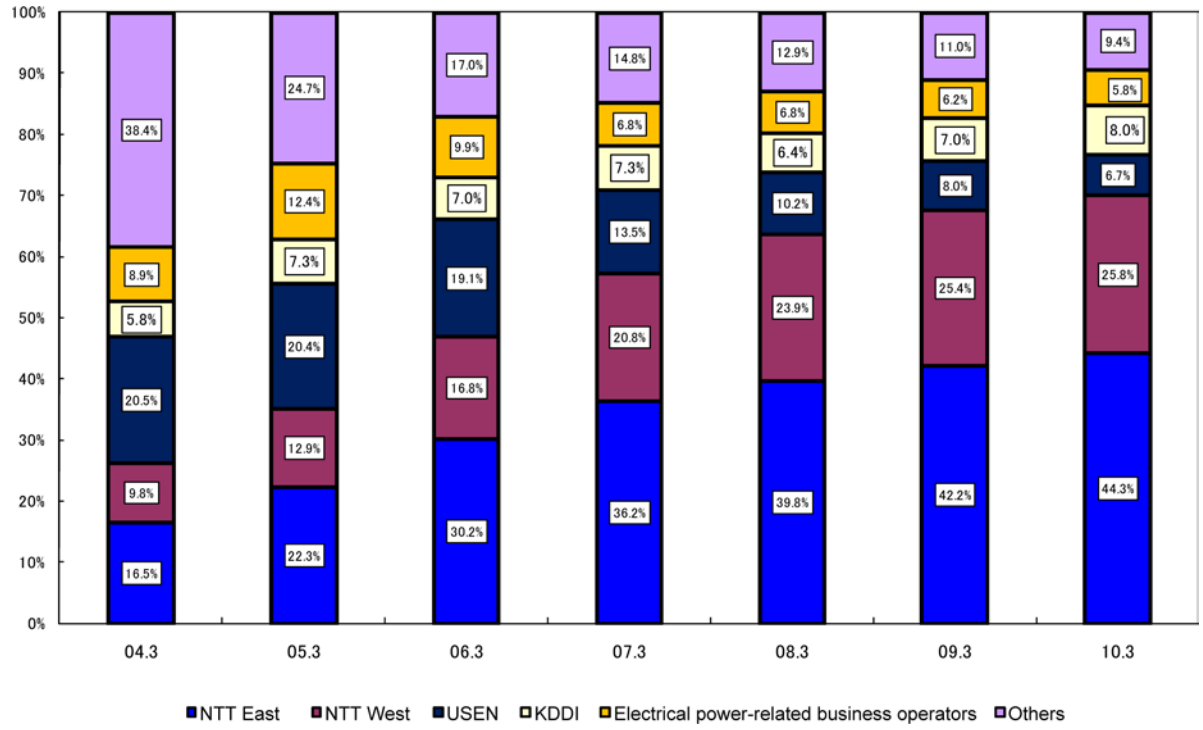
No significant change has been observed in charges for services for apartment buildings, as revealed in Figure III-22.

The cost of introducing FTTH tends to be higher than that for ADSL because FTTH services generally require optical fiber to be newly supplied to individual buildings. FTTH services for apartment buildings, however, can be provided at a charge that is competitive with ADSL to the residents of apartment buildings through utilization of VDSL, etc.

(3) Share of business operators of number of subscriptions

No significant change has been observed in the share of business operators of the number of subscriptions in the apartment building market. The share of NTT East and West, however, was particularly large at 70.1% as of the end of March 2010, and has been increasing.

[Figure III-28 Changes in share of business operators of number of subscriptions in apartment building market (nationwide)]



(Note 1) Figures before June 2004 partly include estimates.
(Note 2) FTTH business of TEPCO was succeeded to by KDDI in January 2007 and thus subscriptions of former TEPCO from March 2007 count for KDDI.
(Note 3) The share of Family Net Japan was transferred from Daikyo to TEPCO Systems and PoweredCom in April 2008. The category in which figures of Family Net Japan were included was changed from "others" to "electrical power-related business operators" from the end of September 2004 on.
(Source) Ministry of Internal Affairs and Communications

(4) Changes in market concentration (share and HHI of top three business operators)

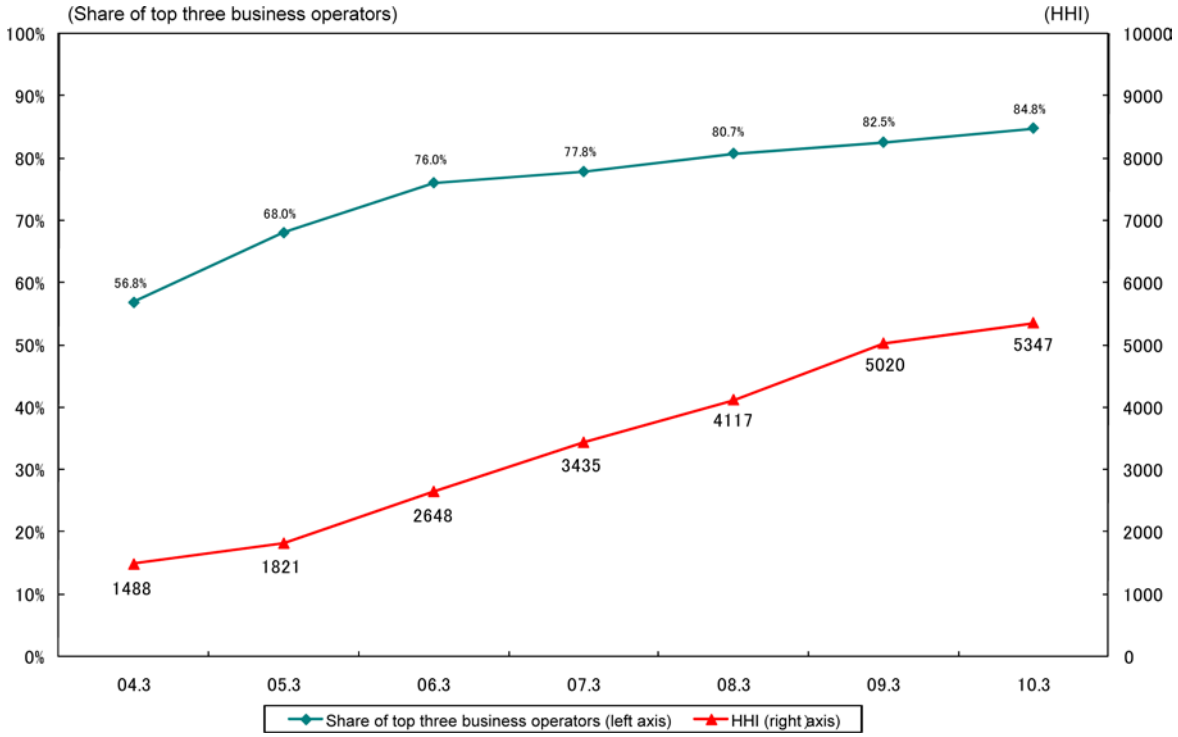
1) Changes in share of top three business operators

The share of the top three business operators (NTT East and West, KDDI, and USEN) of the number of subscriptions in the apartment building market was 84.8% as of the end of March 2010 and has been on an upward trend. This is largely due to the rise in the share of NTT East and West of the number of subscriptions.

2) Changes in HHI

The HHI with the number of subscriptions in the apartment building market was 5,347 as of the end of March 2010 and has been on an upward trend.

[Figure III-29 Changes in share and HHI of top three business operators of number of subscriptions in apartment building market (nationwide)]



(Note) NTT East and West were regarded as one company when calculating the shares.
(Source) Ministry of Internal Affairs and Communications

4. Analysis of status with competition (in sub-market of independent houses + business offices)

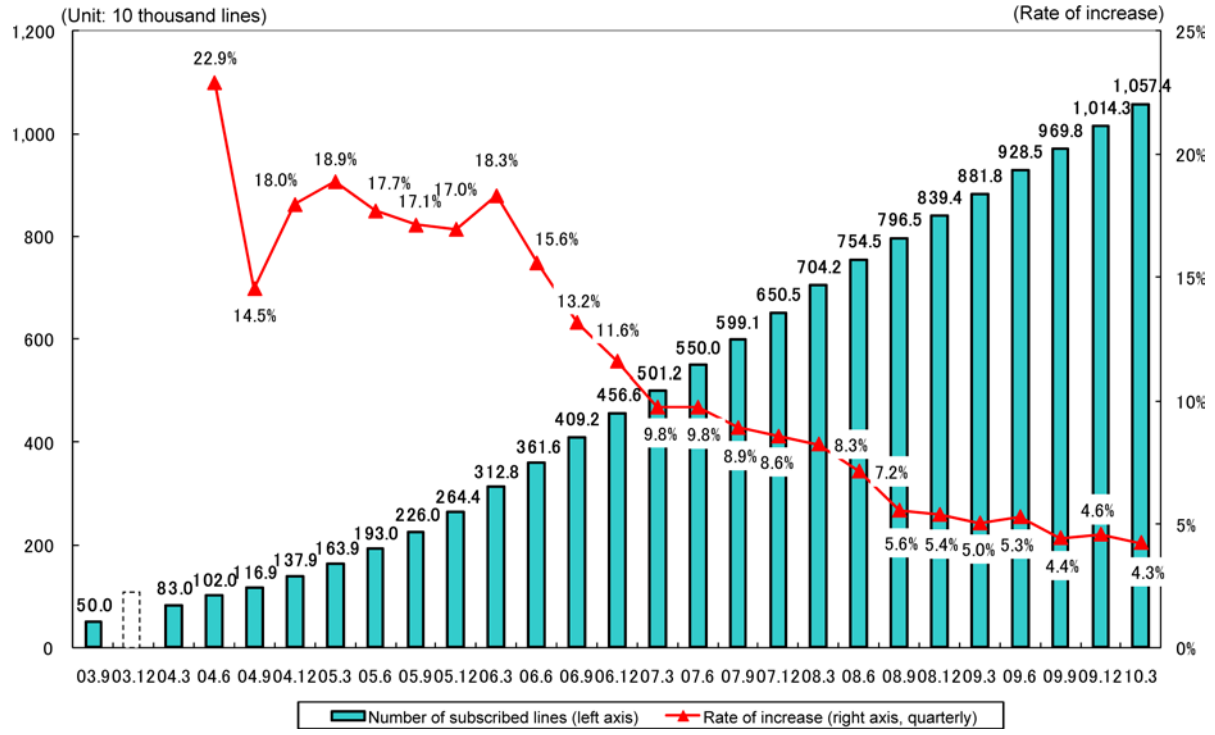
(1) Treatment of major indices

The number of subscriptions in the independent house + business office market was approximated using the total number of subscriptions of menus other than for services provided to residents of apartment buildings.

(2) Changes in number of subscriptions

The number of subscriptions in the independent house + business office market was 7.215 million as of the end of March 2010 and has been on an increasing trend. The rate of increase in number of subscriptions (quarterly), however, has been on a downward trend and was 4.3% as of the end of March 2010.

[Figure III-30 Changes in number of subscriptions in independent house + business office market]



(Note 1) Figures before June 2004 partly include estimates.
(Note 2) Figures for December 2003 were not calculated due to the unavailability of data on number of subscriptions.
(Source) Ministry of Internal Affairs and Communications

(3) Status with charges

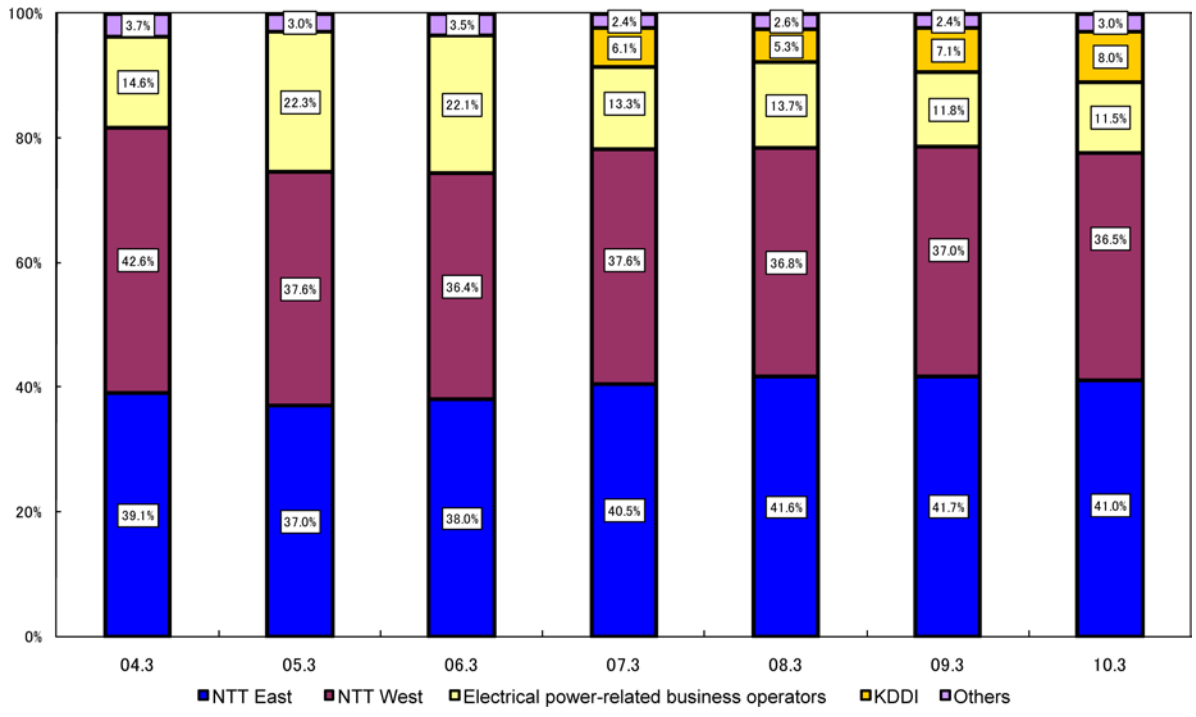
No significant change has been observed in charges for services provided to independent houses + business offices, as revealed in Figure III-22. The charges are, however, generally higher than for ADSL.

(4) Share of business operators of number of subscriptions

Examining the share of business operators of the number of subscriptions in the independent house + business office market reveals that of the top three business operators, NTT East and West, electrical power-related business operators, and KDDI, to be over 95%.

The share of NTT East and West of the number of subscriptions was on a downward trend until 2005 but then turned to an upward trend in 2006, and has remained at the latter half of 70% since 2007.

[Figure III-31 Changes in share of business operators of number of subscriptions in independent house + business office market (nationwide)]



(Note) The FTTH business of TEPCO was succeeded to by KDDI in January 2007. With regard to the figures from October 2006 on, therefore, the net increase of KDDI was excluded from “others” and instead included in the newly added “KDDI”, while the net increase of the former TEPCO was excluded from “electrical power-related business operators” and instead included in “KDDI”.
(Source) Ministry of Internal Affairs and Communications

(5) Changes in market concentration (share and HHI of top three business operators)

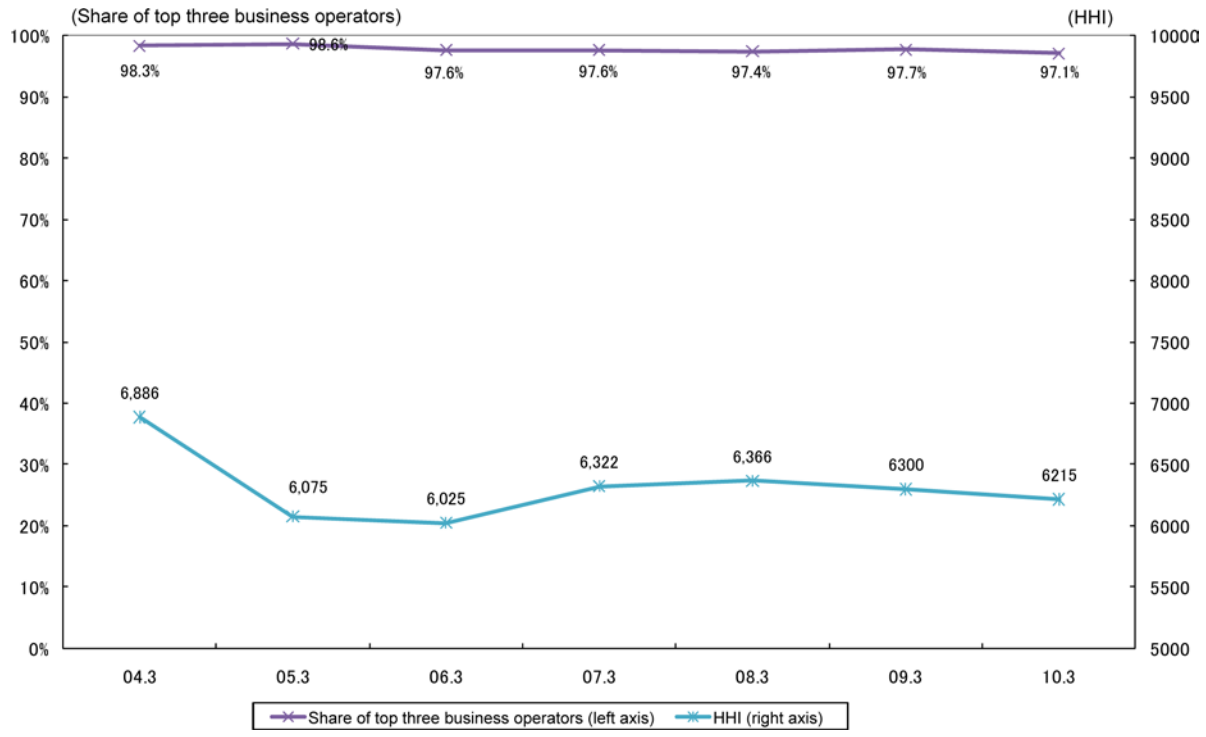
1) Changes in share of top three business operators

The share of the top three business operators (NTT East and West, electrical power-related business operators, and KDDI) of the number of subscriptions in the independent house + business office market was high at 97.1% as of the end of March 2010.

2) Changes in HHI

The HHI with the number of subscriptions in the independent house + business office market was 6,215 as of the end of March 2010.

[Figure III-32 Changes in share and HHI of top three business operators of number of subscriptions in apartment building market (nationwide)]



(Note) NTT East and West and electrical power-related business operators were regarded as one company when calculating the shares.
(Source) Ministry of Internal Affairs and Communications

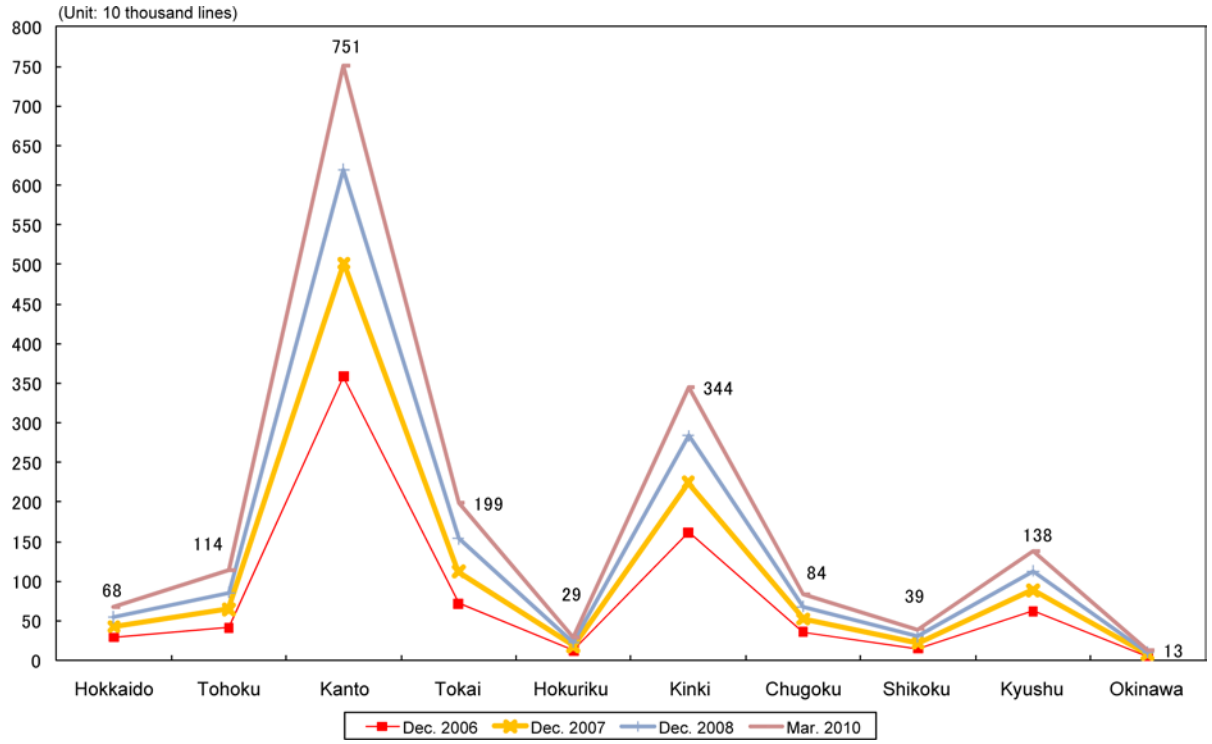
5. Analysis of indices by geographical market

(1) Overall FTTH market

1) Number of subscriptions

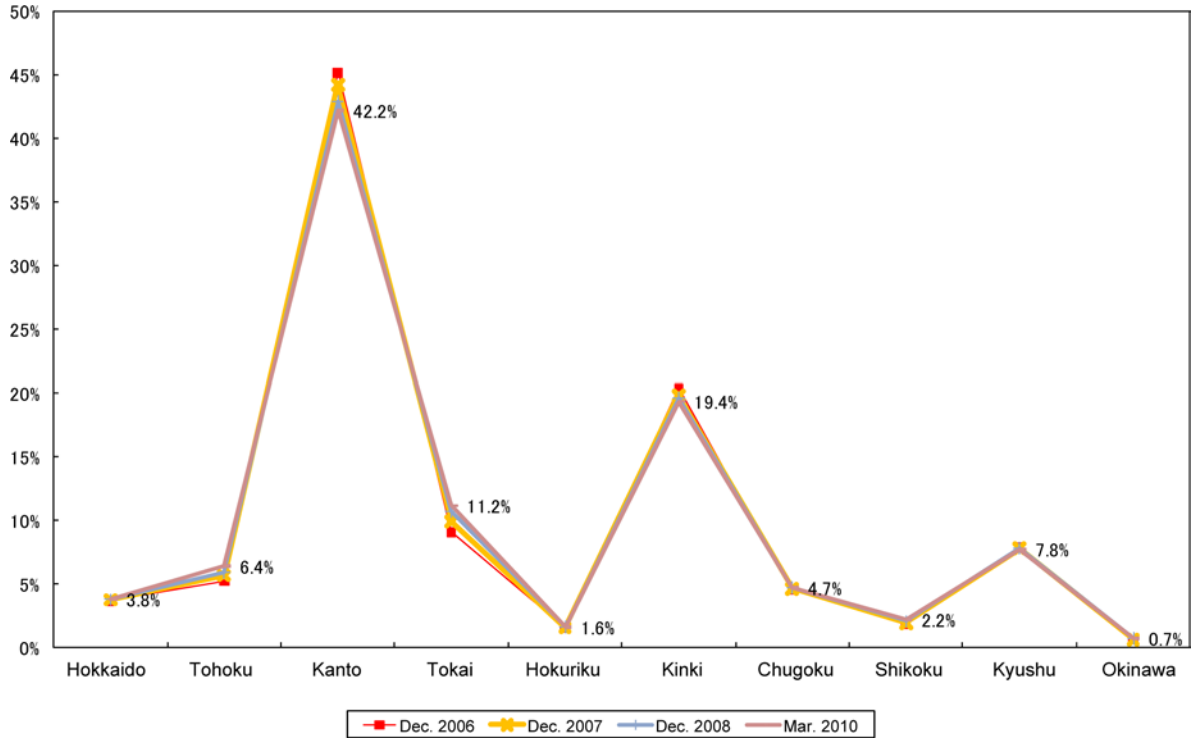
Examining changes in and the distribution of the number of subscriptions in the overall FTTH market by regional block reveals the number of subscriptions to be increasing in all the blocks. The increase has been particularly remarkable in the Kanto and Kinki blocks. The total share of the Kanto and Kinki blocks of the number of subscriptions was 62.7%, thus indicating concentrated FTTH use in metropolitan areas.

[Figure III-33 Changes in and distribution of number of subscriptions in FTTH market by regional block]



(Source) Ministry of Internal Affairs and Communications

[Figure III-34 Changes in share of number of subscriptions in FTTH market by regional block]

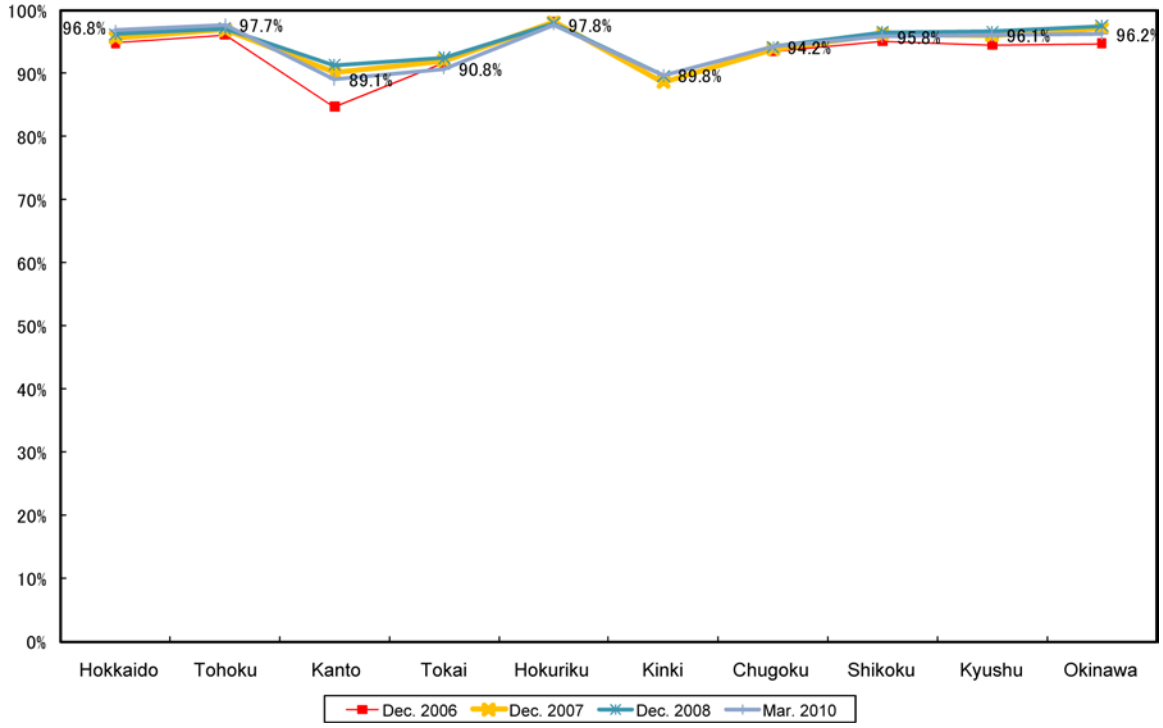


(Source) Ministry of Internal Affairs and Communications

2) Share of top three business operators

Examining changes in the share of the top three business operators in the FTTH market by regional block reveals it to be 90% or more in all blocks except for the Kanto and Kinki blocks, thus indicating the market to be overly oligopolistic.

[Figure III-35 Changes in share of top three business operators in FTTH market by regional block]



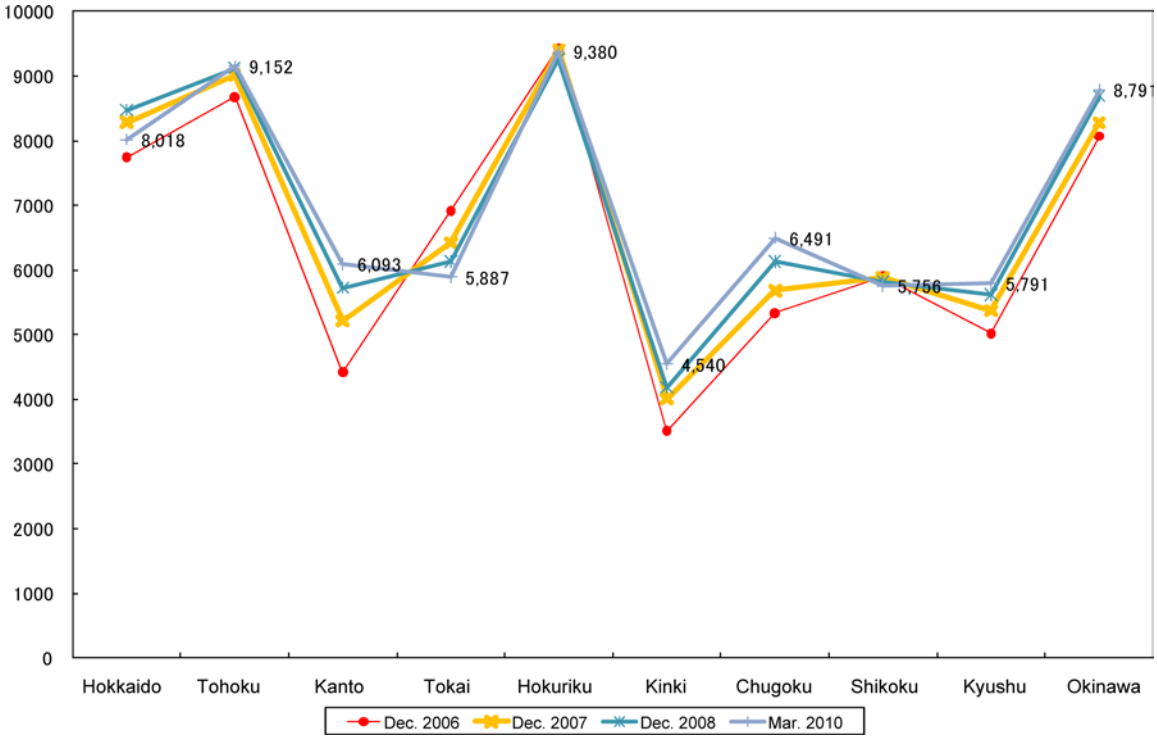
(Source) Ministry of Internal Affairs and Communications

3) HHI

Examining changes in the HHI in the FTTH market by regional block reveals it to be the highest in the Hokuriku block at 9,380 as of the end of March 2010.

The HHI was the lowest in the Kinki block at 4,540 as of the end of March 2010, followed by the Shikoku block at 5,756.

[Figure III-36 Changes in HHI in FTTH market by regional block]



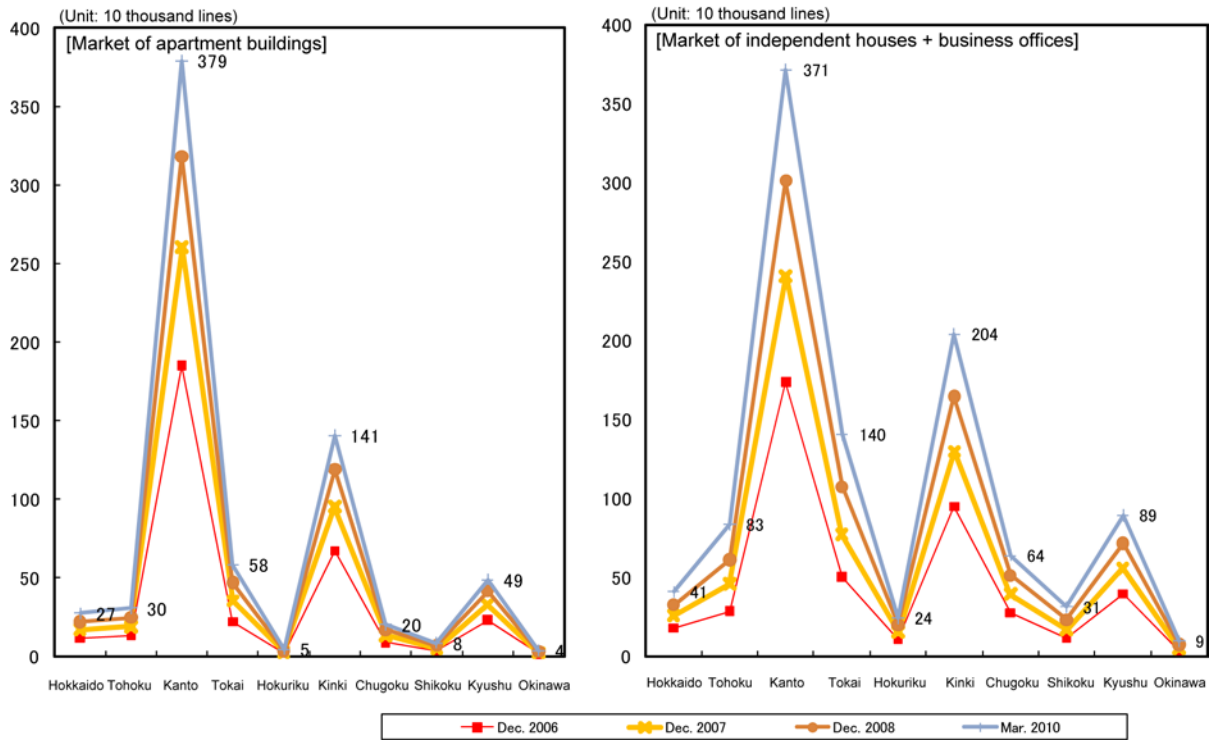
(Source) Ministry of Internal Affairs and Communications

(2) Markets of apartment buildings and independent houses + business offices

1) Number of subscriptions

Examining changes in and the distribution of the number of subscriptions in the apartment building and independent house + business office markets by regional block reveals the number of subscriptions to be on an increasing trend in all blocks in both markets.

[Figure III-37 Changes in and distribution of number of subscriptions in apartment building and independent house + business office markets by regional block]



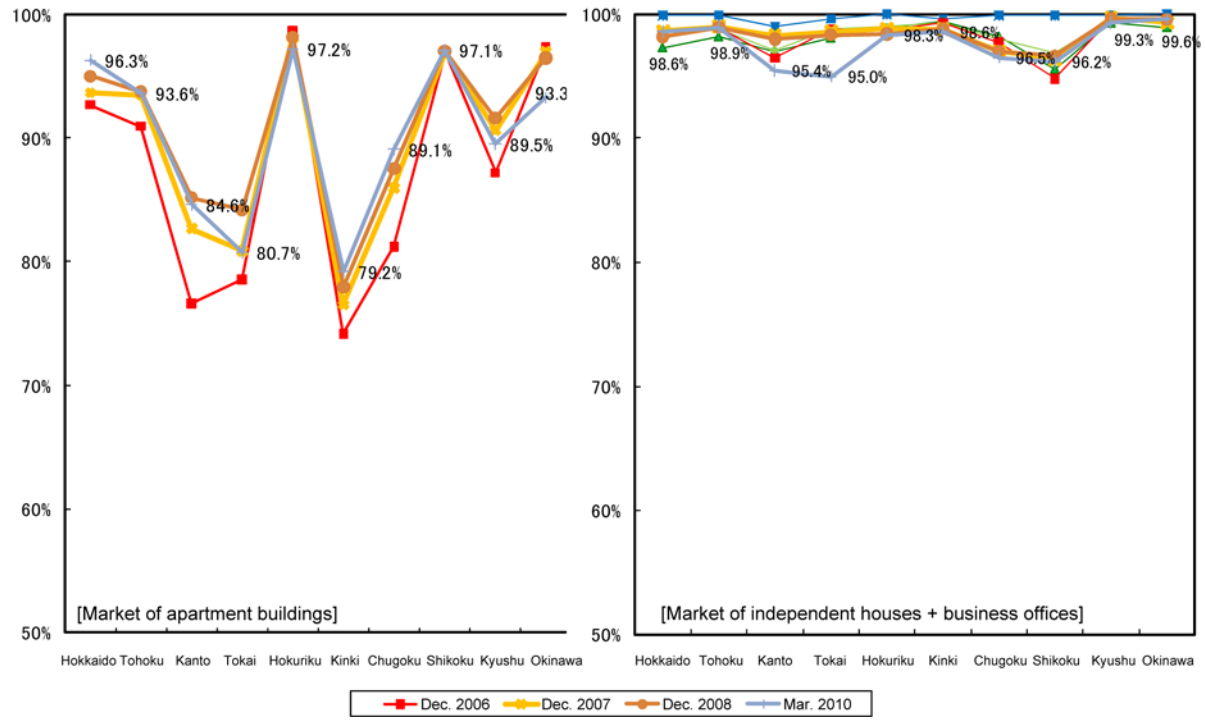
(Source) Ministry of Internal Affairs and Communications

2) Share of top three business operators

Examining changes in the share of the top three business operators in the apartment building and independent house + business office markets by regional block reveals the share in the market of apartment buildings to be below 80% only in the Kinki block as of the end of March 2010, thus indicating a overly oligopolistic trend overall in general.

In the independent house + business office market the share exceeded 95% in all blocks as of the end of March 2010, thus indicating a overly oligopolistic trend.

[Figure III-38 Changes in share of top three business operators in number of subscriptions in apartment building and independent house + business office markets by regional block]

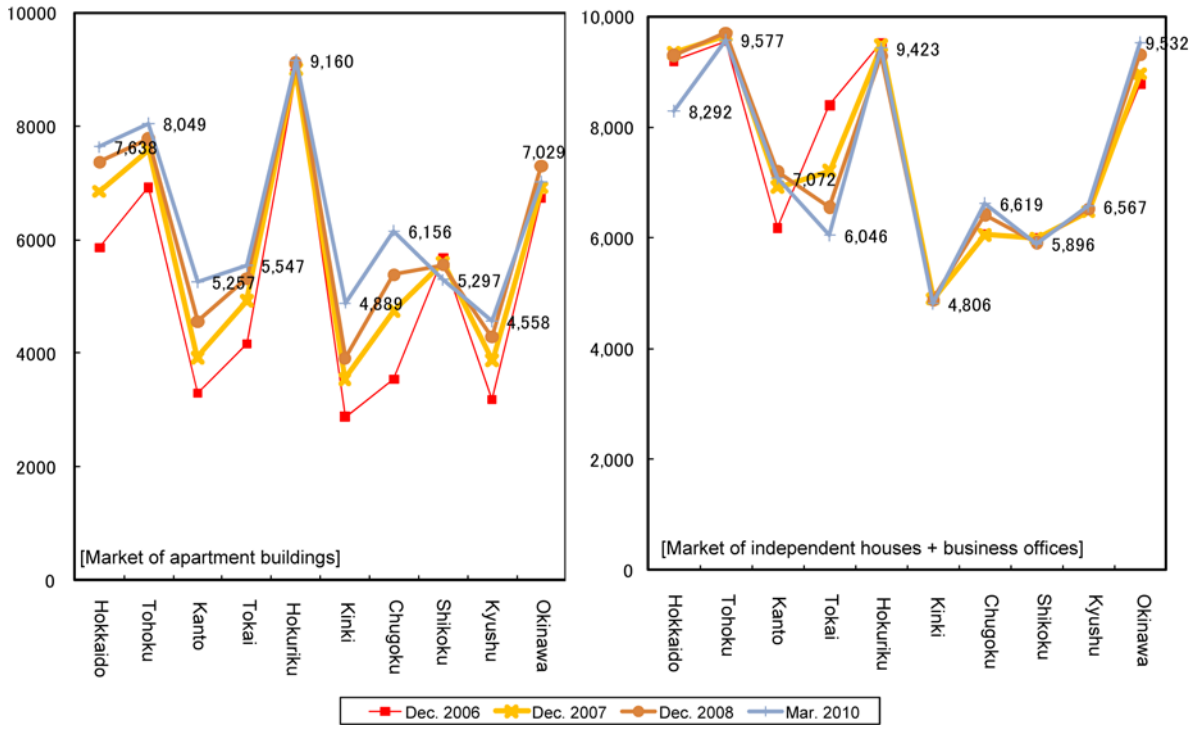


(Source) Ministry of Internal Affairs and Communications

3) HHI

Examining changes in the HHI with the apartment building and independent house + business office markets by regional block reveals it to be 4,000 or higher for the apartment building market in all blocks as of the end of March 2010, thus indicating a overly oligopolistic trend in general. With the independent house + business office market the HHI was the lowest in the Kinki block, although still high at 4,806, as of the end of March 2010, while exceeding 9,000 in the Tohoku, Hokuriku, and Okinawa blocks, thus indicating a overly oligopolistic trend.

[Figure III-39 Changes in HHI in apartment building and independent house + business office markets by regional block]



(Source) Ministry of Internal Affairs and Communications

6. Assessment of status with competition

(1) Trends in FY 2009

1) Number of subscriptions

The number of subscriptions in the FTTH market was 17.789 million as of the end of March 2010. It has been increasing with the progress made in the migration from ADSL to FTTH, but the rate of increase is on a downward trend.

2) Share

The oligopolistic trend is growing stronger in the FTTH market. The share of NTT East and West, the business operator with the top share, of the number of subscriptions has been increasing since the end of March 2005, and was 74.4% as of the end of March 2009. In addition, the share and HHI of the top three business operators have both been increasing.

3) Diverse services

FTTH charges have decreased within the apartment building market, in particular, to basically the same level as for ADSL and cable internet.

In addition, the respective business operators providing FTTH services are more actively providing sets incorporating 0ABJ-IP telephone services that are less expensive than the subscription telephones of NTT and video picture services (triple play services), which are also becoming a factor in the migration to FTTH.

(2) Market dominance

1) Existence of market dominance

[1] Independent market dominance

After taking into general consideration the following determining factors, etc., NTT East and West were deemed to be in a position of being capable of independently exercising market dominance.

a) Quantitative criteria

The share of NTT East and West of the number of subscriptions in the overall FTTH market was 74.4% as of the end of March 2010, in the apartment building market 70.1%, and independent house + business office markets 77.5%. In addition, their share of the overall FTTH market and apartment building market has been on an upward trend. Conversely, the share of electrical

power-related business operators has been on a downward trend while the difference with the share of NTT East and West has been increasing.

b) Other major determining factors

With subscriber networks the share of NTT East and West of the optical fiber used for FTTH was 77.3% (as of the end of March 2010).

The provision of FTTH services by competing business operators largely depends on open access to the subscriber lines of NTT East and West. NTT East and West is thus considered to be capable of imposing on competing business operators through the various procedures, etc. involved in the use of those facilities.

The regional market reveals competition between NTT East and West and electrical power-related business operators to be observable in the Kanto, Kinki, Shikoku, and Kyushu blocks whereas electrical power-related business operators are yet to enter the FTTH market in the Tohoku and Hokuriku blocks. This has resulted in the share of NTT East and West of the number of subscriptions remaining at around 90% in some regions.

[2] Cooperative market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. business operators with the top share were deemed to be in the position of being capable of cooperatively exercising market dominance.

a) Quantitative criteria

The share of the top three business operators of the overall FTTH market was 91.7% as of the end of March 2010, of the apartment building market 84.8%, and the independent house + business office markets 97.1%. The HHI in the overall FTTH market was 5,836, the apartment building market 5,347, and the independent house + business office market 6,215, thus indicating the market to be overly oligopolistic. In addition, the share and HHI of the top three business operators of the overall FTTH market and the apartment building market are increasing and the market concentration rising every year.

b) Other major determining factors

Considering that expansion of the FTTH market is slowing down the possibility of business operators turning from competing to cooperating to survive cannot be denied.

2) Exercise of market dominance

[1] Independent market dominance

After taking into general consideration the following factors, etc. the possibility of NTT East and West independently exercising market dominance is considered low with current regulations and the market environment. Concerns over leveraging fixed telephones, etc., however, are considered to exist.

Measures to restrain/check any exercising of market dominance to a certain extent have been already taken with NTT East and West through application of regulations on connections, actions, and services in accordance with the type 1 designated telecommunications facility system.

In addition, competitive pressure from cable internet exists within the current market environment.

However, NTT East and West may have an advantage over competing business operators in business terms, etc. because they have customer information from the subscriber telephones of NTT. Concern over NTT East and West exercising market dominance through leveraging the fixed telephone market into FTTH market, etc., including the set provision of 0ABJ-IP telephones, and business activities using customer information from the subscription telephones of NTT, therefore exists.

[2] Cooperative market dominance between multiple business operators

Competition for market share continues to exist in the FTTH market. In addition, after taking into considering the status of past competition and that the share of business operators with the second largest share or less is declining, cooperation between multiple business operators is deemed very unlikely. Taking into general consideration these factors, therefore, leads to the possibility of the multiple business operators with the top shares exercising cooperative market dominance being considered low.

(3) Matters requiring close observation in the future

The importance of the FTTH market within the broadband market makes detailed analysis needing to be continued to be conducted. FTTH is still in a period of expansion and the number of subscriptions is expected to increase in the future. However, the net increase is slowing down and the difference in share between NTT East and West and other competing business operators is increasing. In consideration of that, therefore, the status with competition, including market share, etc., will need to be continued to be identified in detail.

In addition, the dissemination of FTTH is progressing in close relationship with the fixed

telephone market partly through sets of FTTH services being provided with 0ABJ-IP telephones, etc. Concern over NTT East and West increasing their dominance in the FTTH market through leveraging the fixed telephone market, etc. will therefore continue to need to be closely observed.

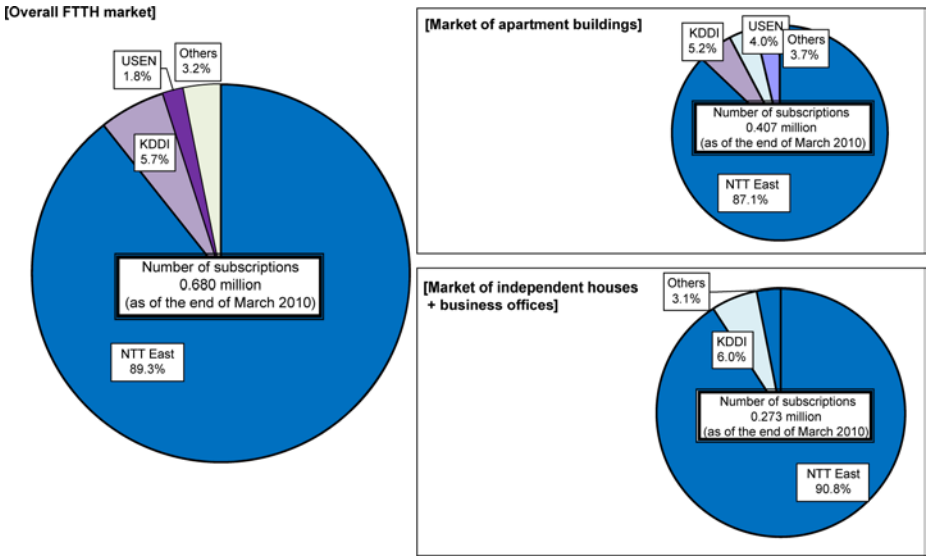
Furthermore, an order to improve their business activities was issued to NTT West on the handling of information obtained from other telecommunications carriers as part of its business in connection to telecommunications facilities in February 2010. The status with compliance of competition rules will, therefore, need to be more closely observed.

In addition, attention will also need to be paid to the impact that the dissemination of “FLET'S Hikari Next” services of NTT East and West using NGN will have on the FTTH market[6]. The demand for sets incorporating internet connections, 0ABJ-IP telephones, and “triple play services”, which in addition include video picture services, may have a significant impact on the FTTH market, thereby requiring attention to be paid to it in the future.

[6] NTT East and West commenced services (“FLET’S Hikari Next”) using Next Generation Network (NGN) that enable the provision of Hi-Vision equivalent video phone services and video picture distribution services with QoS (Quality of Service) in March 2008, and has since been expanding the service areas in a stepwise manner.

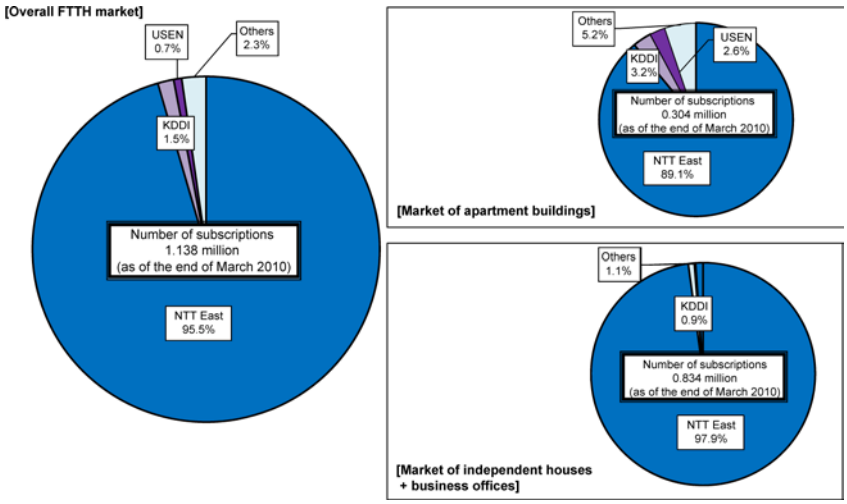
[Reference III-2 Major indices by regional block (FTTH market, as of the end of March 2010)]

1. Hokkaido



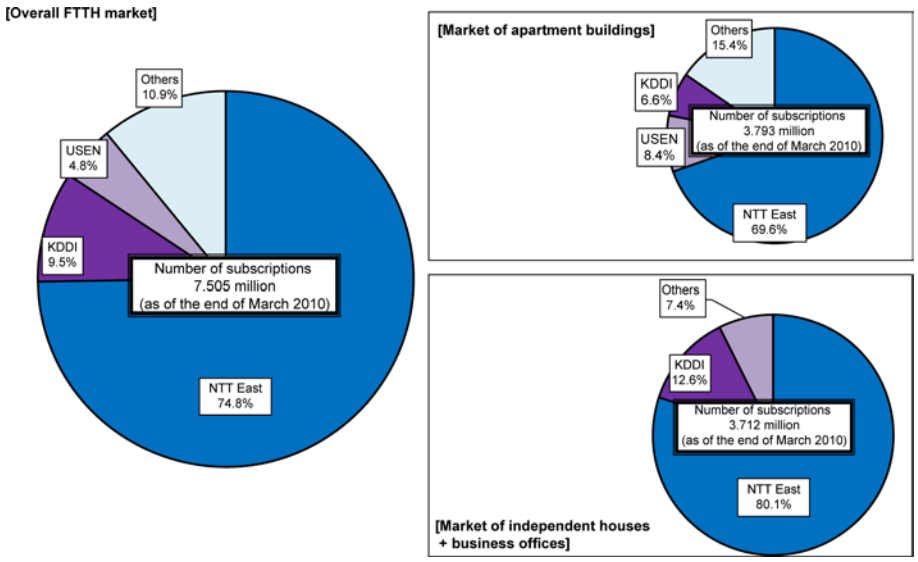
Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	8,018 (8,474)	7,638 (7,364)	8,292 (9,294)
Share of top three business operators	96.8% (96.2%)	96.3% (95.0%)	98.6% (98.2%)

2. Tohoku



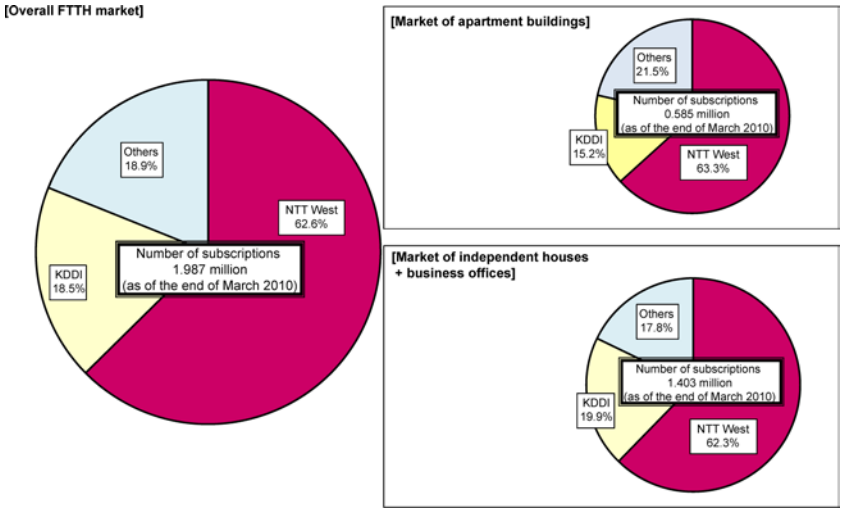
Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	9,152 (9,123)	8,049 (7,775)	9,577 (9,703)
Share of top three business operators	97.7% (97.2%)	93.6% (93.8%)	98.9% (99.0%)

3. Kanto



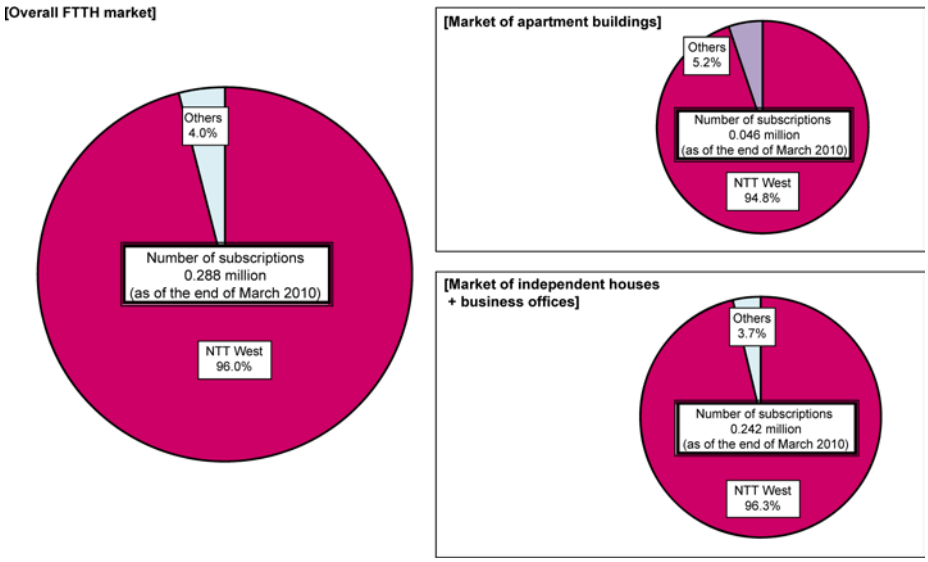
Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	6,093 (5,270)	5,257 (4,588)	7,072 (7,195)
Share of top three business operators	89.1% (91.4%)	80.7% (85.2%)	95.4% (98.0%)

4. Tokai



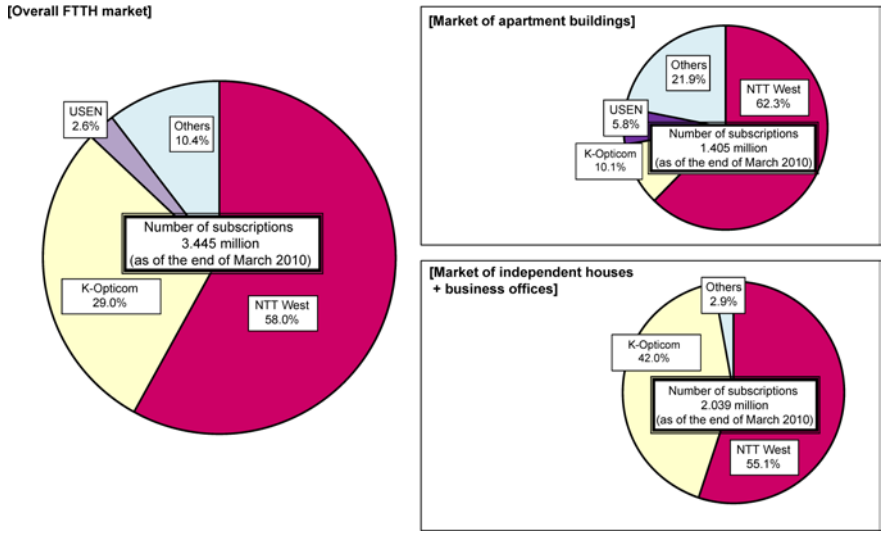
Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	5,887 (6,133)	5,547 (5,320)	6,046 (6,554)
Share of top three business operators	90.8% (92.5%)	80.7% (84.2%)	95.0% (98.3%)

5. Hokuriku



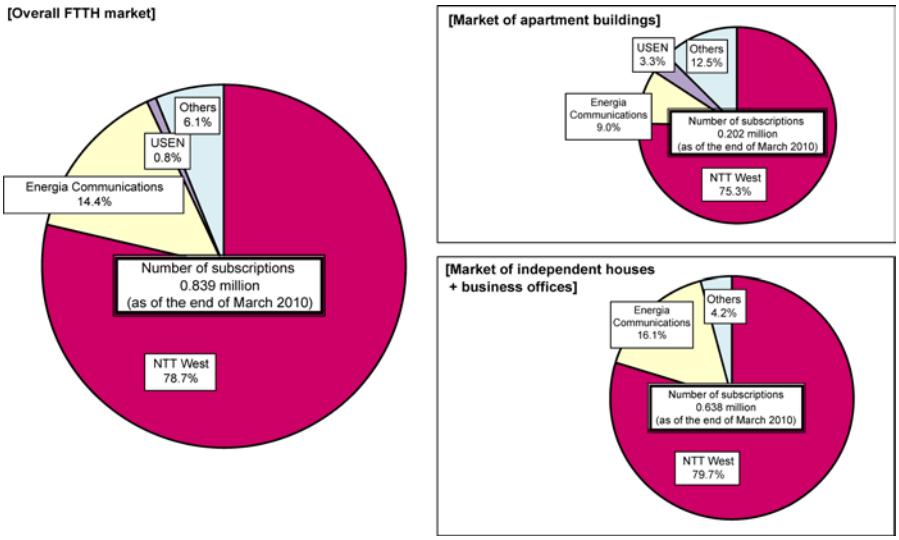
Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	9,380 (9,260)	9,160 (9,115)	9,423 (9,286)
Share of top three business operators	97.8% (97.9%)	97.2% (98.1%)	98.3% (98.4%)

6. Kinki



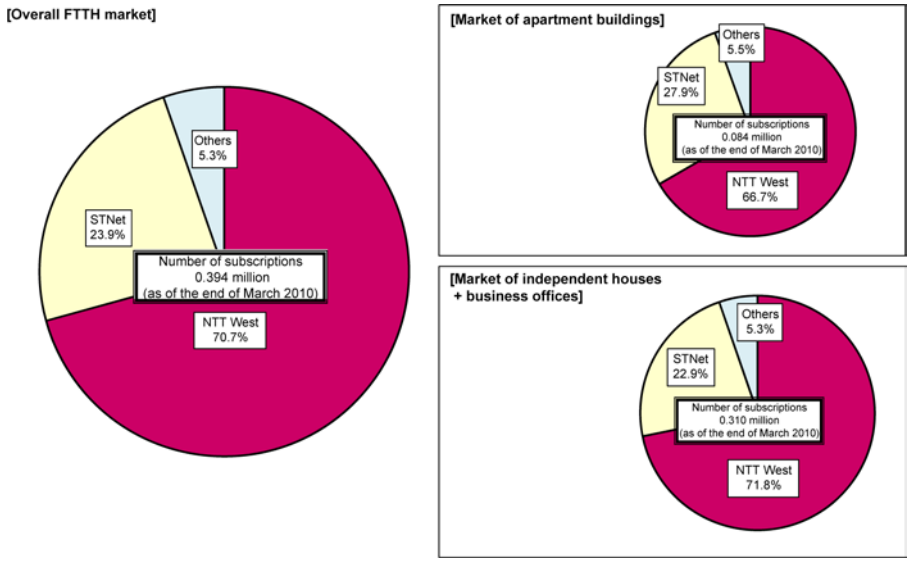
Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	4,540 (4,178)	4,889 (3,911)	4,806 (4,878)
Share of top three business operators	89.8% (89.6%)	79.2% (77.9%)	98.6% (98.8%)

7. Chugoku



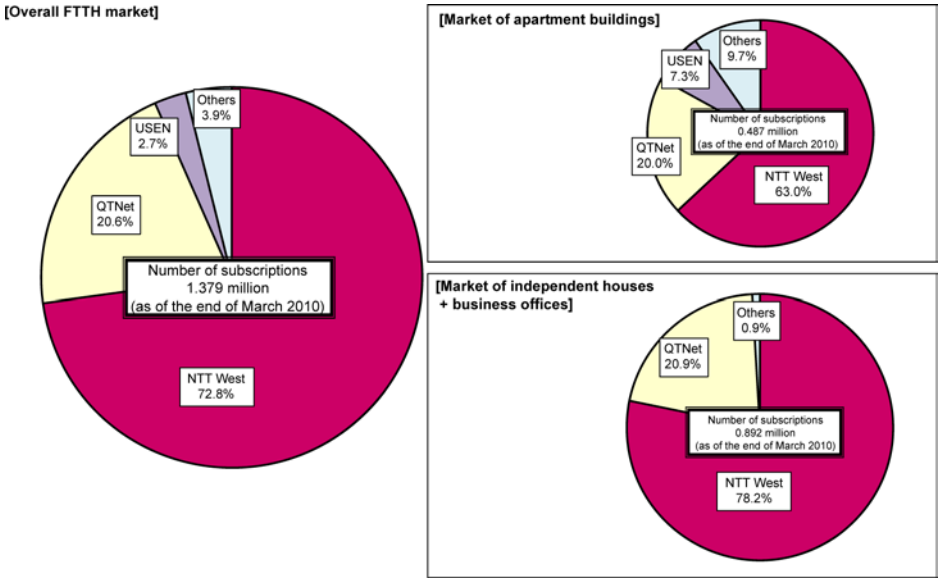
Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	6,491 (6,133)	6,156 (4,748)	6,619 (6,053)
Share of top three business operators	94.2% (94.2%)	89.1% (87.5%)	96.5% (97.0%)

8. Shikoku



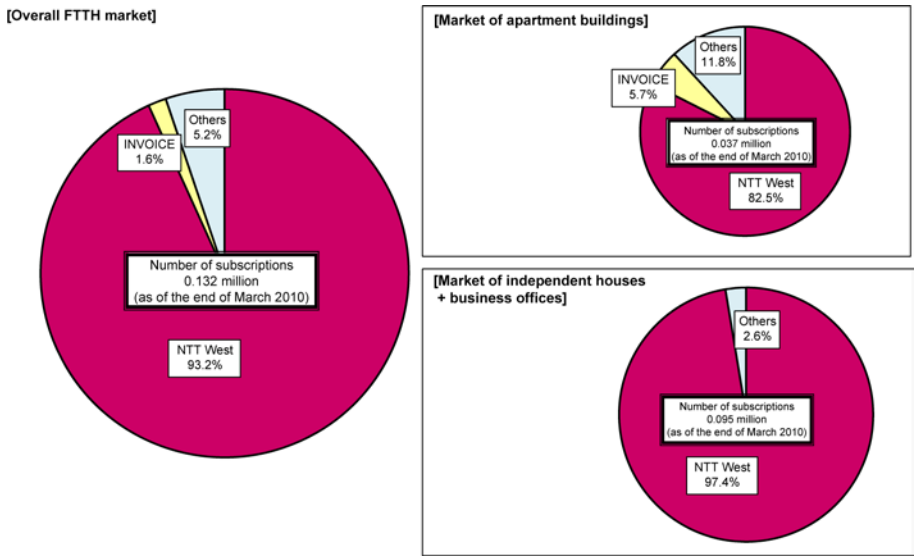
Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	5,756 (5,825)	5,297 (5,558)	5,896 (5,916)
Share of top three business operators	95.8% (96.5%)	97.1% (97.1%)	96.2% (97.0%)

9. Kyushu



Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	5,791 (5,617)	4,558 (4,286)	6,567 (6,527)
Share of top three business operators	96.1% (96.6%)	89.5% (91.6%)	99.3% (99.6%)

10. Okinawa



Mar. 2010 (Dec. 2008)	Total ([1]+[2])	[1] Market of apartment buildings	[2] Market of independent houses + business offices
HHI	8,791 (8,280)	7,029 (7,298)	9,582 (9,310)
Share of top three business operators	96.2% (97.5%)	93.3% (96.5%)	99.6% (99.6%)

(Source) Ministry of Internal Affairs and Communications

Chapter 5 Analysis of Major Indices in Cable Internet Sub-Market

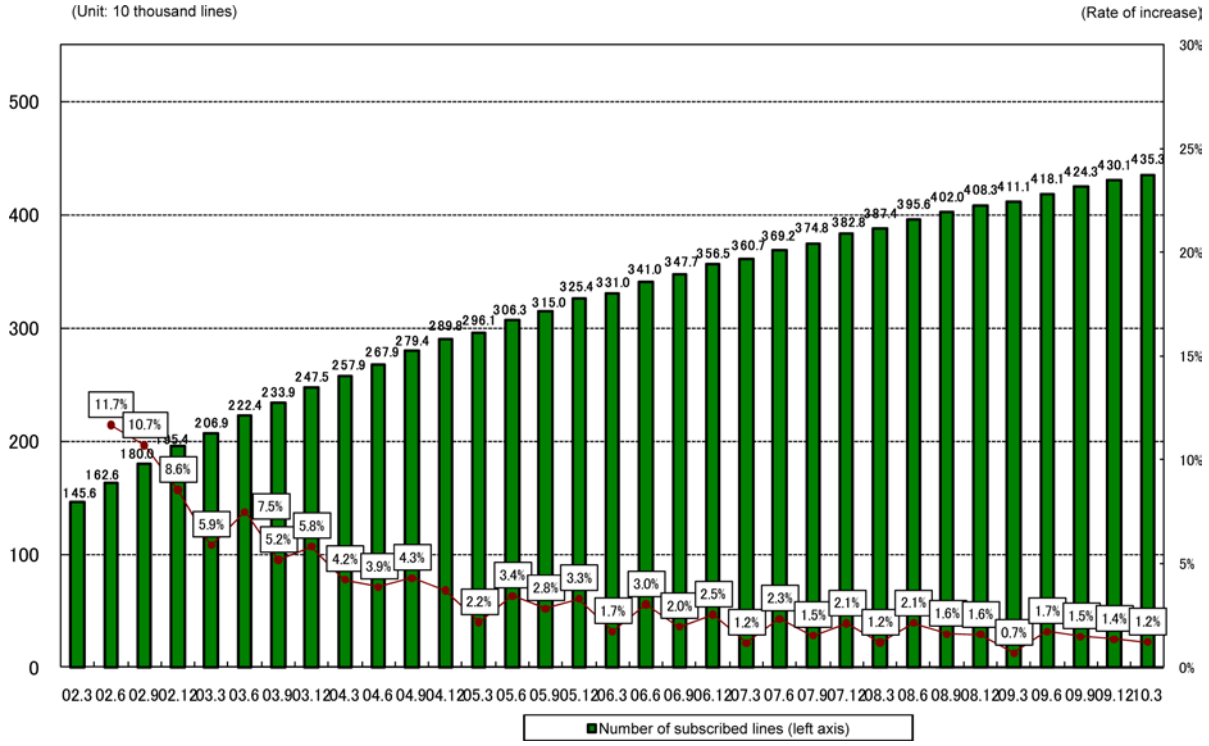
This chapter involves analysis of the major indices in the cable internet sub-market within the internet connection domain.

1. Market size

(1) Changes in number of subscriptions

The number of subscriptions within the overall cable internet market has continued to increase and was 4.353 million as of the end of March 2010. The rate of increase (quarterly), however, has been on a downward trend.

[Figure III-40 Changes in number of subscriptions in cable internet market]



(Source) Ministry of Internal Affairs and Communications

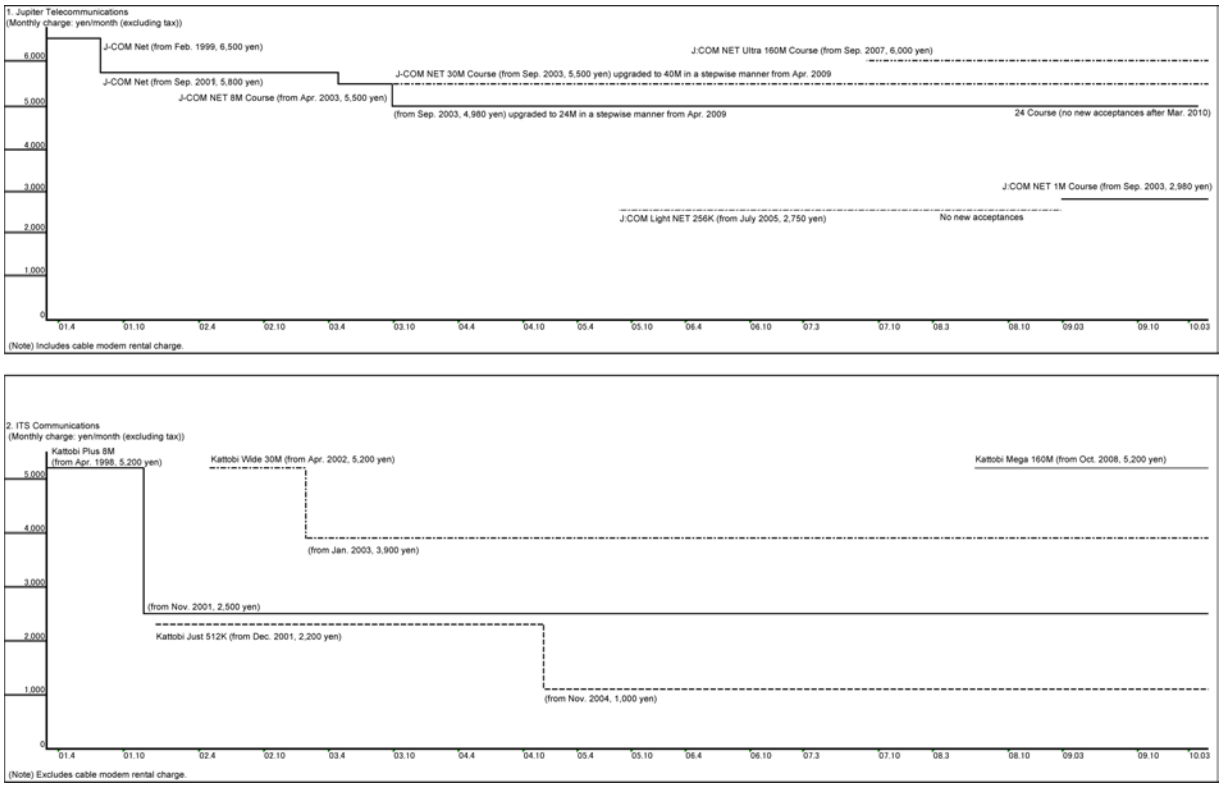
2. Analysis of status with competition

(1) Status with charges

1) Changes in charge level

Figure III-41 illustrates changes in the charges of two major business operators.

[Figure III-41 Changes in charges for cable internet]

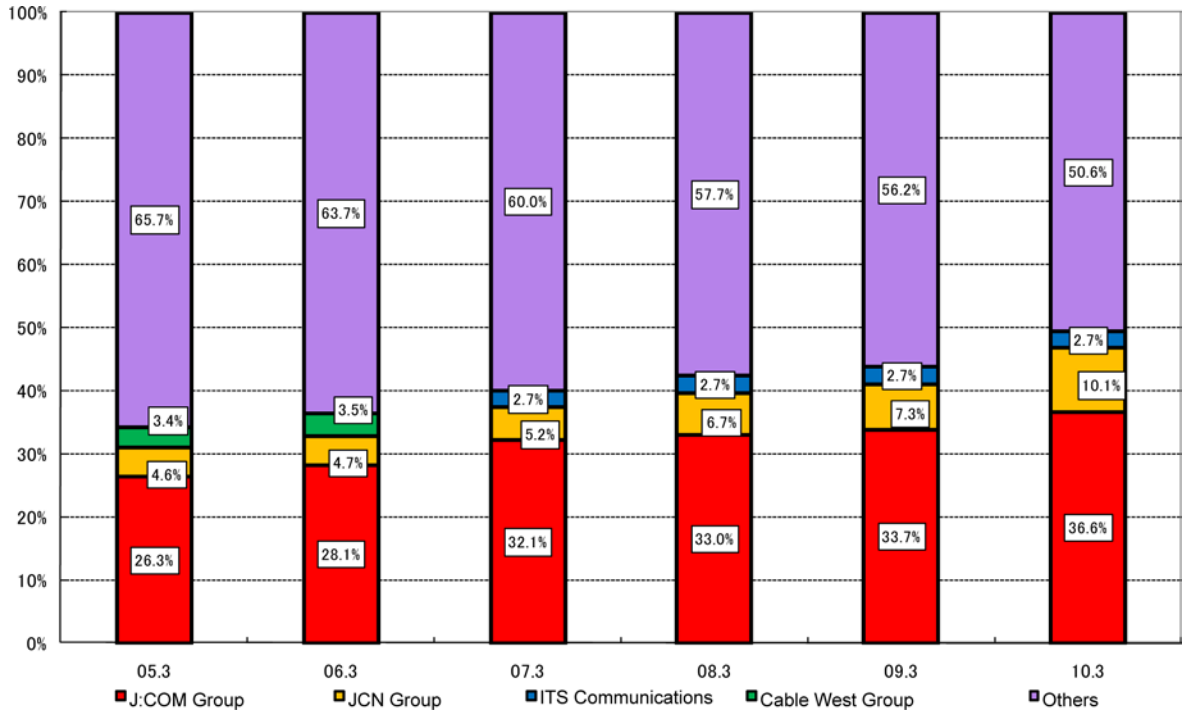


(Source) Websites of respective business operators.

(2) Share of business operators of number of subscriptions

Examining the share of business operators of the number of subscriptions in cable internet market reveals the share of J:COM to be 36.6% as of the end of March 2010 and to be on an upward trend.

[Figure III-42 Changes in share of business operators of number of subscriptions in cable internet market]



(Note) Cable television broadcasting business operators in multiple regions with a unified brand, etc. are counted as one group under the "MSO: Multiple System Operator" that own/operate them.
(Source) Ministry of Internal Affairs and Communications

(3) Changes in market concentration (share and HHI of top three business operators)

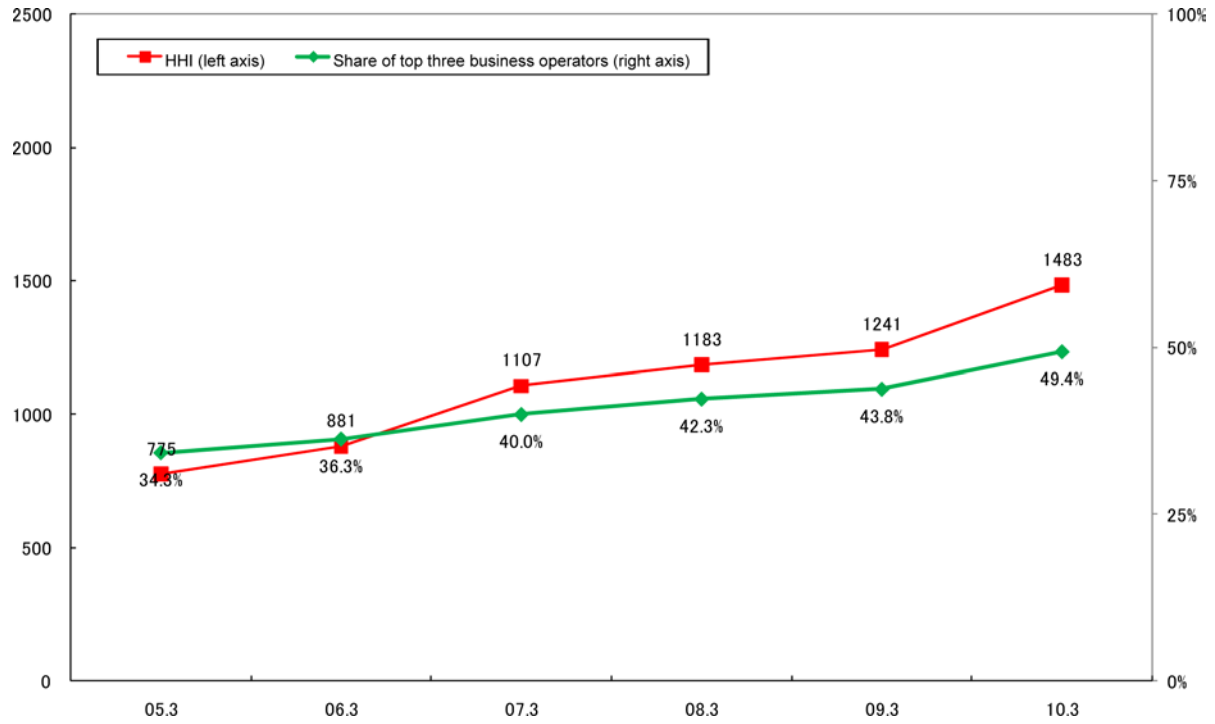
1) Changes in share of top three business operators

The share of the top three business operators (J:COM Group, JCN Group, and ITS Communications) of the number of subscriptions in cable internet market was 49.4% as of the end of March 2010 and has been on an upward trend.

2) Changes in HHI

The HHI with the number of subscriptions in the cable internet market was 1,483 as of the end of March 2010 and has been rising.

[Figure III-43 Changes in share and HHI of top three business operators of number of subscriptions in cable internet market]



(Note) Cable television broadcasting business operators in multiple regions with a unified brand, etc. are counted as one group under the “MSO: Multiple System Operator” that own/operate them.
(Source) Ministry of Internal Affairs and Communications

3. Assessment of status of competition

(1) Trends in FY 2009

1) Number of subscriptions

The number of subscriptions in cable internet market was 4.353 million as of the end of March 2010 and has been rising, although the rate of increase is on a downward trend.

2) Share

The share of the top three business operators is on an upward trend, which is considered to be due to the expansion of MSOs through mergers and acquisitions.

(2) Market dominance

1) Existence of market dominance

[1] Independent market dominance

After taking into general consideration the following determining factors, etc. no business operator was considered to be in a position of being capable of independently exercising market dominance.

a) Quantitative criteria

Examining the share of the number of subscriptions in the cable internet market reveals the share of J:COM Group to be the highest at 36.6%, and no business with any operator having a dominant share.

b) Other major determining factors

Cable internet services are jointly provided with community-based CATV services. And while in some regions only one provider does exist there are no barriers to entry such as bottleneck facilities, etc.

The number of subscriptions has continued to increase but the rate of increase has been on a downward trend. In addition, competitive pressure from the FTTH and ADSL markets exists, while competition also exists from FTTH via triple play services.

[2] Cooperative market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. no business operators with the top shares were deemed to be in the position of being capable of cooperatively

exercising market dominance.

a) Quantitative criteria

The share of the top three business operators in the cable internet market was 49.4% as of the end of March 2010 with an HHI of 1,483. They have been on an upward trend and the market is considered to be not overly oligopolistic.

b) Other major determining factors

Competitive pressure from ADSL and FTTH within the broadband market exists while increased competitive pressure via the provision of triple play services with FTTH also exists.

In addition, the share and HHI of the top three business operators are not considered to be at a very high level when compared to other services such as ADSL and FTTH.

2) Exercise of market dominance

Not applicable.

(3) Matters requiring close observation in the future

MSOs that own/operate cable television broadcast business operators in multiple regions with a unified brand are increasing their share of the market through mergers and acquisitions. The concentration of the cable internet market is at a low level when compared to other markets but has been on an upward trend. Attention will need to be paid if rapid oligopolization or monopolization occurs through large-scale alliances.

A memorandum concerning a discussion on a business alliance between J:COM, Sumitomo Corporation, and KDDI was concluded in June 2010 on realizing a synergistic effect in the cable television market between J:COM and JCN, a subsidiary of KDDI, which will also include capital tie-up. These types of developments in the cable internet market will therefore need to be closely observed in the future.

In addition, although cable internet has specific advantages and is independent of the bundling of broadcast services, progress being made in the migration to FTTH, which offers high-quality multi-channel video picture transmission services, may also have an impact on competition with cable internet. Attention therefore needs to continue to be paid to trends in the dissemination of video picture transmission services via IP multicasting, etc. Trends in triple play services which further include 0ABJ-IP telephones will also need to be closely observed.

Furthermore, high-speed cable internet using HFC and DOCSIS 3.0 is progressing and these

services could be used as an alternative to FTTH to a certain extent. Analysis with particular attention paid to high-speed internet and FTTH should therefore be considered in the future.

Chapter 6 Analysis of Major Indices in ISP Market

This chapter involves analysis of the major indices in the ISP market within the internet connection domain.

1. Market size

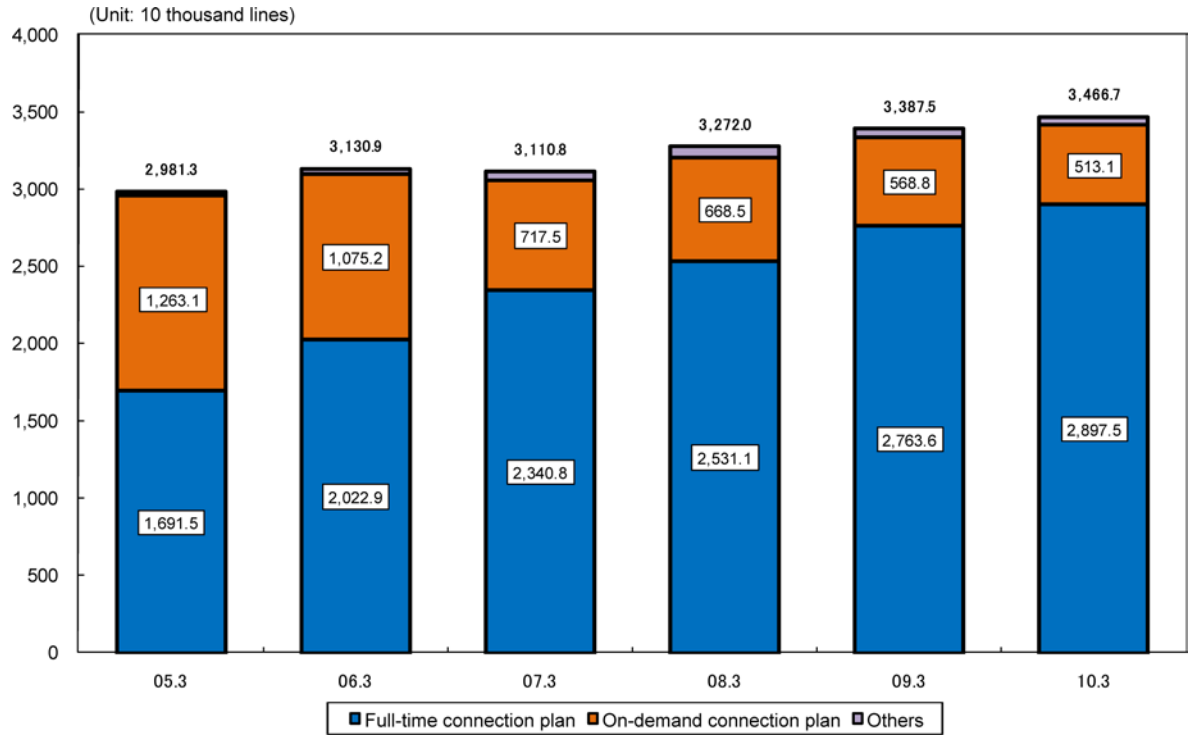
The number of subscriptions within the overall ISP market was 34.667 million as of the end of March 2010 and has generally been on a gradually increasing trend. Examining the breakdown of subscriptions reveals the percentage of full-time connection plans to be rising, which is considered to be a reflection of expansion into the broadband market.

It should be noted, however, the number of subscriptions here was based on the Rules for Reports from the Telecommunications Business in which business operators with 50,000 subscriptions or more (51 business operators as of the end of March 2010) are subjected to making reports, and thus it does not completely reflect the situation with the overall ISP market[7]. In addition, aggregation methods used with the number of subscriptions have changed for some business operators since September 2006, thus requiring particular attention to be paid to figures used in comparisons from around this period[8].

[7] Business operators with 10,000 or more subscriptions were surveyed in the Competition Review of FY 2003 and answers then collected from 84 business operators. According to the results of the survey the percentage of the top three business operators was 46.9%, the top eight business operators 87.0%, and 25 business operators with 50,000 or more subscriptions 95.8%. Since business operators with 50,000 or more subscriptions account for approximately 96% of those with 10,000 or more subscriptions surveying business operators with 50,000 or more subscriptions can be considered appropriate in identifying approximate trends and shares in the ISP market.

[8] The Rules for Reports from the Telecommunications Business categorises the number of subscriptions into “on-demand connection”, “full-time connection”, “for enterprises”, and “others”. Figure III-44 aggregates “for enterprise” and “others” of the Rules as “others”.

[Figure III-44 Changes in number of subscriptions in ISP market]



(Source) Ministry of Internal Affairs and Communications

2. Analysis of status with competition

(1) Charges, etc.

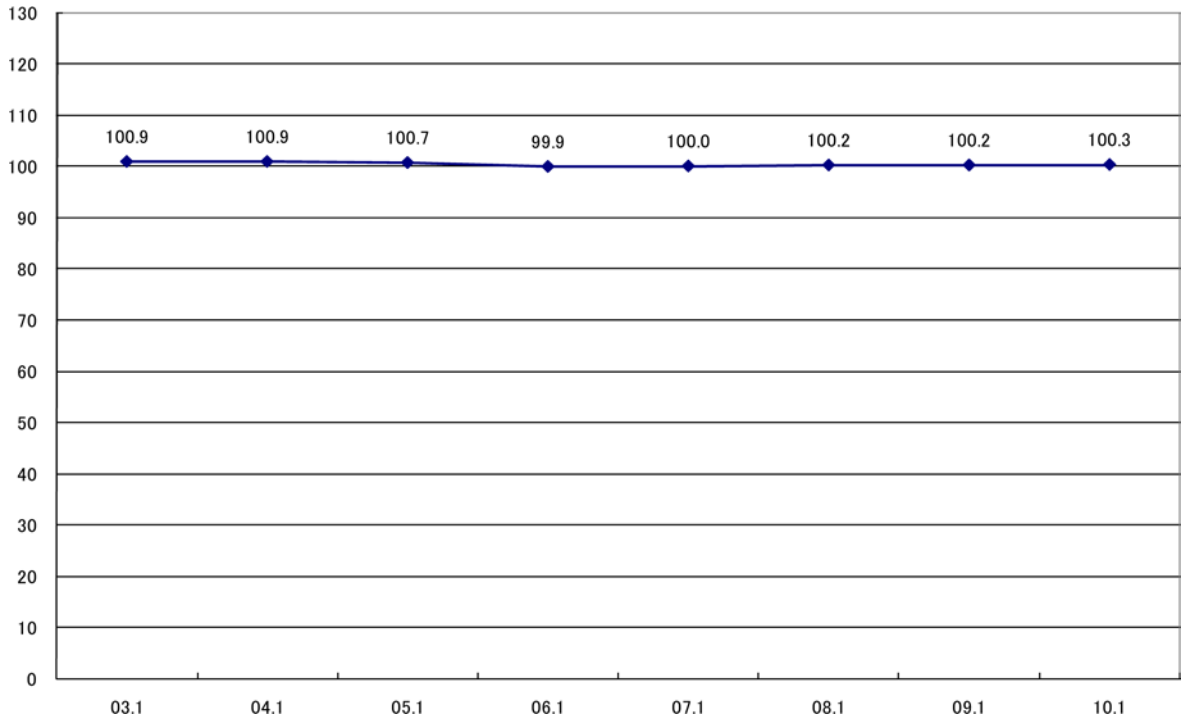
1) Changes in internet connection charges

The Consumer Price Index (hereinafter referred to as “CPI”), which measures changes over time in the price level of consumer goods and services purchased by households nationwide, is used here to consider the charge level.

The survey subject of “Internet connection charges (monthly provider charges)” combine access networks such as ADSL and FTTH, etc. and internet connections, thus making them indivisible. The actual situation with the sale of internet connection services being a combination of the internet connection and access network in charges, in many cases, results in the CPI of internet connection charges having certain meaning when analyzing the charge for ISPs.

The CPI of “Internet connection charges” has been published monthly since January 2003 and had increase by 0.1% by January 2010.

[Figure II-45 Changes in Consumer Price Index (2005-base) of internet connection charges]



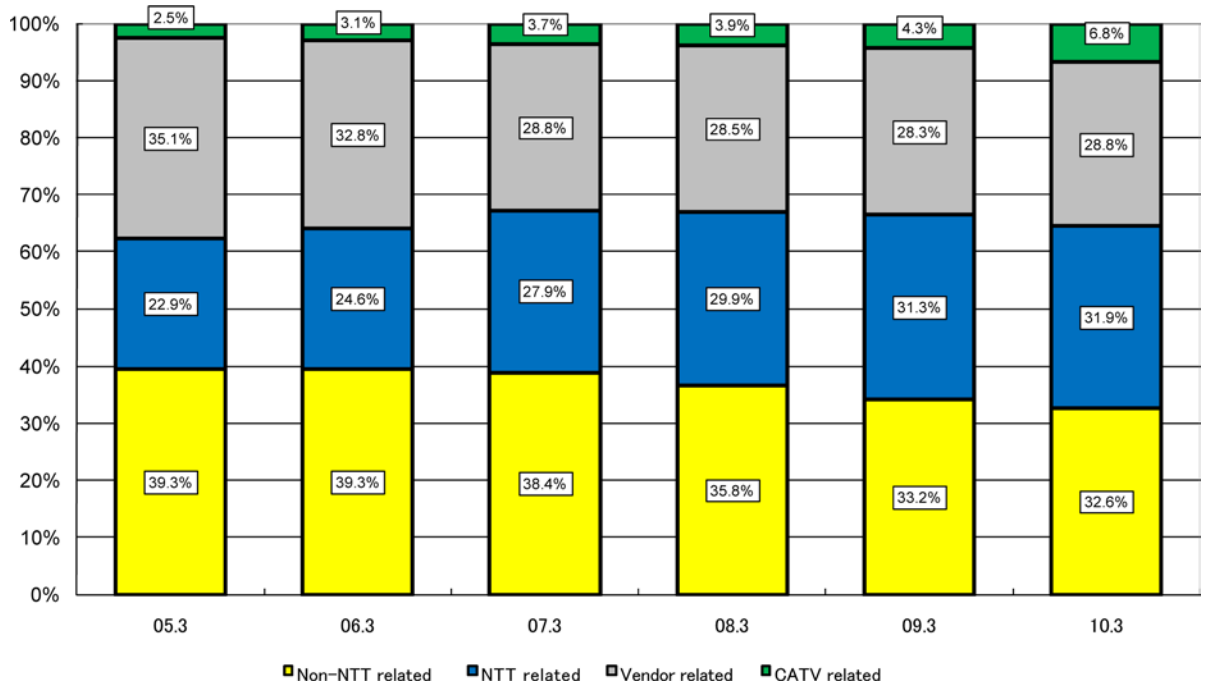
(Source) Ministry of Internal Affairs and Communications

(2) Share of business operators of number of subscriptions

The share of business operators was categorized into the four categories[9] of NTT related, non-NTT related, CATV related, and vendor related business operators because publishing the share of the relevant business operators could not be agreed upon.

The share of NTT related business operators has been increasing since 2005.

[Figure III-46 Changes in share of business operators of number of subscriptions in ISP market]



(Source) Ministry of Internal Affairs and Communications

(3) Changes in market concentration (share and HHI of top three business operators)

1) Changes in share of top three business operators

The share of the top three business operators (NEC BIGLOBE, NTT Communications, and SoftBank BB (in alphabetical order)) of the number of subscriptions was 56.4% as of the end of March 2010 but has been decreasing.

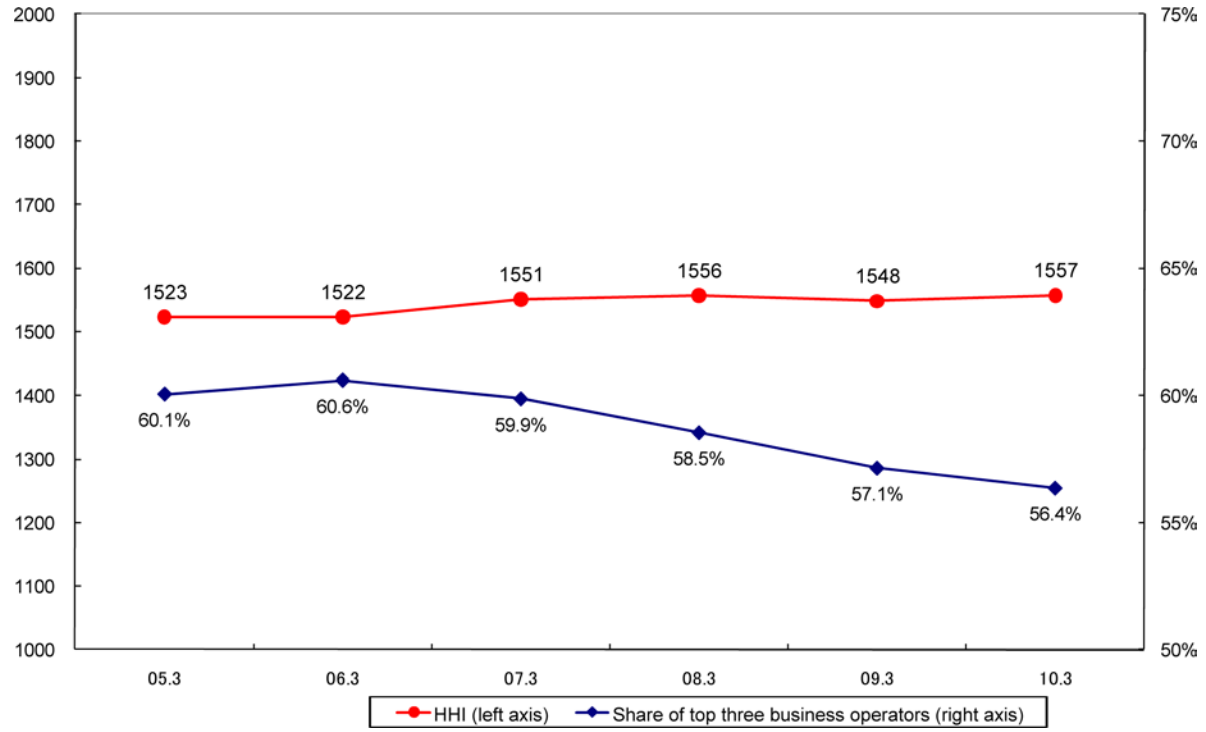
[9] More concretely, the categorization was as follows.

- "NTT related business operators": Telecommunications carriers that belong to the NTT Group. NTT Communications and Plala Networks, etc.
- "Non-NTT related business operators": Telecommunications carriers that do not belong to the NTT Group. SoftBank Telecom, etc.
- "CATV related business operators": Business operators that mainly provide CATV internet services. J:COM Group, etc.
- "Vendor related business operators": Business operators that sell/provide telecommunications devices, etc. or their affiliates, etc. NIFTY, etc.

2) Changes in HHI

The HHI with the number of subscriptions in the ISP market was 1,557 as of the end of March 2010 and has levelled off.

[Figure III-47 Changes in share and HHI of top three business operators of number of subscriptions in ISP market]



(Note 1) Figures are based on the total number of subscriptions of business operators with 50,000 or more subscriptions that are subjected to making reports by the Rules for Reports from the Telecommunications Business.
(Note 2) Aggregation methods with the number of subscriptions have changed for some business operators since September 2006.
(Note 3) HHI was calculated by regarding the NTT Group and SoftBank Group as single respective companies.
(Source) Ministry of Internal Affairs and Communications

3. Assessment of status with competition

(1) Trends in FY 2009

1) Number of subscriptions

The number of subscriptions of business operators with 50,000 or more subscriptions (51 business operators as of the end of March 2010) has remained at the same level and was 34.667 million as of the end of March 2010.

2) Share

The share and HHI of the top three business operators as of the end of March 2010 was 56.4% and 1,557, respectively. The market concentration was low when compared to other broadband markets.

(2) Market dominance

1) Existence of market dominance

[1] Independent market dominance

After taking into general consideration the following determining factors, etc. no business operator is considered to be in a position of being capable of independently exercising market dominance.

a) Quantitative criteria

The share of business operators with the top shares of the number of subscriptions in ISP market was below 30%, with the difference with the share of other competing business operators also being quite small.

b) Other major determining factors

Entry to the ISP market is not overly difficult. In addition, active competition in terms of price and services exists, and while the switching burden for changing business operators involves changing e-mail addresses it is still relatively small.

[2] Cooperative market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. no business operator is considered to be in a position of being capable of independently exercising market dominance.

a) Quantitative criteria

The share and HHI of the top three business operators in the ISP market has been at low level and either on a downward trend or has levelled off, thus indicating that the market is not oligopolistic.

b) Other major determining factors

Entry to the ISP market is relatively easy and the number of business operators entering the market is actually increasing.

2) Exercise of market dominance

Not applicable.

(3) Matters requiring close observation in the future

The share of NTT related business operators of the number of subscriptions in the ISP market has been increasing with the progress of the migration from ADSL to FTTH. Internet connection services are supplementary services to internet connection network services, however, and hence the impact on the ISP market of broadband markets, including ADSL and FTTH markets, etc., being leveraged will need to be closely observed[10].

[10] With regard to treatment of OCN by distributers, the "Results of Verification (FY 2009) based on the Competition Safeguard System" (press released on February 19, 2010) provides for the existence of obstructive acts in fair competition continuing to be closely observed.

IV Corporate Network Services Domain

Table of Contents

Chapter 1 Market Delimitation within Corporate Network Services Domain

This chapter outlines market delimitation in the corporate network services domain.

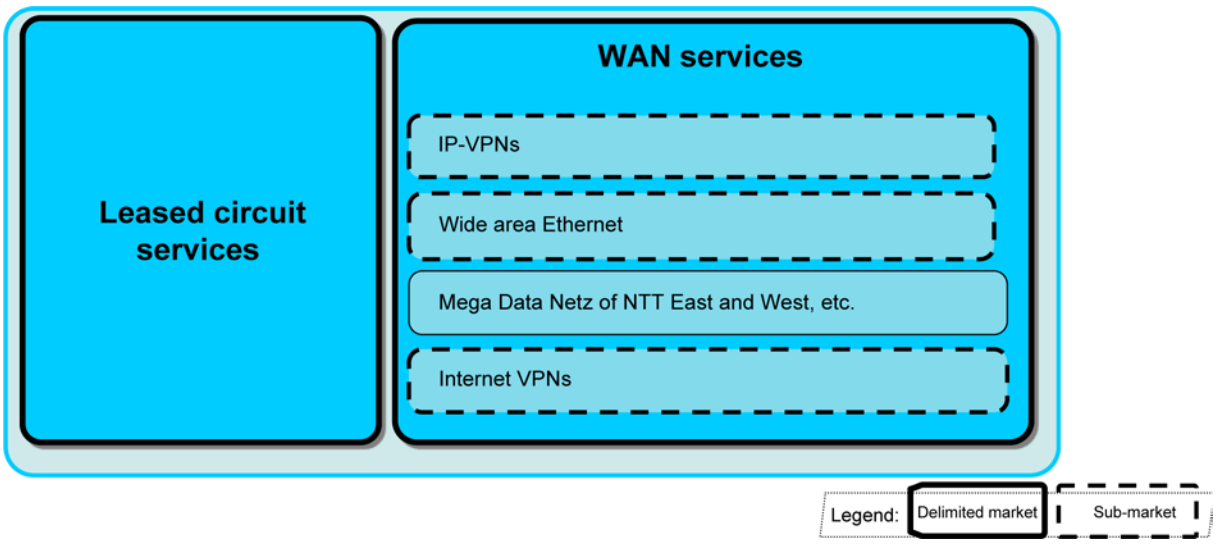
1. Delimitation of service markets

Conventional delimitation was adopted use with service markets in the Competition Review 2009. IP-VPN, wide area Ethernet, Mega Data Netz of NTT East and West, etc. and the other respective internet VPN services were delimited as the WAN services market. In consideration of their independence leased circuit services were delimited as the leased circuit services market.

WAN services were further delimited into IP-VPNs, wide area Ethernet, and internet VAN sub-markets. Analysis of internet VPNs, however, required attention to be paid to whether data could be collected or not.

The level of use, etc. of frame relay and cell relay services resulted in them continuing to be excluded from market delimitation.

[Figure IV-1 Market delimitation within corporate network services domain]



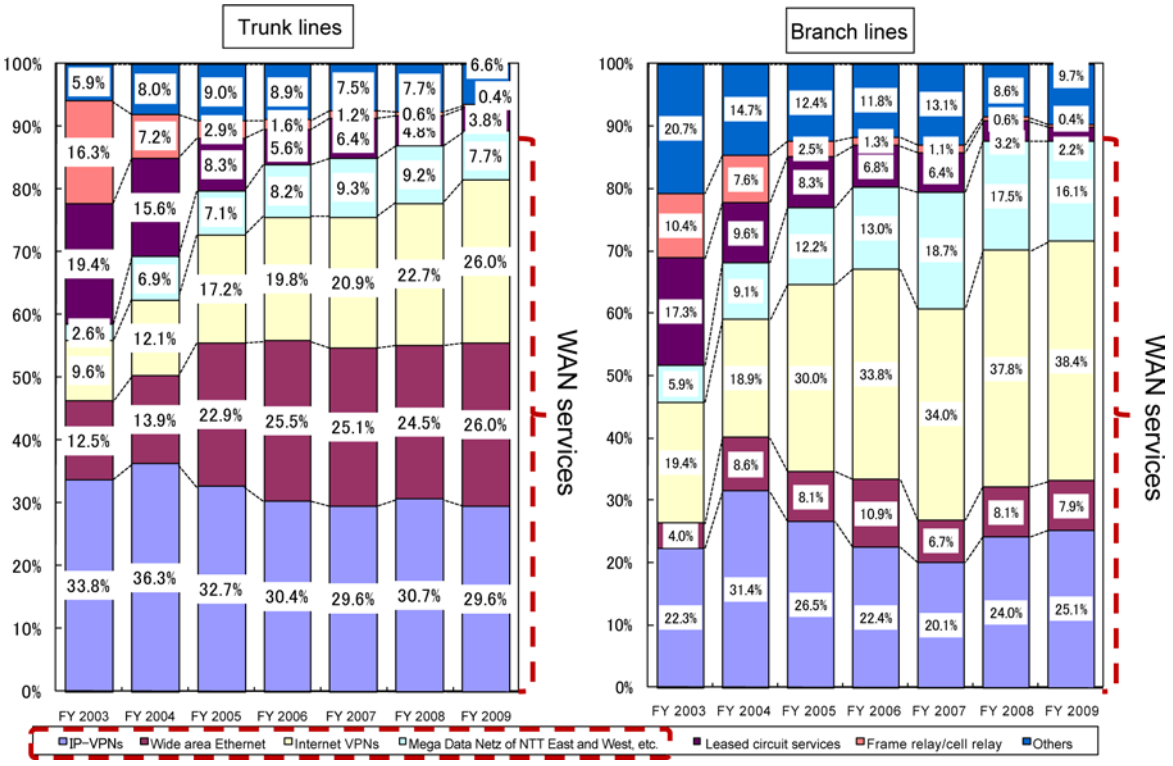
2. Delimitation of geographical markets

The geographical market was delimited as the entire nation.

Chapter 2 Trends with Use of Corporate Network Services

Examining the results of a questionnaire survey on corporate network services carried out on enterprises in FY 2009 with regard to trends in use of major services [1] reveals use of WAN services to continue to be increasing with both trunk lines[2] and branch lines[3] whereas the use of leased circuit services has been on a decreasing trend.

[Figure IV-2 Trends with use of major services]



[1] The most major service introduced (one choice).
[2] Networks used to connect major sites or computer centers.
[3] Networks used to connect sites of small- and medium-sized enterprises.

Chapter 3 Analysis of Major Indices in WAN Services Market

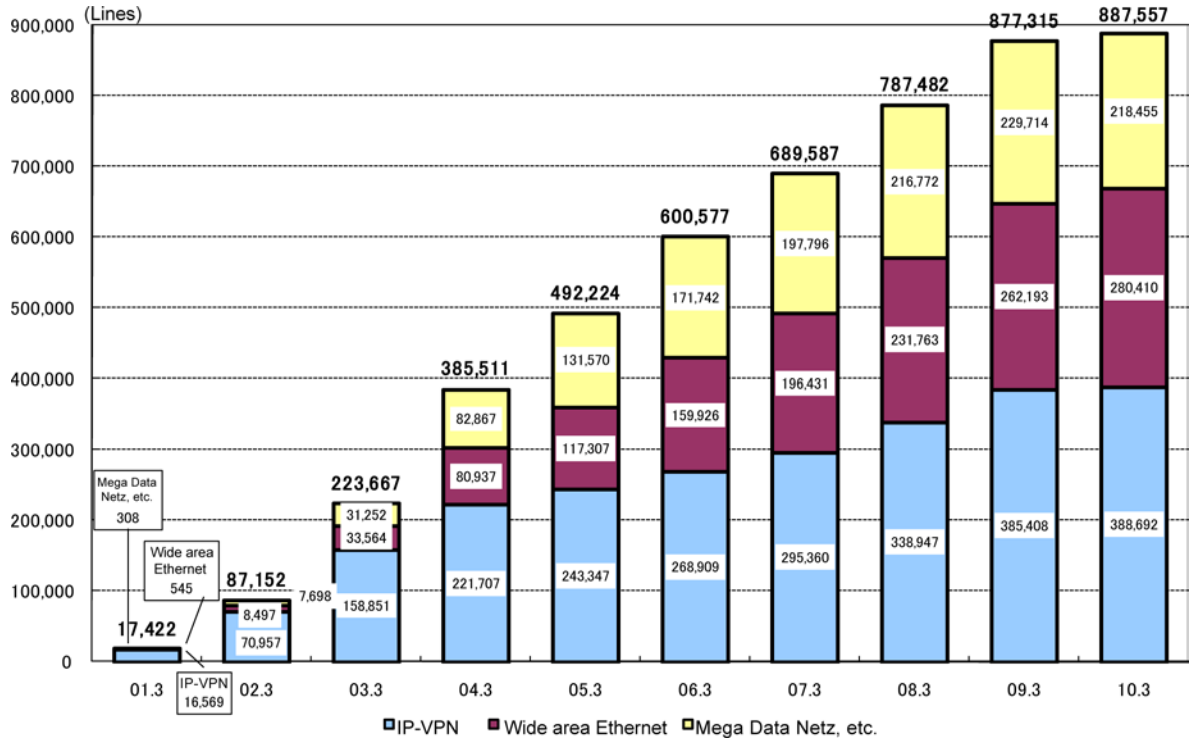
This chapter involves analysis of the major indices in the WAN services market.

1. Market size

(1) Number of subscriptions

The number of WAN service[4] subscriptions has continued to increase and was over 0.88 million as of the end of March 2010. By service IP-VPN and wide area Ethernet have continued to increase while Mega Data Netz, etc. turned to a decrease at the end of March 2010.

[Figure IV-3 Changes in number of subscriptions of WAN services]

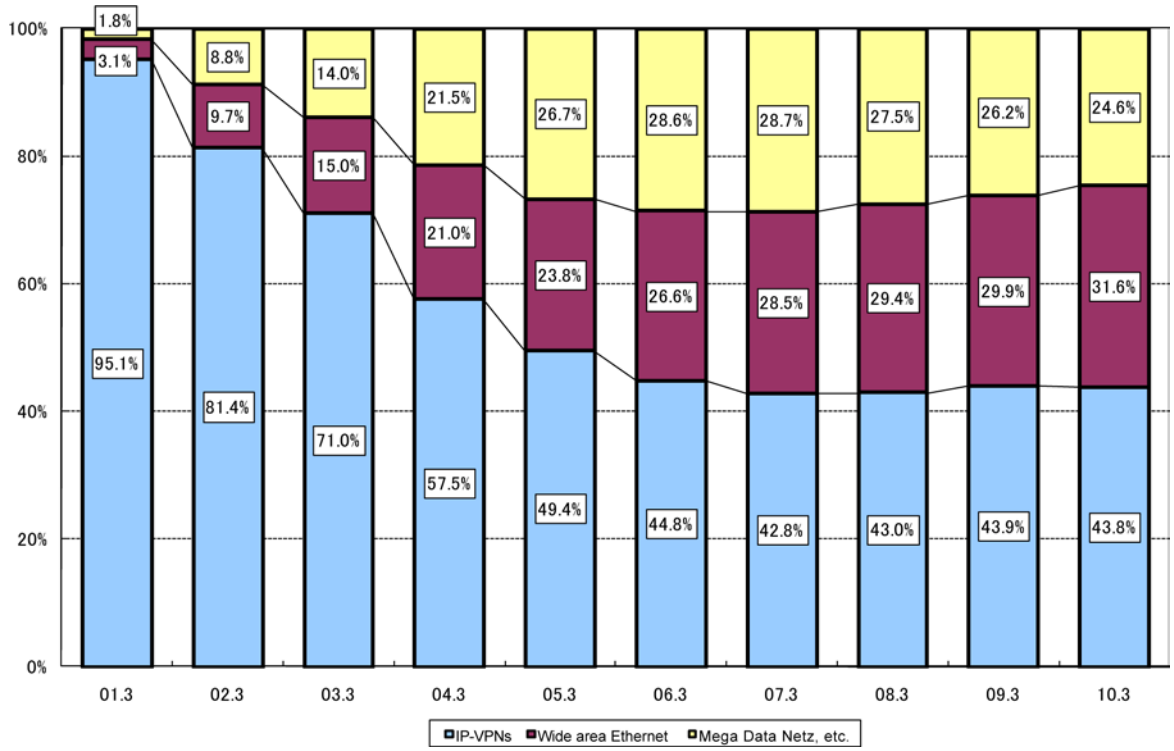


(Source) Ministry of Internal Affairs and Communications

With regard to the percentage of respective services and number of subscriptions the rate of increase of wide area Ethernet and IP-VPN has been rising whereas that of Mega Data Netz, etc. has been on a downward trend.

[4] "WAN services" as referred to in 1. through 3. in Chapter 3 exclude internet VPN.

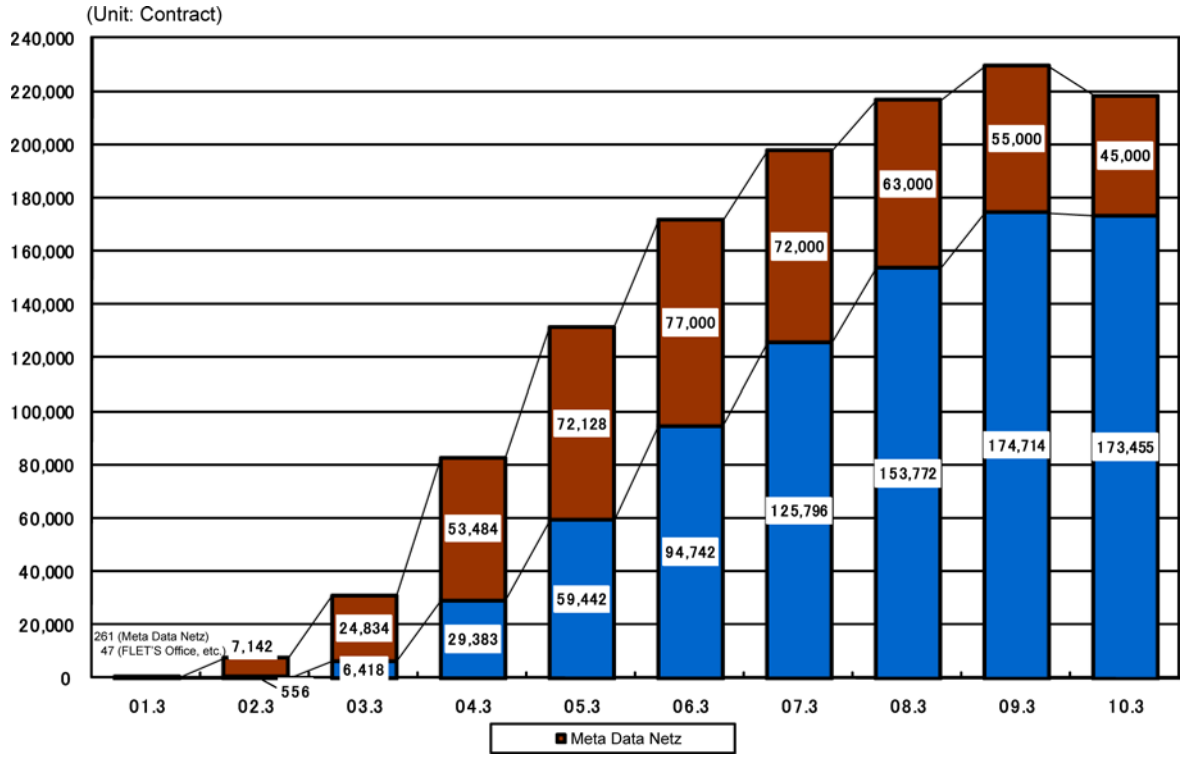
[Figure IV-4 Changes in percentage distribution of number of WAN service subscriptions]



(Source) Ministry of Internal Affairs and Communications

Examining the number of Mega Data Netz, etc. subscriptions of NTT East and West reveals it to have been decreasing while that of FLET'S Office, etc. also started to decrease at the end of March 2010.

[Figure IV-5 Changes in number of Mega Data Netz and other service subscriptions]



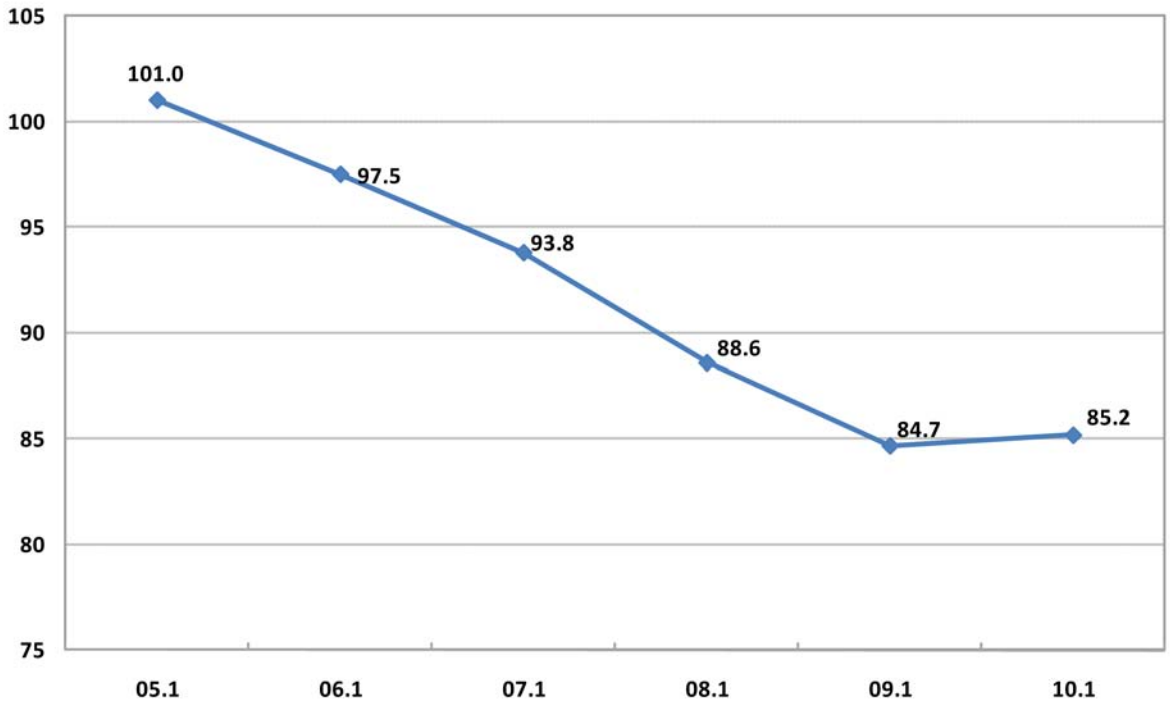
(Note) FLET'S Office, etc. includes various NTT East and West services ("FLET'S Office", "FLET'S Office Wide", "FLET'S Group Access", and "FLET'S Group").
(Source) Ministry of Internal Affairs and Communications

2. Analysis of status with competition

(1) Changes in charges, etc.

Identifying changes in the actual charges made for providing WAN services, etc. is difficult. However, the price index of "WAN services[5]" that includes IP-VPN and wide area Ethernet was published in the "2005-Base Corporate Services Price Index[6]" by the Bank of Japan and can be used as reference material in identifying changes in the level of charges, and reveals that the price index of "WAN services" has continued to decrease, although it has slightly increased over recent years.

[Figure IV-6 Changes in price index of corporate WAN services]



(Source) "Corporate Services Price Index" by Bank of Japan

[5] In addition to IP-VPNs and wide area Ethernet a price index of "fixed data transmission services", which includes corporate internet connection services, was included in the published 2000-base index, although no longer available after September 2009. Refer to http://www.boj.or.jp/type/release/nt_cr09/ntcspi12.htm for more details.

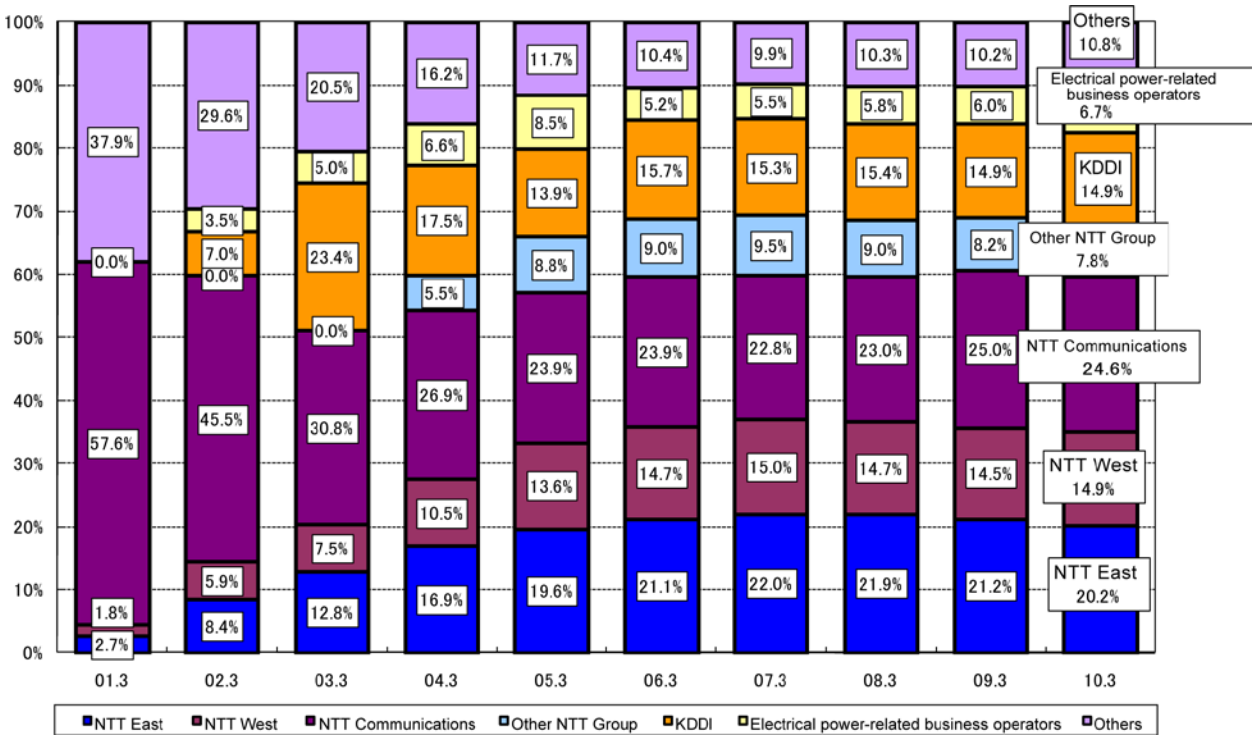
[6] The "Corporate Services Price Index" focuses on the price of the "services" involved in transactions between enterprises and is calculated by multiplying the price of the subject services by their importance (weight). The price is determined by individually examining the representative price of services while the weight is calculated by the amount of transactions that take place between the enterprises subject to the price index. The price index is then determined by using the representative price of individually examined services as indices and then calculating their weighted average using their weight. Refer to http://www.boj.or.jp/type/exp/stat/pi/ecsp2k0.htm for more details via the "Explanation of Corporate Services Price Index" (Bank of Japan).

(2) Share of business operators of number of subscriptions

1) Overall WAN services

Examining changes in the share of business operators reveals the share of NTT East and West have been increasing from the end of March 2001 up to the end of March 2007 when it then levelled off. The share of the overall NTT Group has also remained at the same level.

[Figure IV-7 Changes in share of business operators of WAN services]

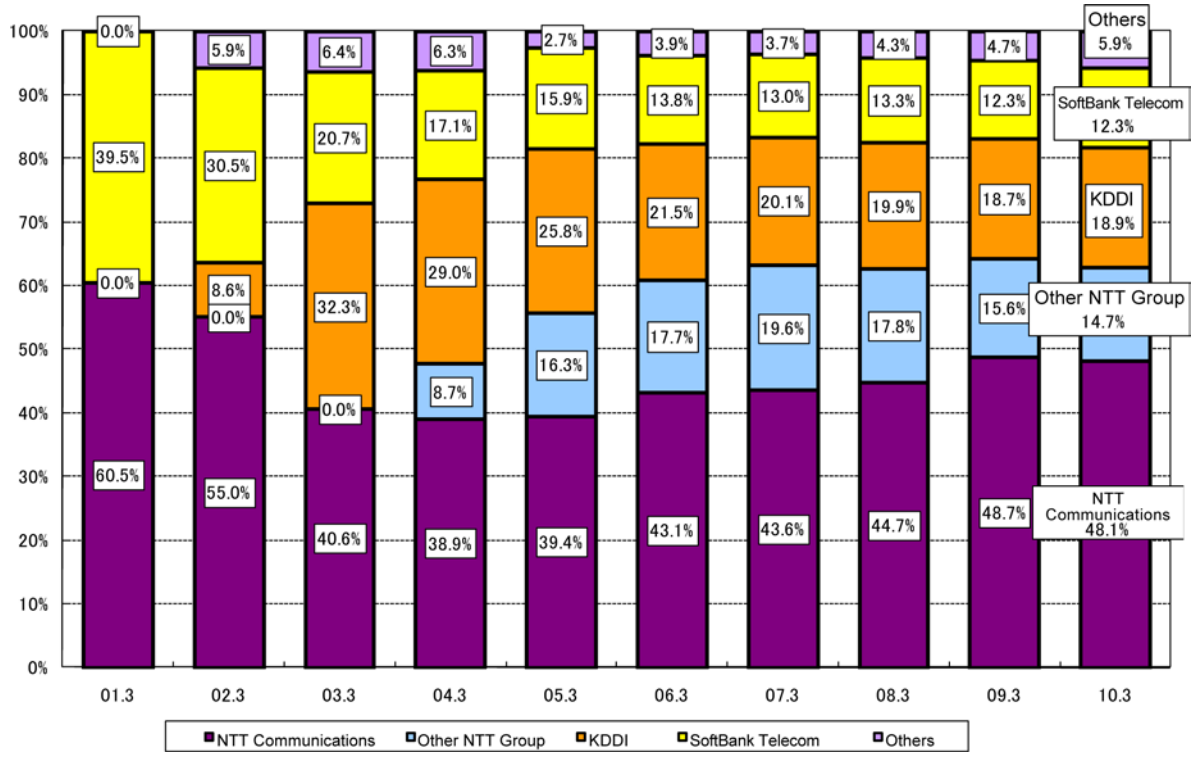


(Source) Ministry of Internal Affairs and Communications

2) IP-VPNs

Examining changes in the share of business operators of IP-VPNs reveals the share of NTT Communications, with the top share, to have been increasing from the end of March 2005 but which then started decreasing at the end of March 2010. The share of the overall NTT Group has basically levelled off and was 62.8% as of the end of March 2010.

[Figure IV-8 Changes in share of business operators of IP-VPNs]

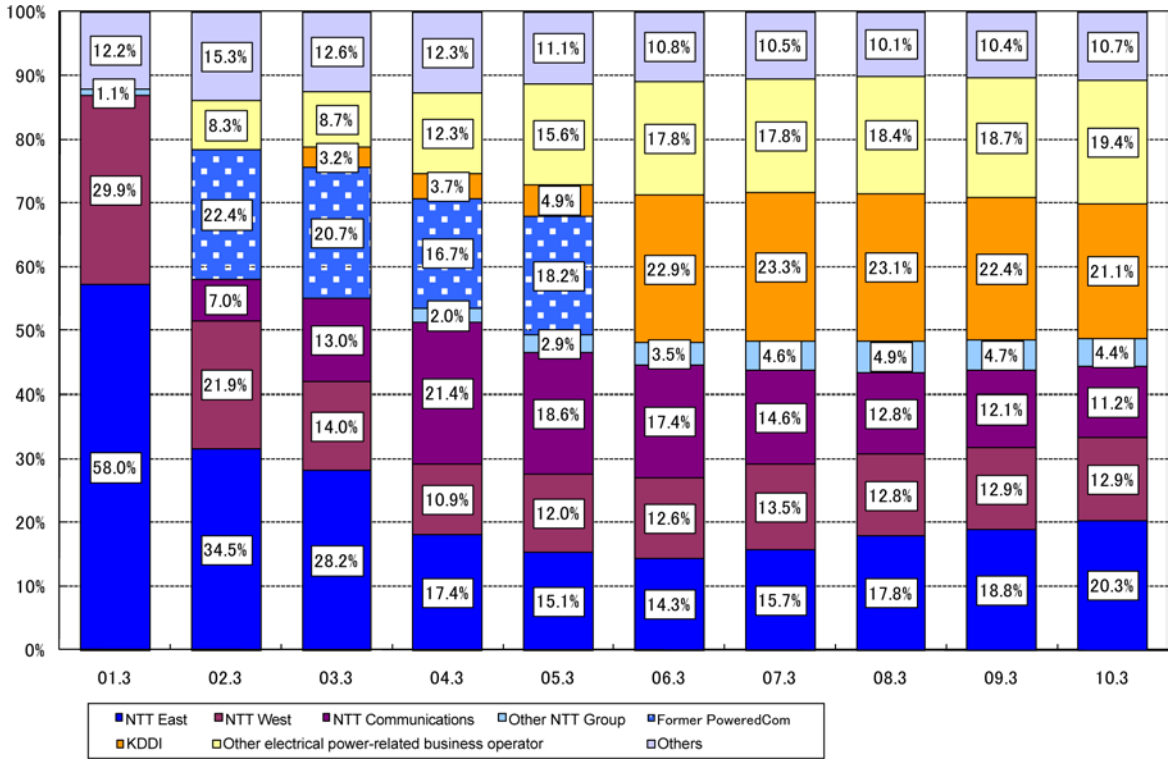


(Source) Ministry of Internal Affairs and Communications

3) Wide area Ethernet

Examining changes in the share of business operators with wide area Ethernet reveals the share of NTT East and West to have been decreasing since the end of March 2001 but which then started to increase at the end of March 2007, and was 33.2% as of the end of March 2010. The share of the overall NTT Group was 48.8% as of the end of March 2010 and has basically remained at the same level. The share of KDDI significantly increased when the merger with former PoweredCom took place in October 2005 but has been on a downward trend since then.

[Figure IV-9 Changes in share of business operators with wide area Ethernet]



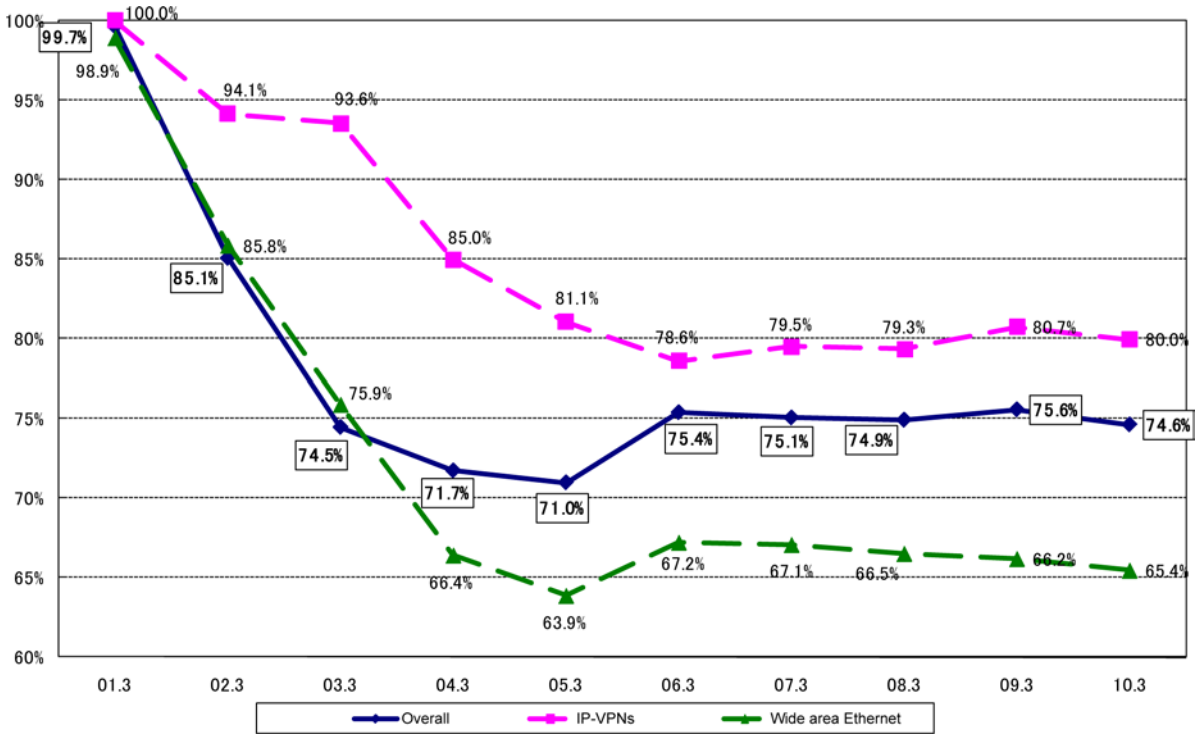
(Source) Ministry of Internal Affairs and Communications

(4) Market concentration

1) Changes in share of top three business operators

The share of the top three business operators (NTT East and West, NTT Communications, and KDDI) of overall WAN services has basically levelled off after increasing at the end of March 2006, and was 74.6% as of the end of March 2010.

[Figure IV-10 Changes in share of top three business operators with WAN services]



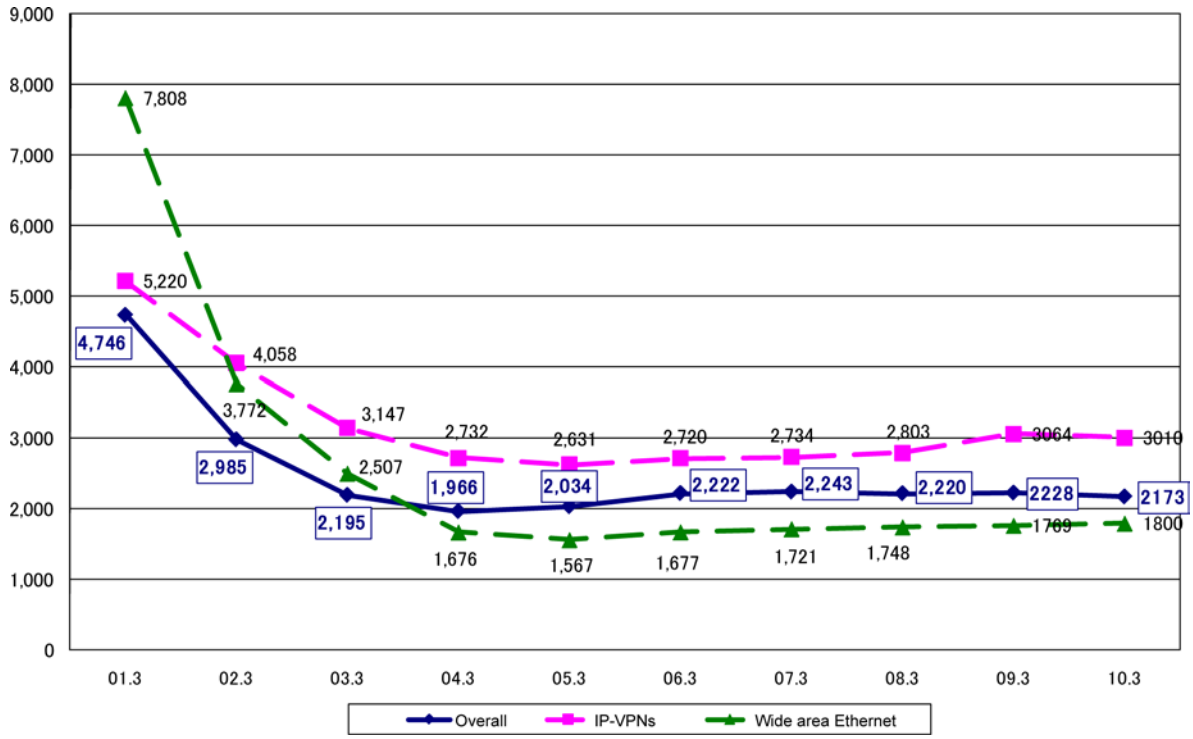
(Note) NTT East and West were regarded as one company when calculating the shares.
(Note 2) “Overall” includes IP-VPNs, wide area Ethernet, and Mega Data Netz, etc.
(Source) Ministry of Internal Affairs and Communications

2) Changes in HHI

The HHI of overall WAN services had been on a downward trend but turned to a gradual upward trend at the end of March 2004, and then levelled off from the end of March 2006. It was 2,173 as of the end of March 2010.

By sub-market of WAN services both IP-VPN and wide area Ethernet markets have remained at the same level.

[Figure IV-11 Changes in HHI of WAN services]



(Note) NTT East and West were regarded as one company when calculating the HHI.
(Note 2) “Overall” includes IP-VPNs, wide area Ethernet, and Mega Data Netz, etc.
(Source) Ministry of Internal Affairs and Communications

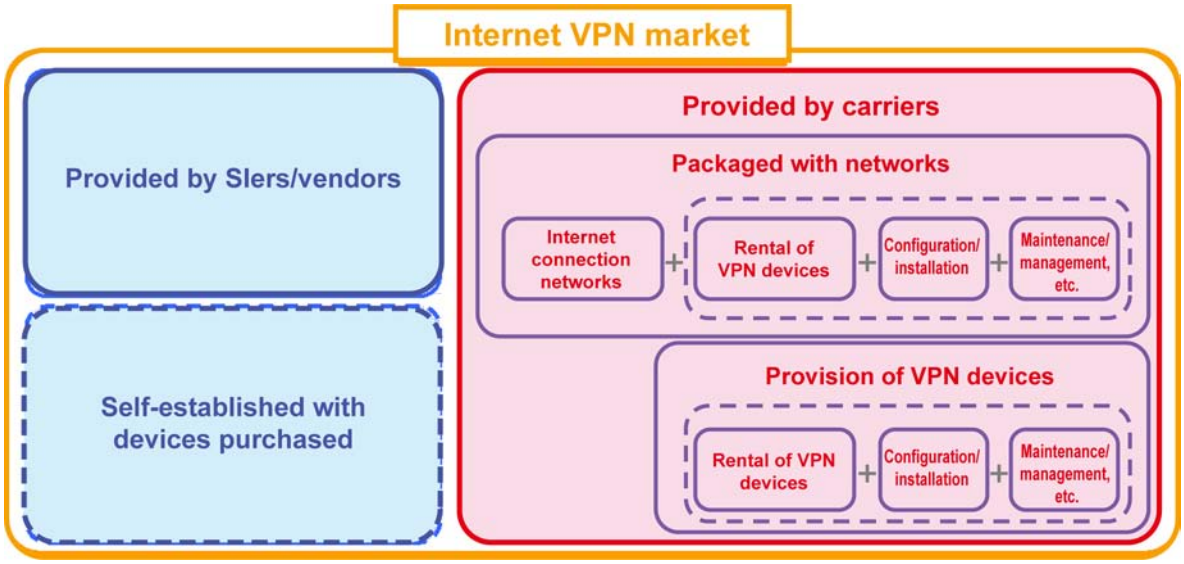
3. Trends and analysis of internet VPN market

(1) Analysis of internet VPN market

With the WAN services market internet VPN services are provided by telecommunications carriers, system integrators (SIers), and device vendors. In addition, users can purchase VPN devices, etc. and establish VPN environments themselves.

The above circumstances therefore make obtaining information for use in comprehensively and appropriately identifying the overall scale of and status with competition between business operators in the internet VPN service market extremely difficult when compared to other sub-markets. Analysis of the internet VPN market therefore took place using the limited data that could be collected from the demand-side.

[Figure IV-12 Image of internet VPN market]



(Note) Image does not represent actual market scale.

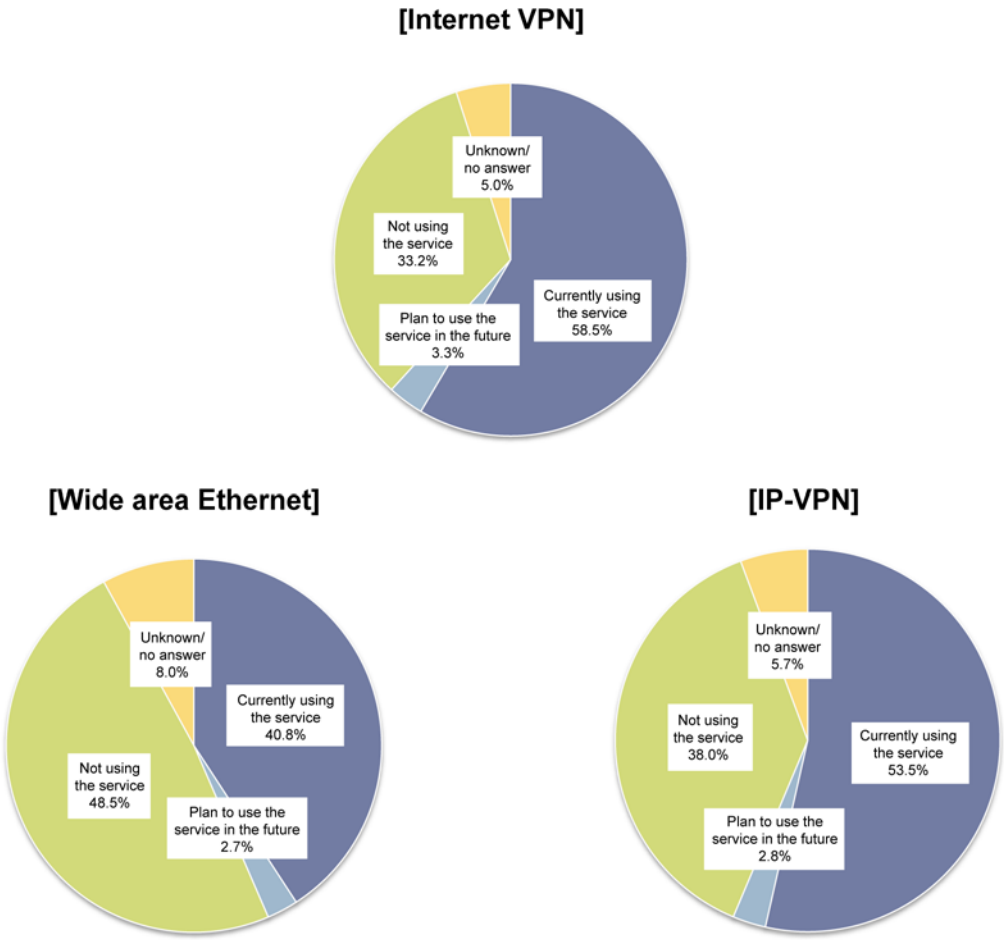
(2) Trends with use of internet VPNs

Examining the results of the above mentioned questionnaire survey on corporate network services with regard to their usage rate of internet VPNs, etc. reveals a little less than 60% of all the sample enterprises to be using internet VPNs and the usage rate to exceed that of other representative WAN services such as IP-VPNs and wide area Ethernet, etc.

In addition, examining the results of surveying the establishment methods reveals approximately 60% or more enterprises using internet VPNs had had them established by telecommunications carriers or SIers. Conversely however, a little less than 30% established internet VPNs themselves, thus indicating the internet VPN market is not completely comprised of

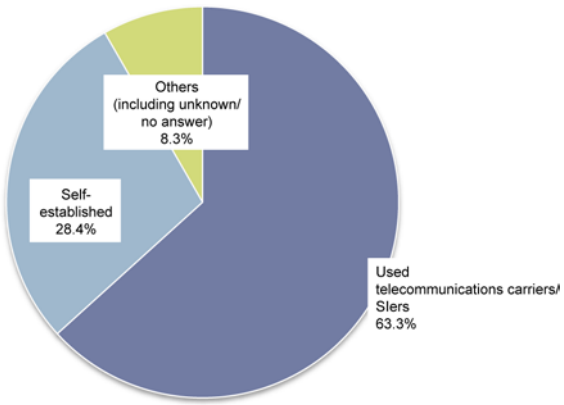
services being provided by telecommunications carriers.

[Figure IV-13 Usage rate of internet VPN market, etc.]



(Source) Ministry of Internal Affairs and Communications

[Figure IV-14 Establishment method of internet VPN]



(Source) Ministry of Internal Affairs and Communications

4. Assessment of status with competition

(1) Trends in FY 2009

The WAN service market continues to grow and had reached over 0.88 million subscriptions as of the end of March 2010, but the percentage of Mega Data Netz of WAN services has been on a decreasing trend. The usage rate of internet VPNs has continued to rise.

No significant change has been observed in the share of business operators of the respective services, etc.

(2) Examination from users' point of view

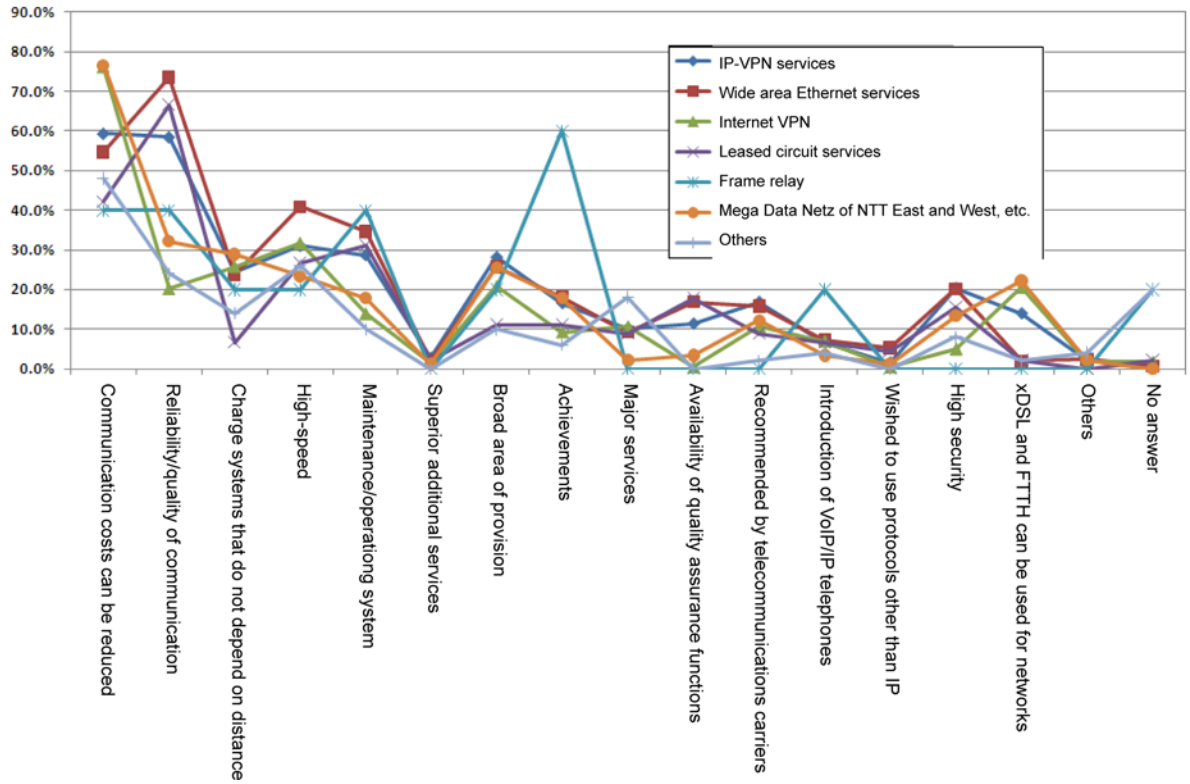
The intentions of the users (business operators) of corporate networks were considered separately with trunk lines and branch lines here based on the results of the questionnaire survey.

1) Users' intentions with trunk lines

Among reasons that business operators are using the communications services selected for trunk lines as the "main service" "reduced communication cost" and "reliability/communication quality" were the largest in number.

Low cost is a characteristic of internet VPNs but only approximately 20% of business operators selected them because of "reliability/communication quality". This indicates business operators are therefore selecting services according to their own needs with respect to trunk line services.

[Figure IV-15 Reasons for selecting respective services as "main service" with trunk lines (multiple choice)]

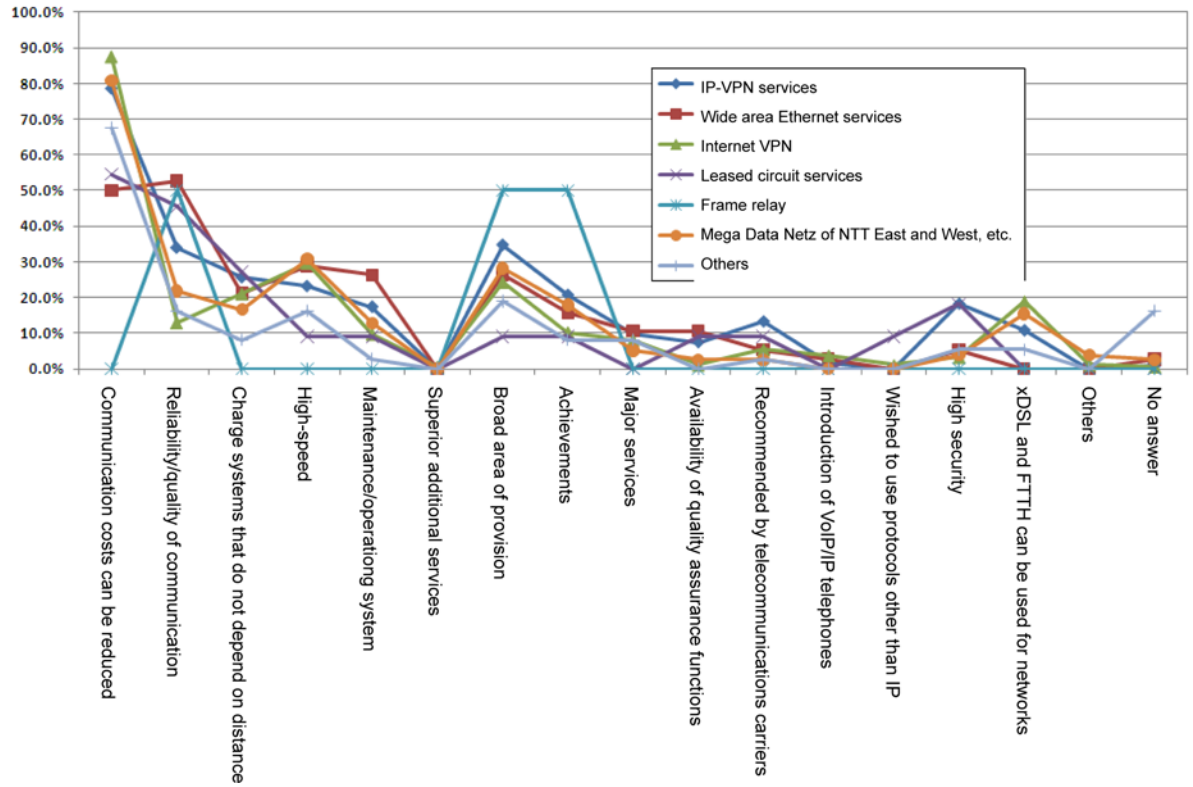


(Source) Ministry of Internal Affairs and Communications

2) Users' intentions with branch lines

Almost the same tendency as with trunk lines was observed in that the reason business operators are using the communications services selected with a branch lines was "main service".

[Figure IV-16 Reasons for selecting respective services as "main service" with branch lines (multiple choice)]



(Source) Ministry of Internal Affairs and Communications

The above reveals the provision of multiple alternative services as WAN services in a competitive manner according to the diverse needs of users can be considered to be resulting in the needs and improved convenience of users, etc. being satisfied.

Analysis of the corporate network services domain therefore requires, in addition to analysis of the overall WAN services, attention being paid to the status with competition in the respective services with consideration also given to respective needs according to the characteristics of IP-VPNs, wide area Ethernet, and internet VPNs, etc.

(3) Market dominance

1) Existence of market dominance

[1] Independent market dominance

After taking into general consideration the following determining factors, etc. no business operator is considered to be in a position of being capable of independently exercising market dominance.

a) Quantitative criteria

The share of NTT East and West, with the top share in WAN services, was 35.1% as of the end of March 2010 and has remained basically at the same level since the end of March 2006. The share of NTT Communications, with the second highest share, was 24.6% and that of KDDI, with the third highest share, 14.9%. The shares are therefore deemed to be of a comparable level.

b) Other major determining factors

The number of WAN service subscriptions is still increasing. And while the overall scale of the market scale has been increasing the range of change in share is gradually becoming smaller, and hence competition for market share is considered to exist.

NTT Communications, with the second highest share, also has the share of 48.1% of the IP-VPN market while KDDI, with the third highest share, have a share of a little less than 20%, thus indicating that business operators with the second highest or lower shares can be considered to have sufficient competitiveness.

[2] Cooperative market dominance between multiple business operators

After taking into general consideration the following determining factors, etc. multiple business operators of the NTT Group were deemed to be in the position of cooperatively being capable of exercising market dominance.

a) Quantitative criteria

The share and HHI of the top three business operators (NTT East and West, NTT Communications, and KDDI) with WAN services was 74.6% and 2,173, respectively, as of the end of March 2010, thus indicating the market is oligopolistic.

b) Other major determining factors

The top two business operators belong to the NTT Group and have capital ties. In addition,

after including other business operators of NTT Group the share of the NTT Group accounts for nearly 70% of the total. The possibility of these business operators comprehensively displaying their business capabilities as a group is considered to exist.

2) Exercise of market dominance

After taking into general consideration the following determining factors, etc. the possibility of multiple business operators with the top shares exercising cooperative market dominance is considered low.

Certain firewall regulations[7] apply to NTT Communications, with the second highest share, as a business operator with a specific relationship to NTT East and West in accordance with the Telecommunications Business Act. In addition, connection charges for subscriber optical fiber provided by NTT East and West used with access networks for WAN services are also regulated.

The number of providers within the WAN service market has been on an upward trend and competitive pressure from new entries is considered to exist. In addition, use of internet VPNs, which are relatively inexpensive, is increasing and thus competition in the WAN service market is relatively active.

(4) Matters requiring close observation in the future

NTT Group maintains a major share of the WAN services market. The status with WAN services being provided via NGN and the possibility of market dominance being obtained/exercised through cooperation with the NTT Group will therefore need to continue to be closely observed.

[7] In consideration of any dominant control of bottleneck facilities with regard to telecommunications carriers that install type 1 designated telecommunications facilities (NTT East and West) and in view of securing fair competition no interlocking directorates with business operators with a specific relationship (NTT Communications) are allowed, with disadvantageous treatment when compared to business operators with a specific relationship to peripheral businesses related to connection and telecommunications businesses also being prohibited (Article 31 of the Telecommunications Business Act).

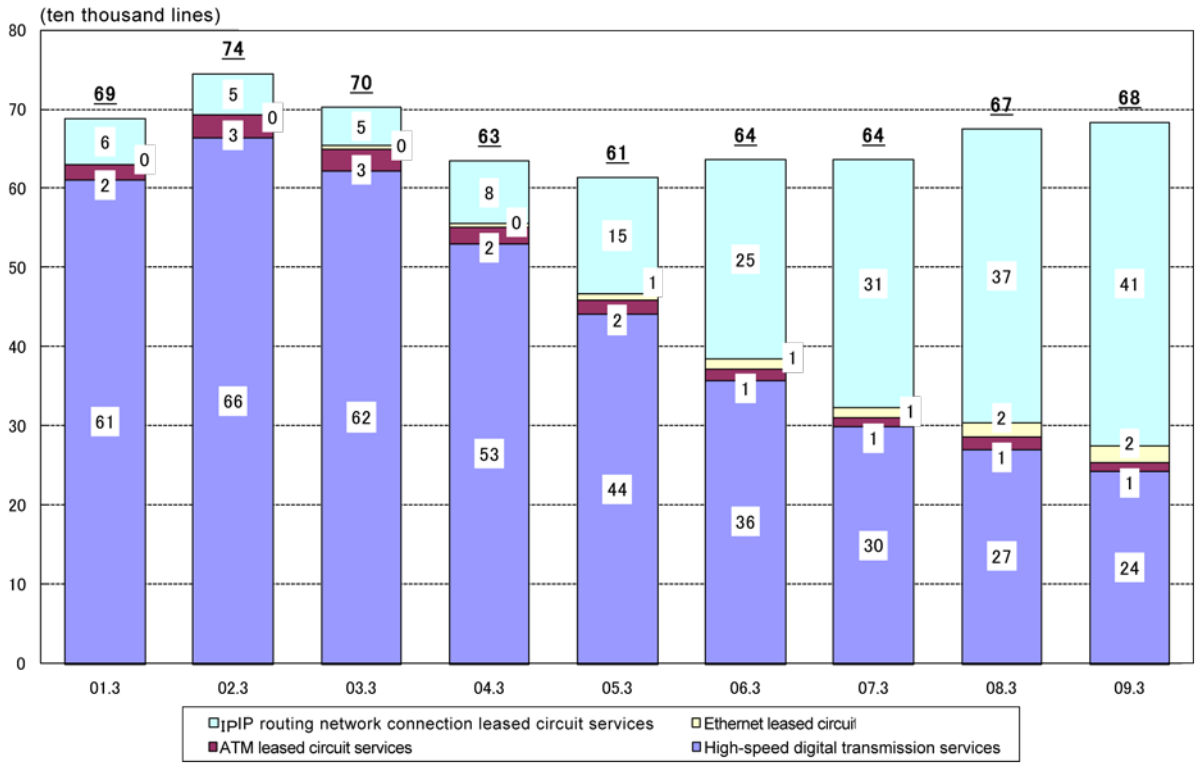
Chapter 4 Analysis of Major Indices in Leased Circuit Services Market

1. Market size

(1) Number of subscriptions

The number of subscriptions in the overall leased circuit services has market basically remained at the same level. By service high-speed digital transmission services[8] have been decreasing while the increase in IP routing network connection leased circuit services[9] is remarkable[10].

[Figure IV-17 Changes in number of subscriptions of respective leased circuit services]



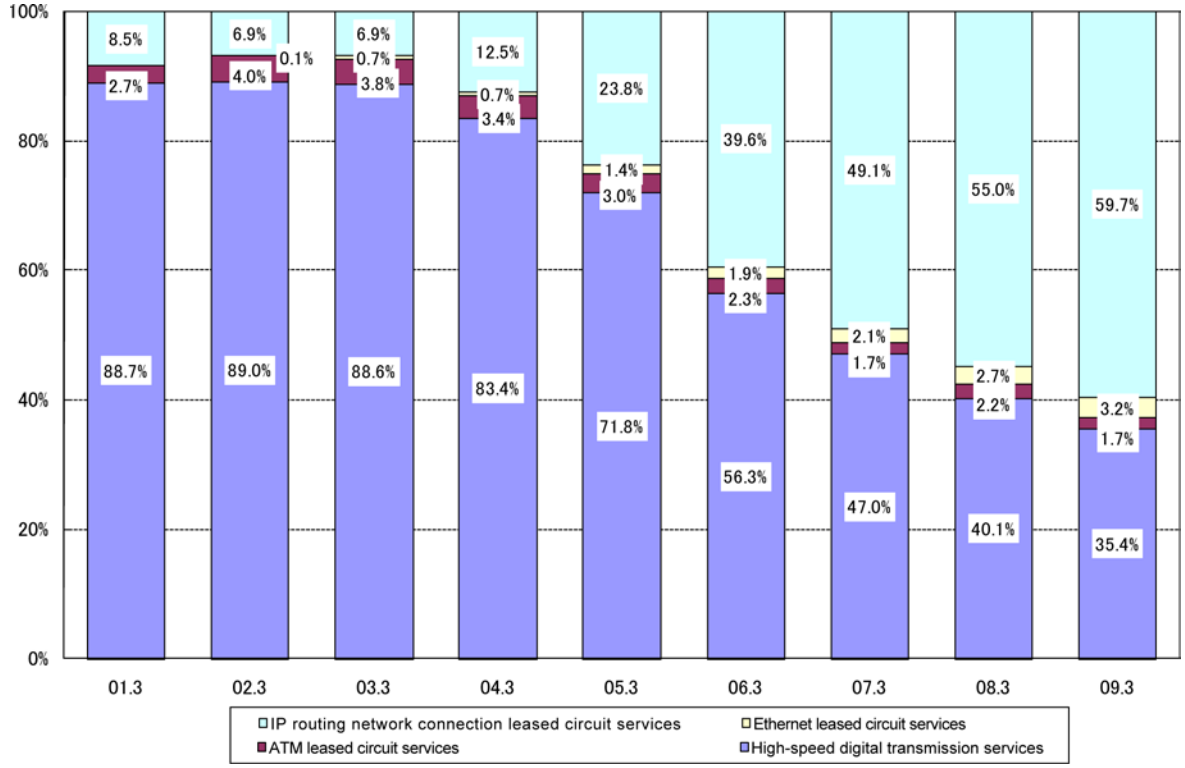
(Source) Ministry of Internal Affairs and Communications

The decrease in the percentage of the number of subscriptions of high-speed digital transmission services is remarkable, and had decreased to approximately a little less than 40% of all leased circuit services as of the end of March 2009. Conversely however, IP routing network

[8] Leased circuit services enable transmission of digital data at a speed of up to 6 megabits/sec.
[9] Full-time connection access network services provided by NTT East and West mainly as dark fiber services for business operators.
[10] "ATM leased circuit services" refers to leased line services using the ATM (Asynchronous Transfer Mode) transmission method while "Ethernet leased circuit services" refers to leased line services using Ethernet interfaces.

connection leased circuit services account for approximately 60% of all leased circuit services, with the rate of increase also being remarkable.

[Figure IV-18 Changes in percentage distribution of number of subscriptions of respective leased circuit services]



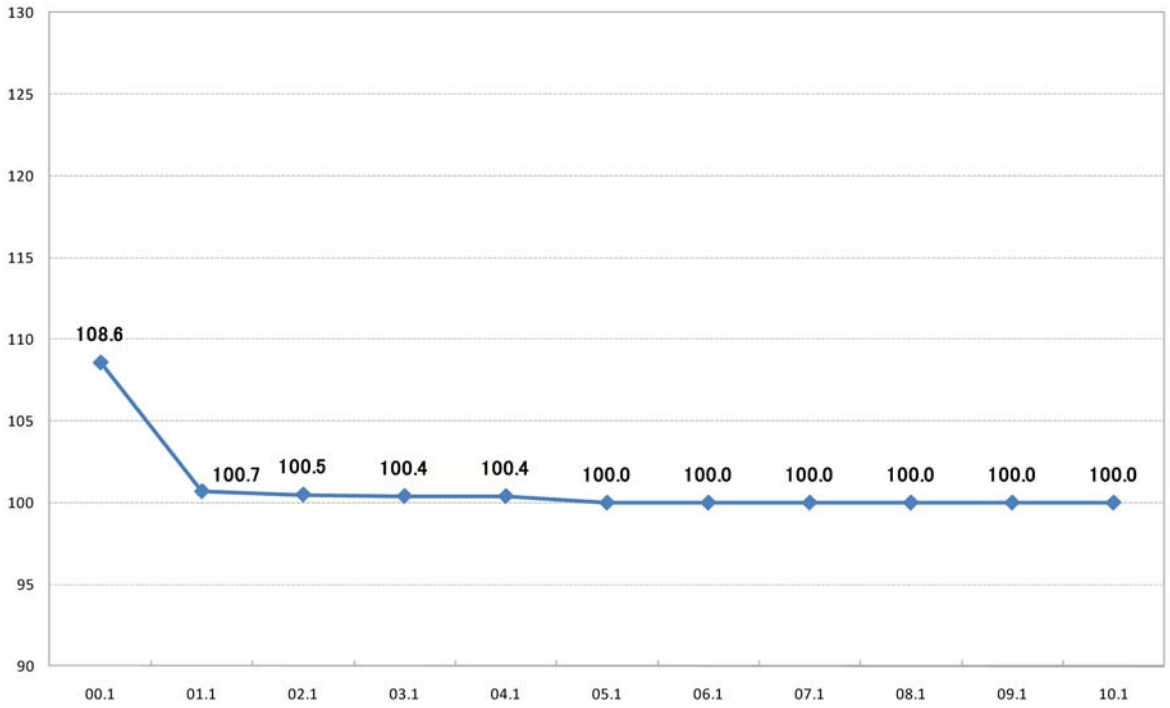
(Source) Ministry of Internal Affairs and Communications

2. Analysis of status with competition

(1) Changes in charges, etc.

Leased circuit services are provided with volume discount charges, etc. in many cases, thus making identification of changes in the actual charges for providing the services difficult. However, a price index of “leased circuit services” was published in the “2005-Base Corporate Services Price Index” by the Bank of Japan. The index, however, also takes into consideration the charges for general leased circuit services, etc. and therefore does not completely match the scope of leased circuit services in this chapter. However, it can be generally used as reference material in identifying changes in the level of charges. According to it the price index of “leased circuit services” has basically remained at the same level since 2005.

[Figure IV-19 Changes in price index of corporate leased circuit services]



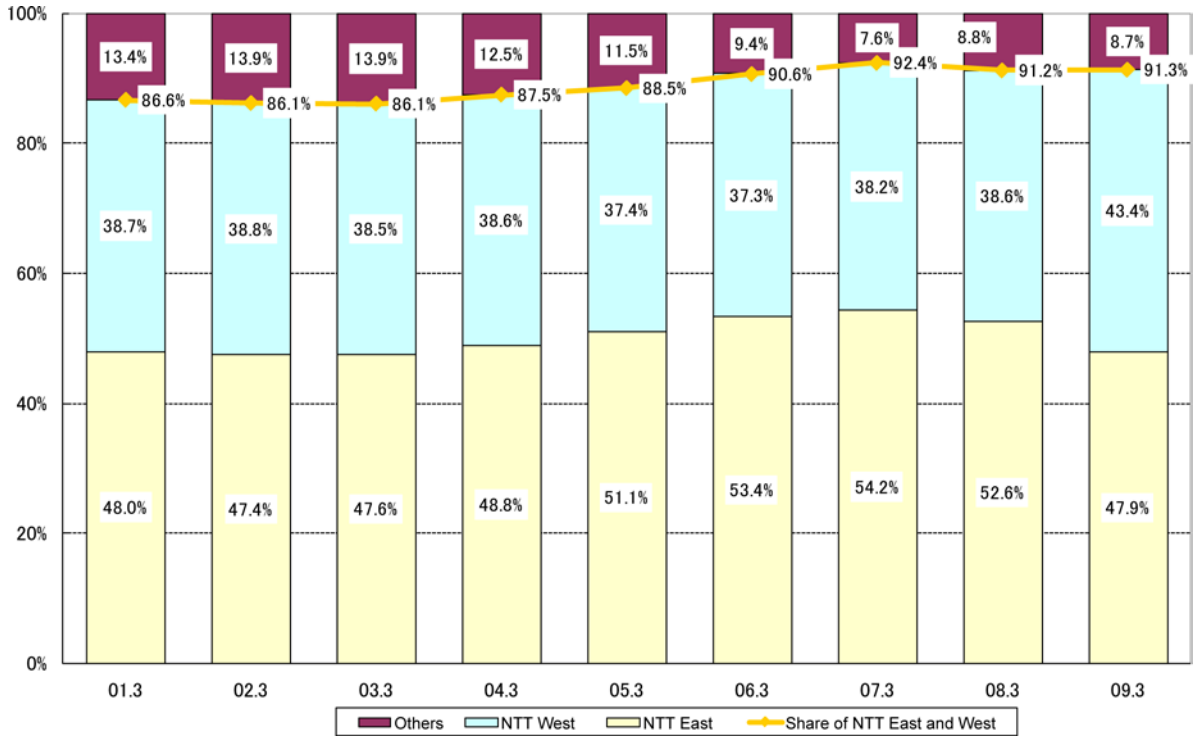
(Source) “Corporate Services Price Index” by Bank of Japan

(2) Share of business operators

The shares of NTT East and NTT West of the number of lines have both been on an upward trend in recent years. The total share of NTT East and West was 91.3% as of the end of March 2009 and they continue to dominate the market.

With leased circuit services, excluding subscriber dark fiber used in optical access services by other business operators, however, the share of NTT East and West was 54.6% as of the end of March 2009, and has been decreasing in recent years.

[Figure IV-20 Changes in share of business operators of number of leased circuit service subscriptions]

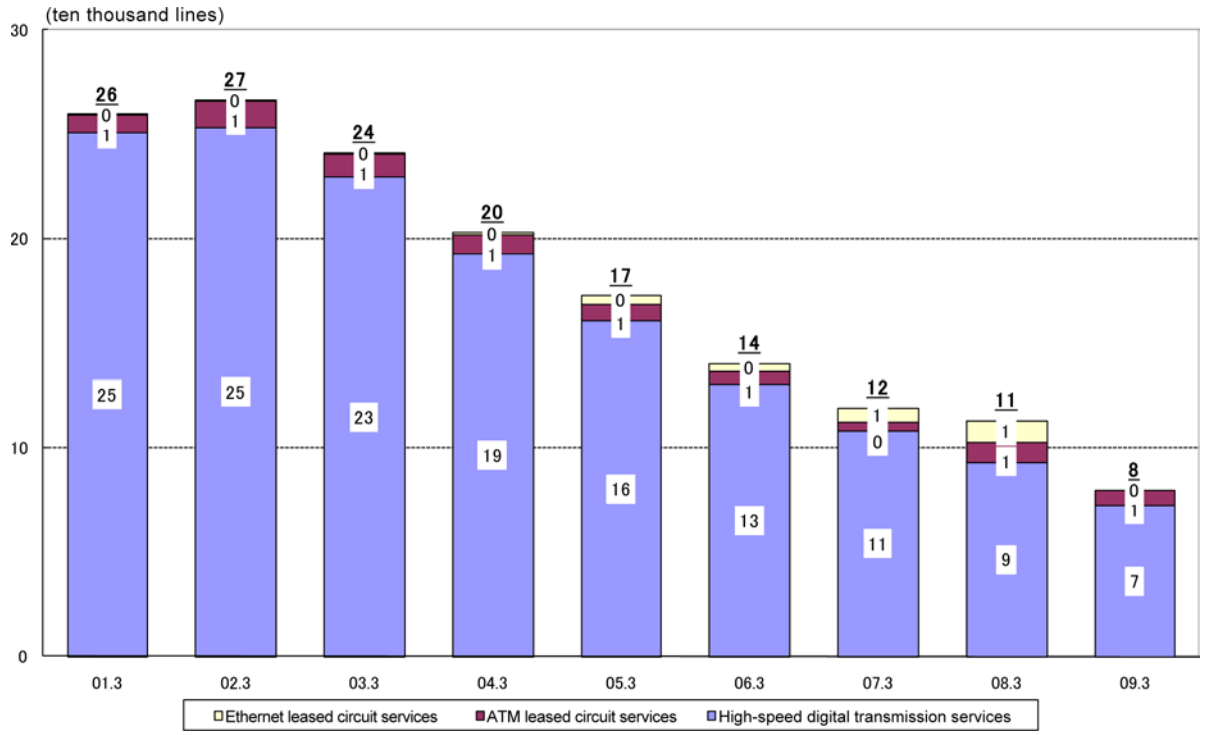


(Source) Ministry of Internal Affairs and Communications

[Reference] Number of leased circuit service subscriptions excluding leased connection lines[11]

The number of subscriptions excluding leased connection lines mainly provided as access networks for other telecommunications carriers is examined here as useful reference material. The number of leased circuit service subscriptions excluding leased connection lines has been decreasing and was approximately 80,000 as of the end of March 2009 or around 10% of all leased circuit services. This is due to the exclusion of leased connection lines resulting from the exclusion of IP routing network connection leased circuit services that has rapidly been taking place over recent years.

[Figure IV-21 Changes in number of subscriptions of respective leased circuit services excluding leased connection lines]



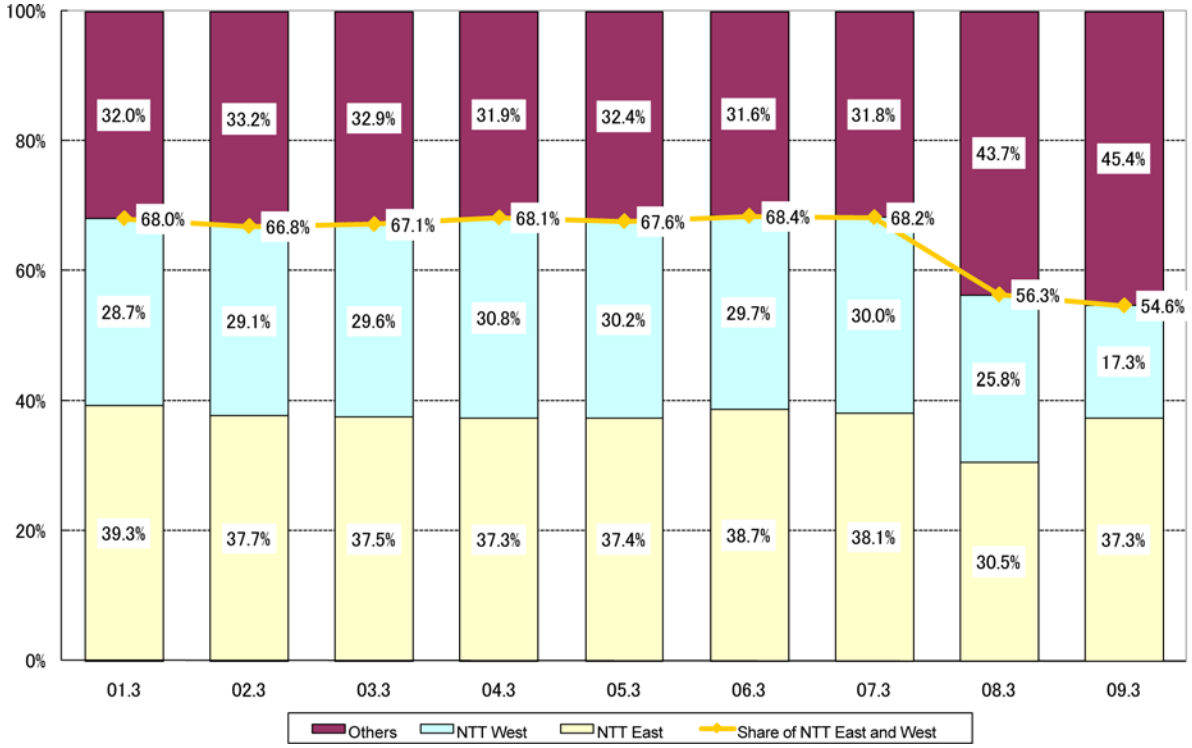
* Figures up to March 2007 may contain aggregation errors.

(Source) Ministry of Internal Affairs and Communications

The share of NTT East and West was 54.6% as of the end of March 2009.

[11] Leased lines of which at least one end terminates at the point of interconnection with other business operators. For example, it refers to the former in the case of a leased circuit service of provider B being used up to the point of interconnection in using the leased circuit services of provider A, etc.

[Figure IV-22 Changes in share of business operators of number of subscriptions of leased circuit services excluding leased connection lines]



* Figures up to March 2007 may contain aggregation errors.

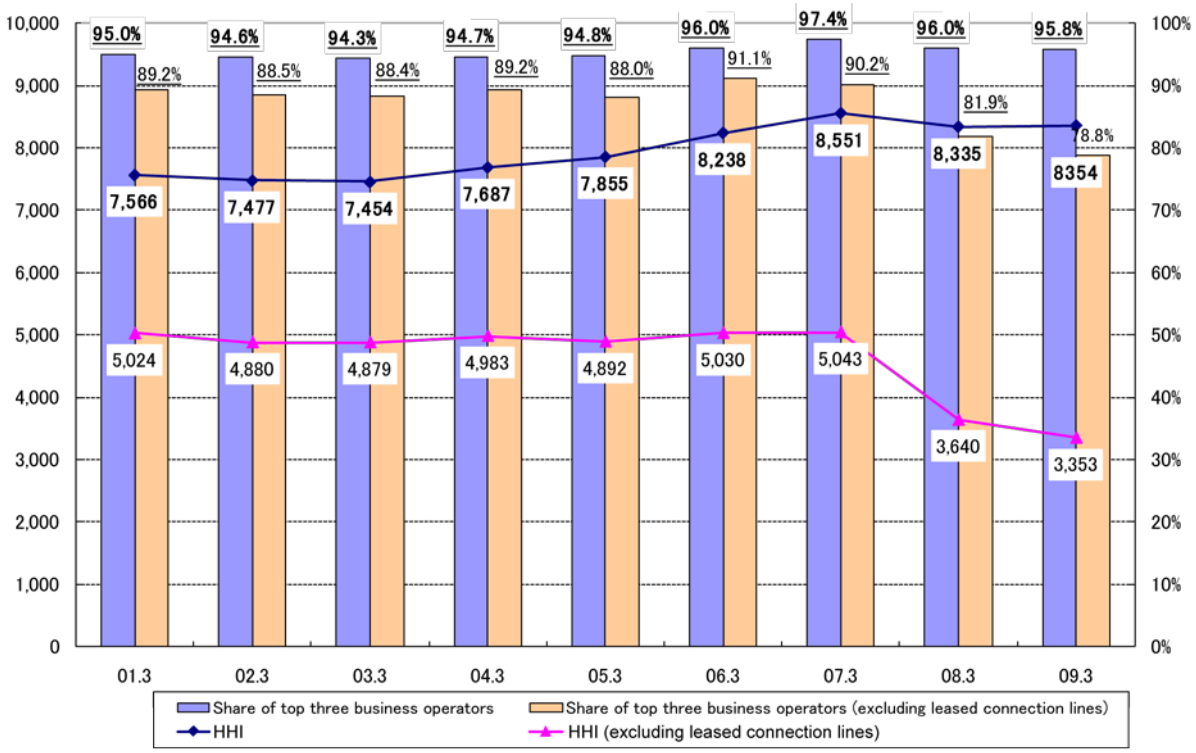
(Source) Ministry of Internal Affairs and Communications

(3) Market concentration

The share of the top three business operators was slightly increasing in recent years but then started to decline at the end of March 2009 at 95.8%. The HHI was 8,354 as of the end of March 2009.

Excluding the number of subscriptions of leased connection lines the share of the top three business operators was a little less than 78.8% with an HHI of 3,353.

[Figure IV-23 Changes in share and HHI of top three business operators with leased circuit services]



* Figures up to March 2007 may contain aggregation errors.

(Source) Ministry of Internal Affairs and Communications

3. Assessment of status with competition

(1) Trends in FY 2009

The number of subscriptions of leased circuit services has remained basically at the same level. By service high-speed digital transmission services have been decreasing whereas IP routing network connection leased circuit services have continued to increase.

(2) Market dominance

1) Existence of market dominance

After taking into general consideration the following determining factors, etc. NTT East and West were deemed to be in a position of being capable of independently exercising market dominance.

a) Quantitative criteria

The share of NTT East and West of the number of leased circuit service subscriptions including leased connection lines was 54.6% as of the end of March 2009.

b) Other major determining factors

NTT East and West not only has a large share of the number of subscriptions but also continue to control a large share of facilities. As of the end of March 2010 their share of the number of subscriber networks combining metal cable and optical fiber, etc. was 87.9%, that of optical fiber only 77.3%, and that of metal cable only 99.9%.

Competing business operators therefore need to rent facilities from NTT East and West in order to provide their own services. NTT East and West can thus impose on competing business operators through the various procedures, etc. involved in the use of those facilities.

2) Exercise of market dominance

After taking into general consideration the following factors, etc. the possibility of NTT East and West independently exercising market dominance is considered low with current regulations and the market environment.

While the leased circuit service market has levelled off the WAN service market is expanding due to high-quality services and lower charges, thus and competitive pressure from the WAN service market as an adjacent market is increasing. Raising the price of leased circuit services will therefore increase the possibility of accelerating losing customers to WAN services.

(3) Matters requiring close observation in the future

While the number of subscriptions in the leased circuit services market has levelled off leased circuit services excluding leased connection lines are decreasing. However, at present no significant factor that could significantly impact the status with competition is considered to exist.

V. Sequential Analysis of Changes in Consumer Preferences with Telecommunications Services

Table of Contents

Chapter 1 Purpose of Assessment

1. Background of analysis

The Ministry of Internal Affairs and Communications has been conducting a “Competition Review in the Telecommunications Business Field” annually since FY 2003. In view of identifying trends from the demand-side, however, a Web questionnaire survey took place on general users included in the “Competition Review in the Telecommunications Business Field” in amassing data on user preferences [1].

The results of the Web questionnaire surveys have been conventionally mainly used in analysis of the specific theme of the respective year[2]. There are quite few items, however, that are common to the surveys, including the basic characteristics of users, combination of the internet and mobile phone used, and reason for selecting them, etc., although the does theme differ every year. In the assessment, therefore, the results of the Web questionnaire surveys were sequentially analyzed in identifying how user preferences have changed over the years.

2. Survey methods

Domains that have been subjected for the Web questionnaire survey since the commencement of the “Competition Review in the Telecommunications Business Field” in FY 2003 are as indicated in Figure V-1. Basically the three domains of fixed internet, mobile communications, and fixed telephones are subjects of the survey, although only part of those domains were subjects in some years. In FY 2004, FY 2007, and FY 2008 detailed analysis of IP telephones, platforms, and FMC services took place through conjoint analysis[3] that was based on the results of the survey.

In this Review, in view of identifying sequential changes in consumer preferences, the results of the Web questionnaire surveys conducted in FY 2005, FY 2006, FY 2008, and FY 2009 were used to analyze changes in consumer preferences in all the domains of fixed internet, mobile communications, and fixed telephones. The analysis, including the cleaning up and aggregation of the data, was conducted with the help of the Takanori Ida Laboratory, Graduate School of Economics, Kyoto University.

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[1] Refer to “Detailed Items for Implementation of Competition Review in the Telecommunications Business Field” in the respective fiscal years for the basic idea used in the information collection.

[2] More concretely, the results were used in market delimitation analysis in FY 2003 and FY 2004 and migration analysis in FY 2005. They have been additionally used for “fixed point assessments” that consistently evaluate major communications services utilized since FY 2006 and “strategic assessments” within the framework of a “strategic assessment” that focuses on specific themes.

[3] Conjoint analysis regards services as a group of various attributes and enables evaluation of the level of impact on choice behaviour of respective attributes through use of the results of selected answers in virtual services that actually do not exist.

[Figure V-1 Subjects of Web questionnaire survey in respective years]

	Fixed internet	Mobile phones	Fixed telephones	Conjoint analysis
2003	○			
2004		○		IP telephones
2005	○	○	○	
2006	○	○	○	
2007		○		Platforms
2008	○	○	○	FMC services
2009	○	○	○	

(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

Chapter 2 Results of Analysis

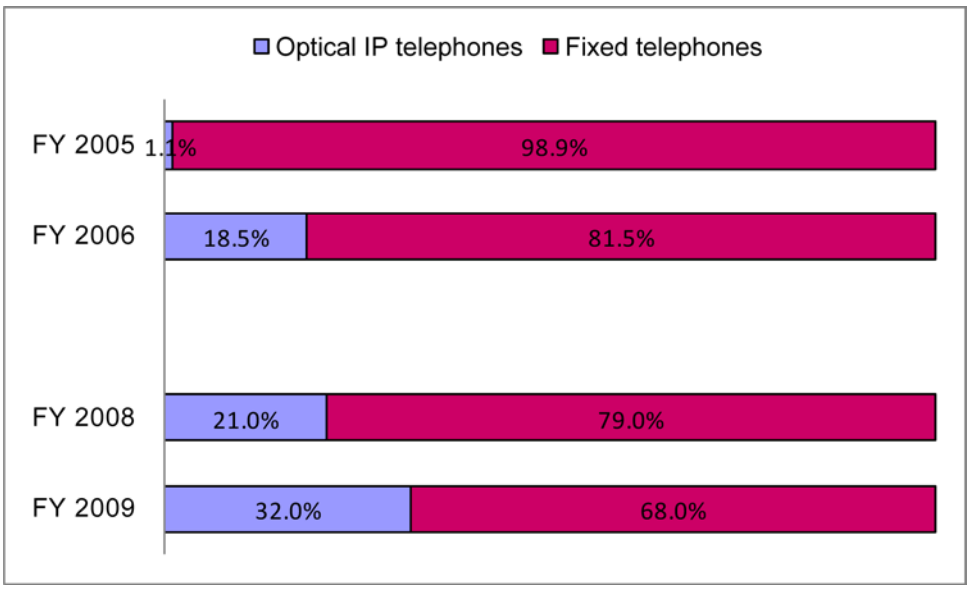
2. User choice with fixed telephones[4]

Examining changes in the type of network with regard to fixed telephone subscriptions reveals a migration from metal cables such as the subscriber telephones of NTT and direct access telephones to 0ABJ-IP telephones to be making gradual progress. The share of NTT East and West has been declining while the share of KDDI and others (business operators other than NTT East and West, KDDI, and SoftBank) has been rising.

These results generally match data collected from business operators on the supply-side.

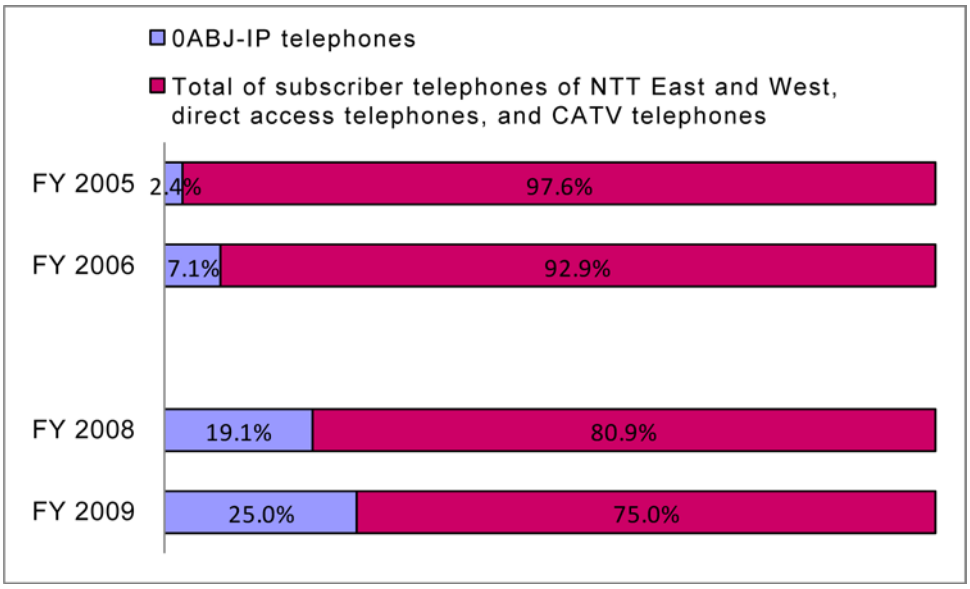
[4] The analysis in this chapter is all based on the Web questionnaire survey data. It should be noted therefore that it may not necessarily match the figures or results of analysis of fixed point assessments within the respective domains.

[Figure V-2 Changes in percentage of fixed telephones (metal cable telephones) and optical IP telephones (0ABJ-IP telephones)]



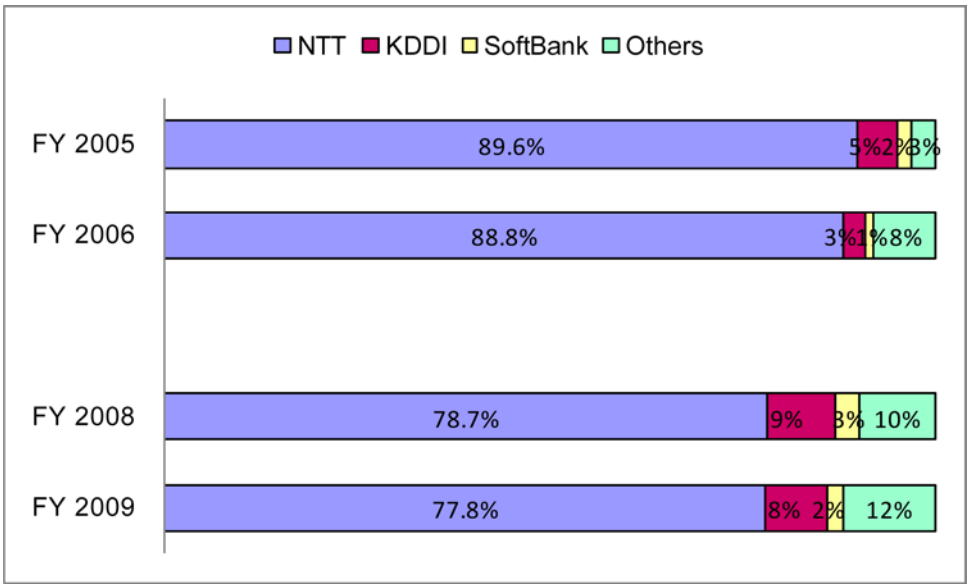
(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-3 Changes in share of subscriber telephone services based on supply-side data]



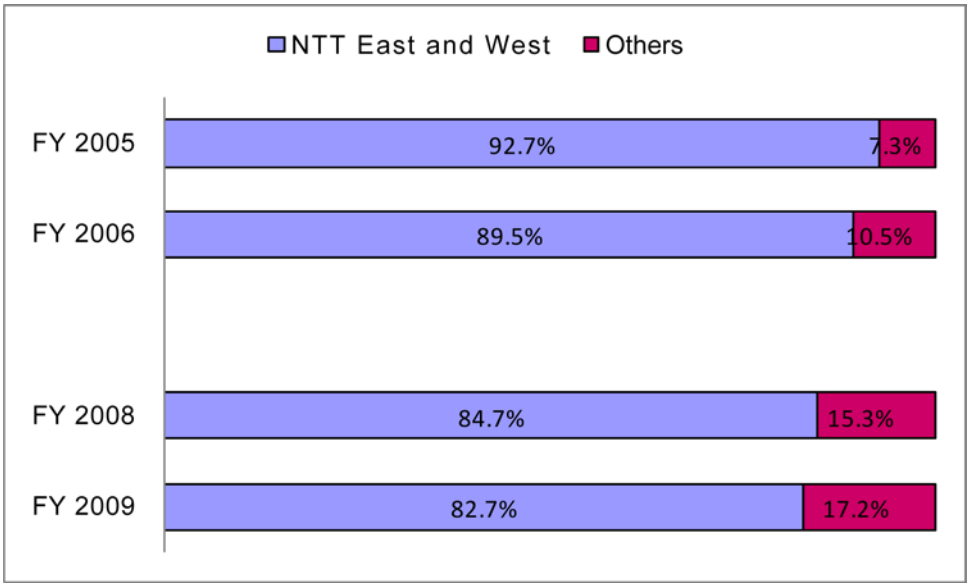
(Note) Figures indicate that as of the respective fiscal year.
(Source) Ministry of Internal Affairs and Communications

[Figure V-4 Changes in share of business operators]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-5 Changes in share of business operators based on supply-side data]



(Note) Figures indicate that as of the respective fiscal year.
(Source) Ministry of Internal Affairs and Communications

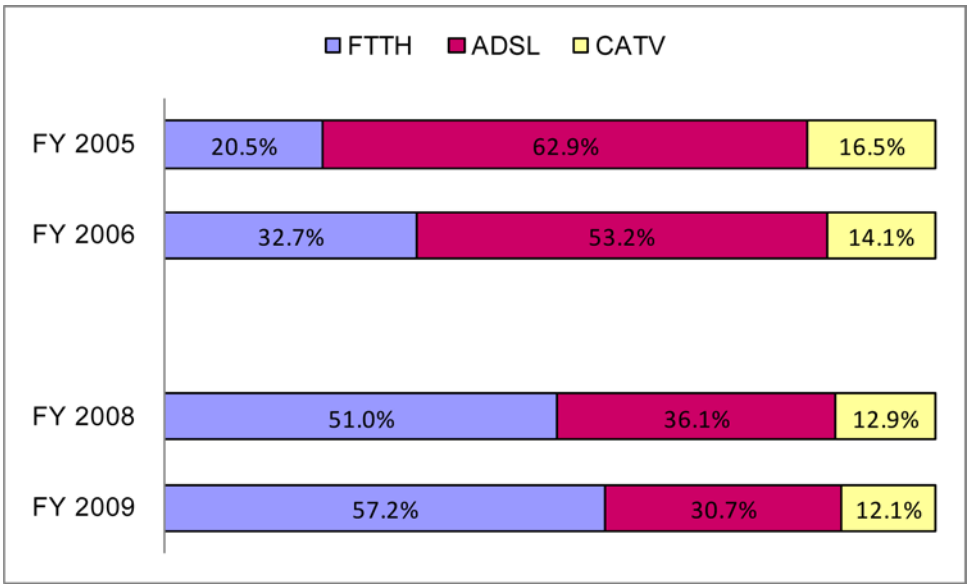
2. User choice with broadband

Examining changes in the type of network with regard to broadband selection reveals a migration from ADSL to FTTH to be making progress.

The share of NTT East and West has been on an upward trend while the share of SoftBank, which had a large share in the ADSL market, has been decreasing due to the shrinkage of the ADSL market.

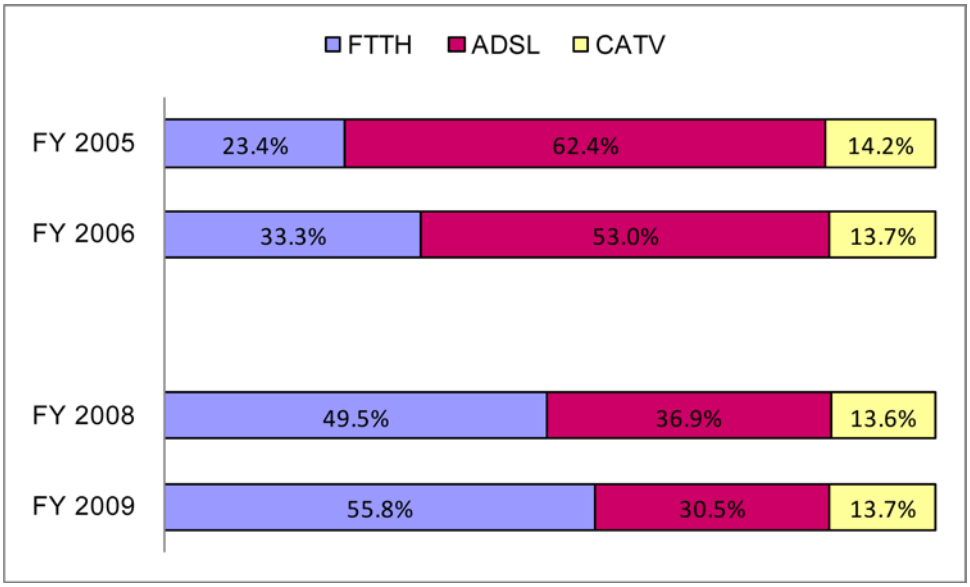
These results generally match the data collected from business operators on the supply-side.

[Figure V-6 Changes in percentage of FTTH, ADSL, and CATV]



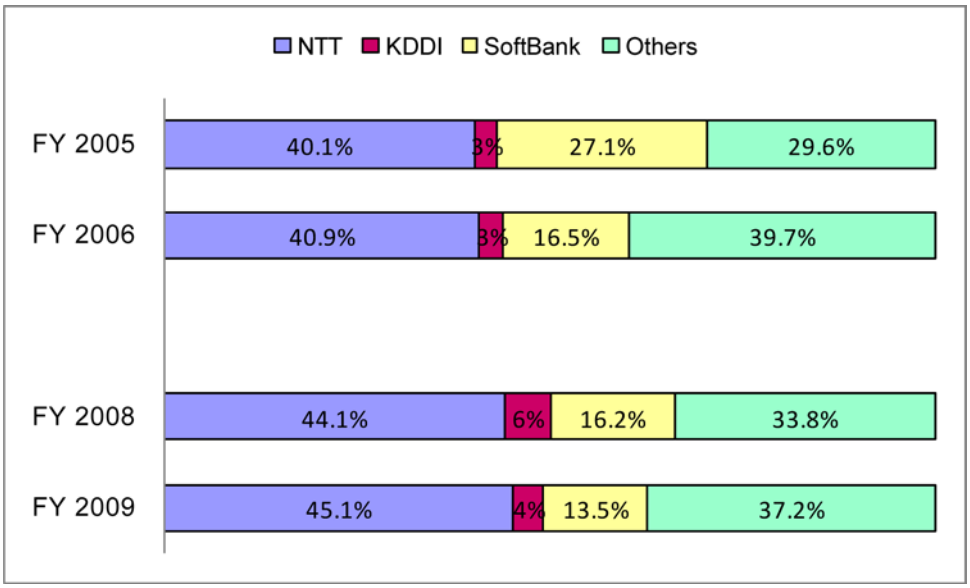
(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-7 Changes in percentage of FTTH, ADSL, and CATV based on supply-side data]



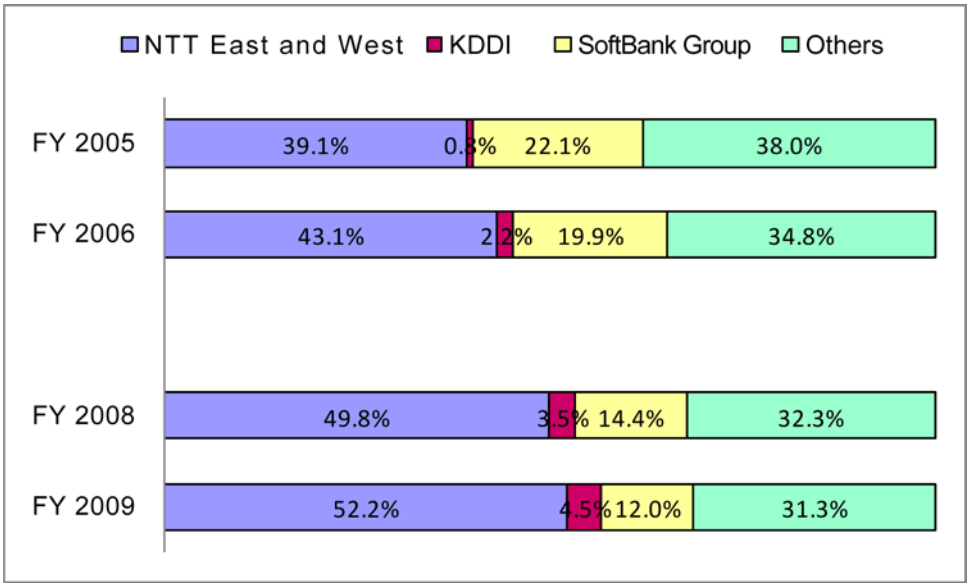
(Note) Figures indicate that as of the respective fiscal year.
(Source) Ministry of Internal Affairs and Communications

[Figure V-8 Changes in share of business operators]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-9 Changes in share of business operators based on supply-side data]



(Note) Figures indicate that as of the respective fiscal year.
(Source) Ministry of Internal Affairs and Communications

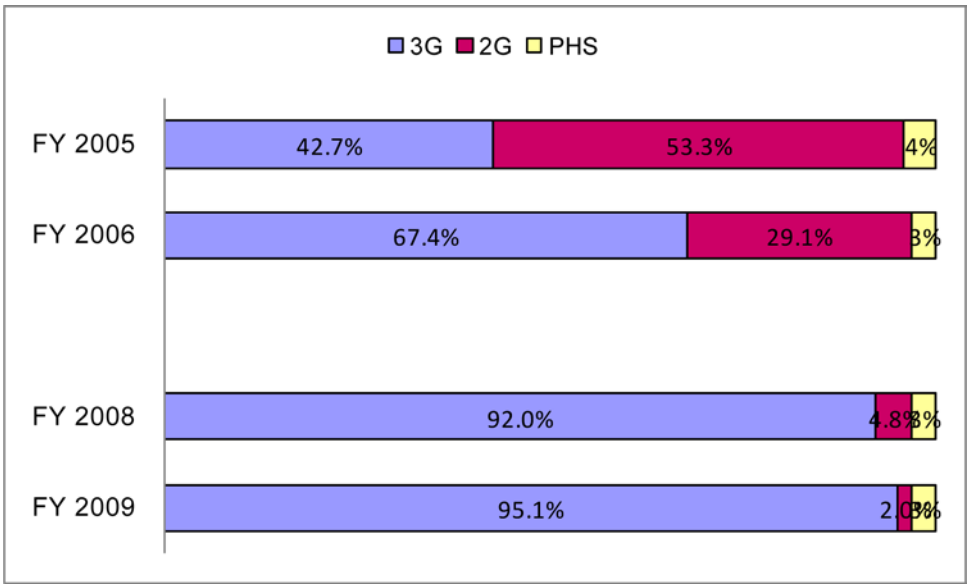
3. User choice with mobile communications

Examining changes in the generation, etc. (2G, 3G, and PHS) of mobile communications reveals a migration from 2G to 3G to be making steady progress as 3G accounts for 95.1% in FY 2009. In addition, the share of PHS has remained at the same level of around 3%.

The share of NTT DOCOMO, KDDI, and SoftBank has remained at the same level.

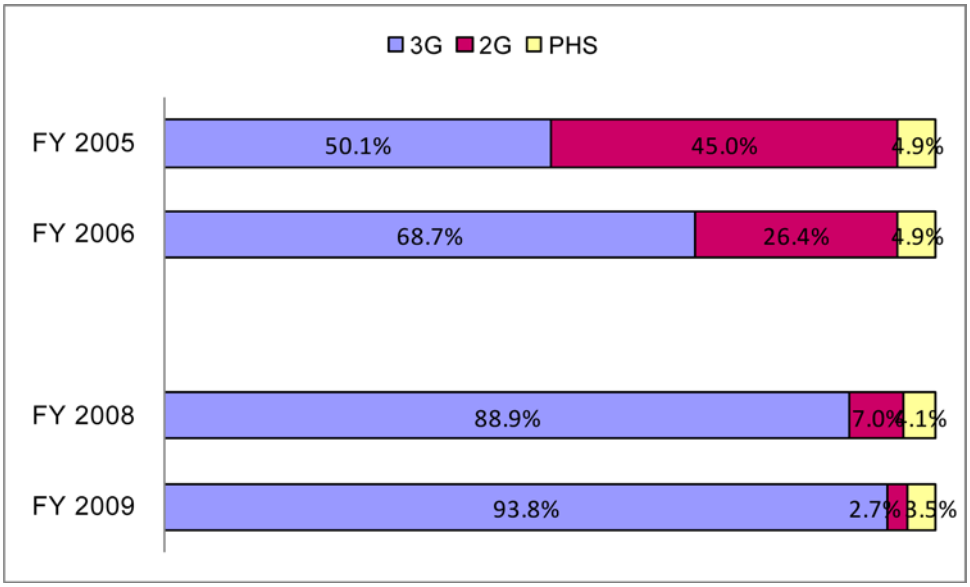
These results generally match the data collected from business operators on the supply-side.

[Figure V-10 Changes in percentage of 3G, 2G, and PHS]



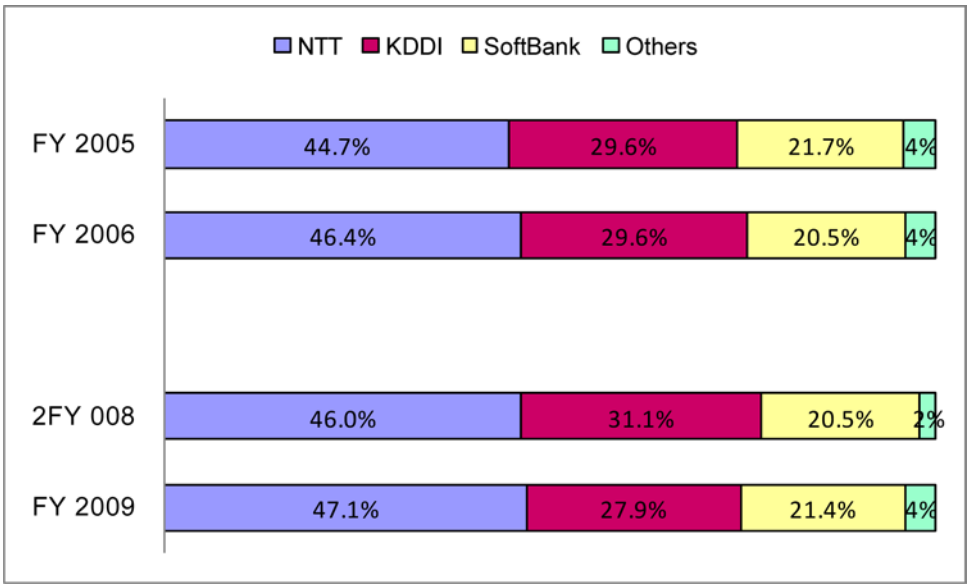
(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-11 Changes in percentage of 3G, 2G, and PHS based on supply-side data]



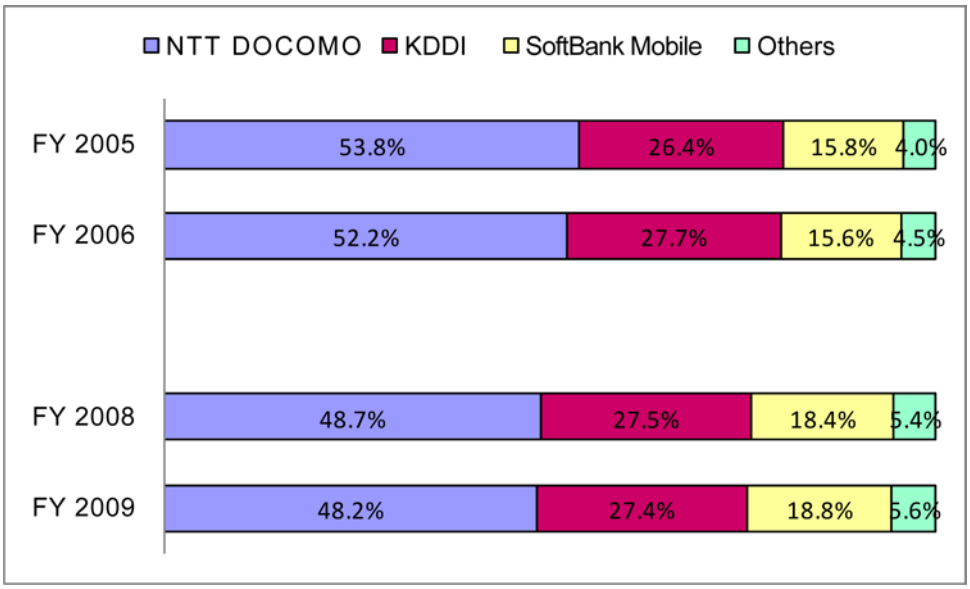
(Note) Figures indicate that as of the respective fiscal year.
(Source) Ministry of Internal Affairs and Communications

[Figure V-12 Changes in share of business operators]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-13 Changes in share of business operators based on supply-side data]



(Note) Figures indicate that as of the respective fiscal year.
(Source) Ministry of Internal Affairs and Communications

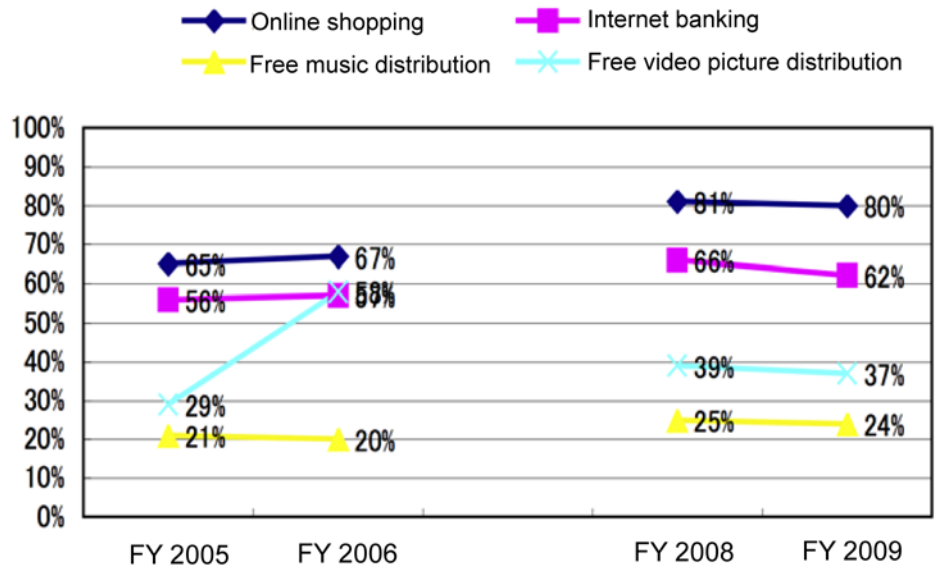
4. Trends with use of internet/mobile phone applications

Examining changes in the use of internet and mobile phone applications reveals no clear trend.

The reason that no clear trend can be observed with internet applications is considered to be their usage becoming more diverse. In addition, a decline in the percentage of use of respective applications between FY 2008 and FY 2009 is considered to be due to a rise in the percentage of users with relatively low interests in the use of applications in recent years while broadband subscriptions have been increasing.

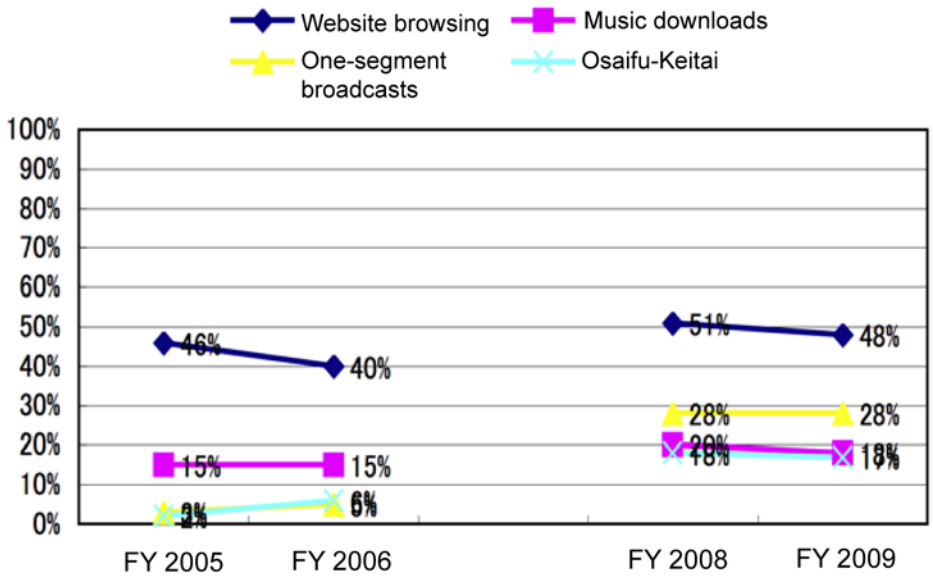
Although no clear trend can be observed with mobile phones use of applications such as one-segment broadcasts and Osaifu-Keitai (Mobile Wallet) seems to have been increasing.

[Figure V-14 Trends with use of major internet applications]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-15 Trends with use of major mobile phone applications]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

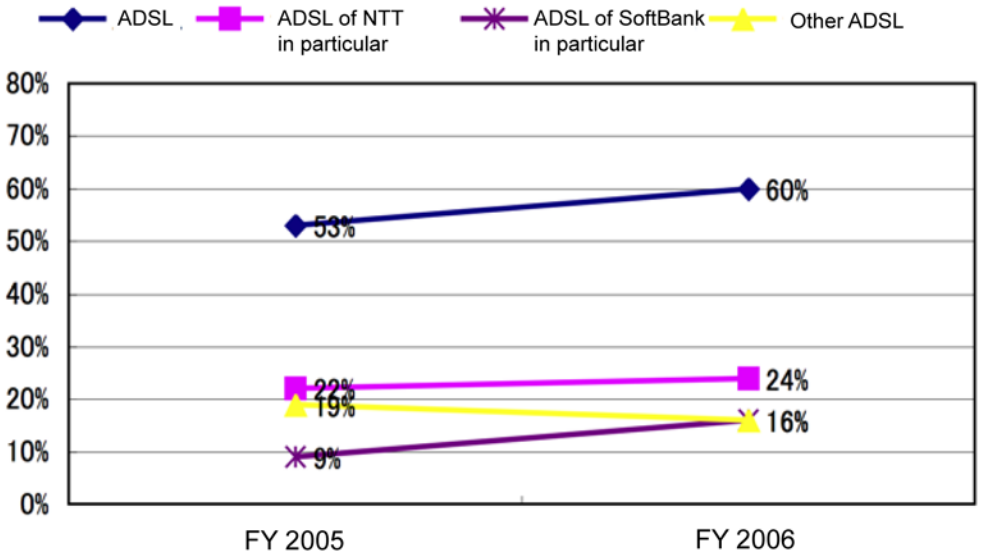
5. Trends with migration from metal cable to FTTH

(1) Internet

FTTH is the most popular broadband service at present. Examining the type of network that users of FTTH were using before migrating to FTTH reveals ADSL to have accounted for over 50%, of which the ADSL of NTT had a particularly high percentage of. The migration from ADSL to FTTH has mainly involved the users of the ADSL of NTT.

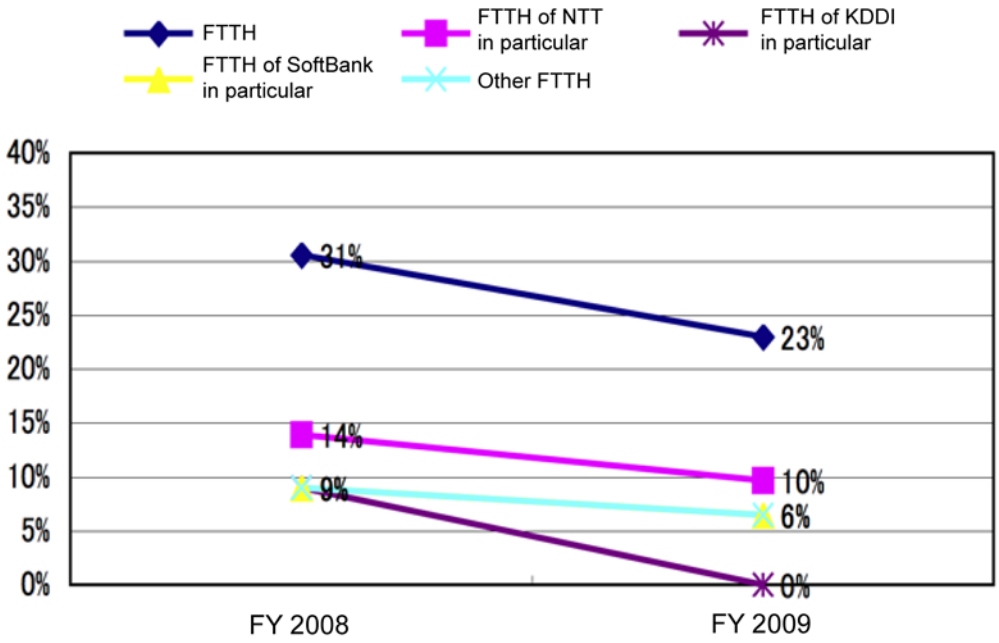
In addition, no more than 50% of ADSL users wish to migrate to FTTH and the percentage further declined in FY 2009 from FY 2008.

[Figure V-16 Type of network used before migrating to FTTH]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-17 Changes in ADSL users' wishing to migrate to FTTH]



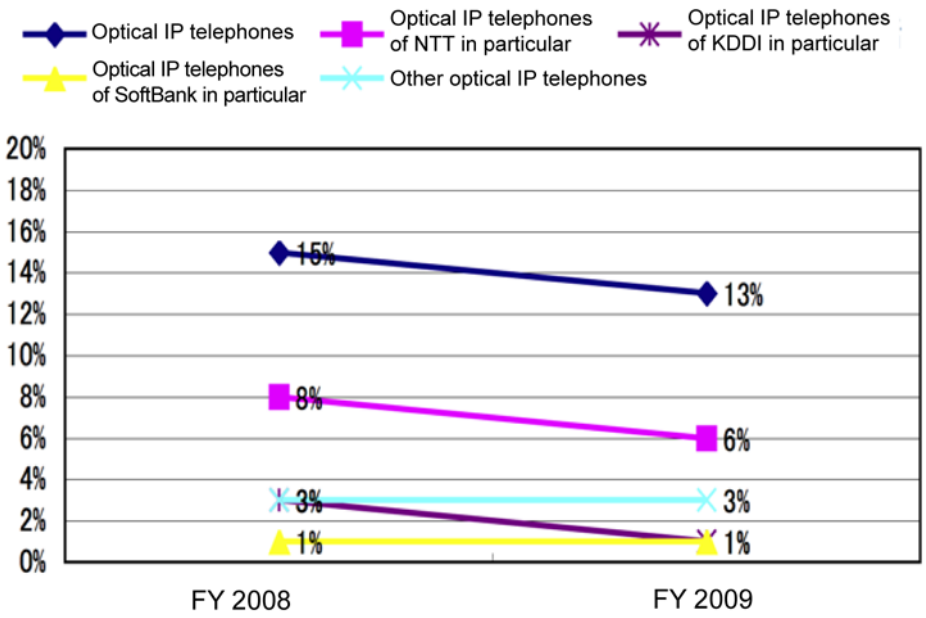
(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

(2) Fixed telephones

With fixed telephones the number of subscriptions of 0ABJ-IP telephones has been increasing in recent years in place of the subscriber telephones of NTT. In addition, the introduction of the number portability system and emergence of charge plans with an amount equivalent to the sales incentive deducted, etc. with mobile phones has lowered the barrier to changing subscription to another business operator.

Examining people's intentions with changing to 0ABJ-IP telephones under such circumstances reveals no more than 20% of users of fixed telephones other than 0ABJ-IP telephones wish to change to a 0ABJ-IP telephone and the percentage to have declined in FY 2009 when compared to FY 2008. This is considered to be due to that those wishing to change to IP telephones already having done so.

[Figure V-18 Changes in wishing to migrate to optical IP telephones]

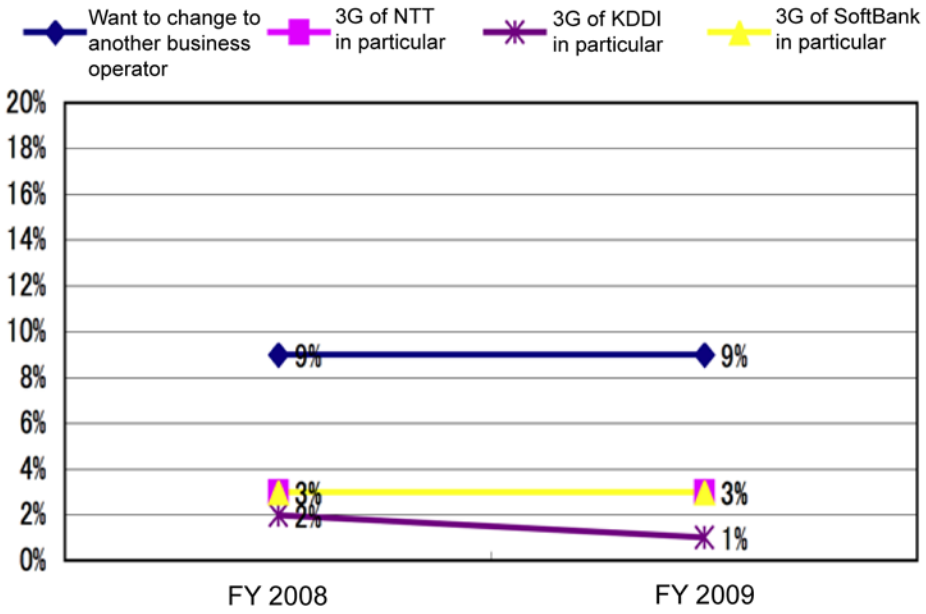


(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

6. Intentions with changing business operators

Examining users' intentions with changing mobiles phone (3G) business operator reveals no more than 10% wish to change business operator and no significant change has been observed in FY 2009 from FY 2008.

[Figure V-19 Changes in 3G mobile phone users wishing to change business operators]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

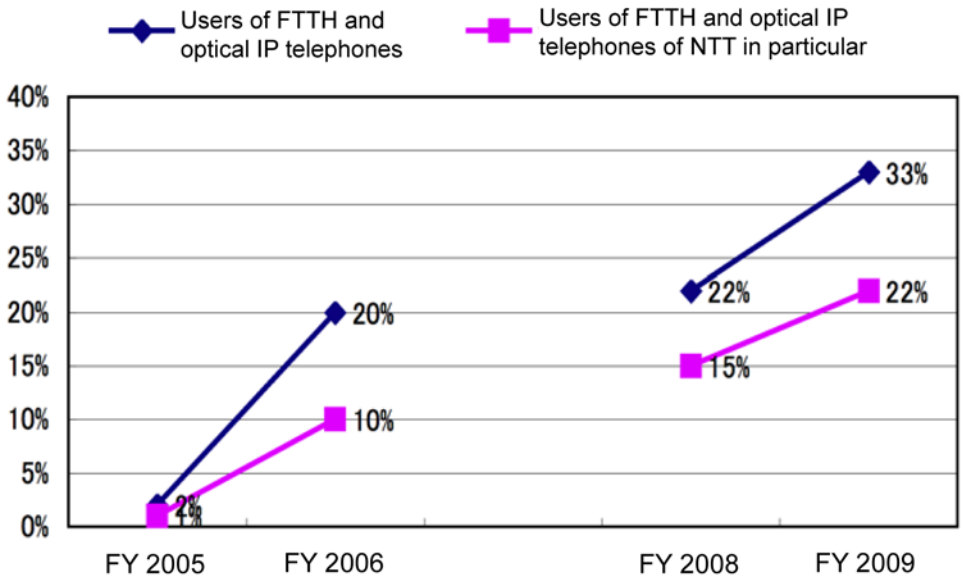
7. Combination of FTTH, IP telephones, and 3G mobile phones

As in the analysis of fixed point assessment and this assessment FTTH is the most popular network for the internet at present while IP telephone subscriptions have been increasing with fixed telephones. In addition, most mobiles phones have migrated to 3G. Because of this changes in the percentage of users that are using both FTTH and IP telephones and users that are using both FTTH and 3G mobile phones from FY 2005 on were examined.

The percentage of users that are using both FTTH and IP telephones of those subscribing to both broadband and fixed telephones has rapidly risen since FY 2005 and was 33% in FY 2009. At least 60% of them are using FTTH and IP telephones of NTT East and West.

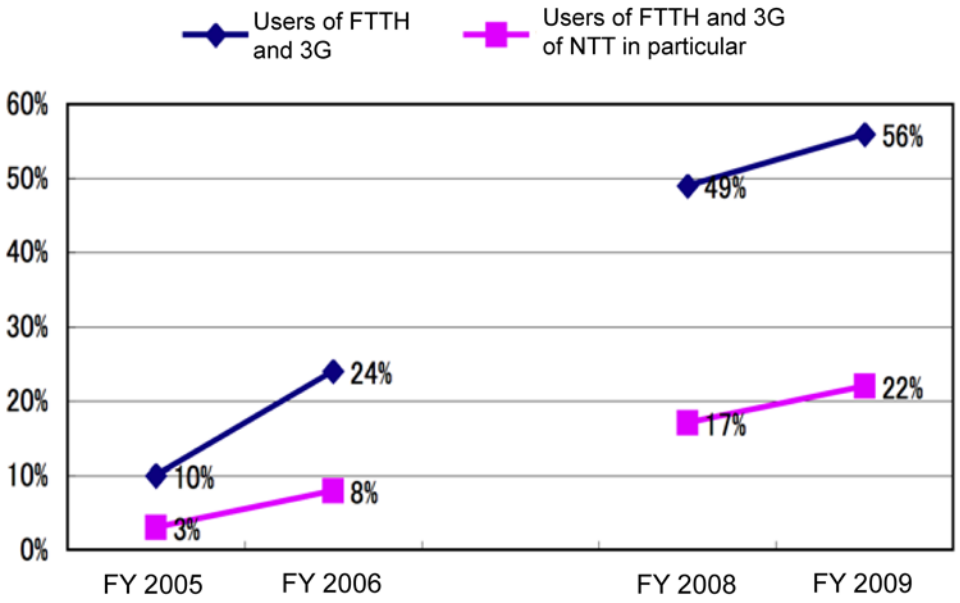
The percentage of users that are using both FTTH and 3G mobile phones of those subscribing to both broadband and mobile phones has also rapidly risen since FY 2005 and was 56% in FY 2009. Nearly 40% of them are using FTTH and 3G mobile phones of NTT East and West.

[Figure V-20 Changes in percentage of users of FTTH and optical IP telephones]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-21 Changes in percentage of users of FTTH and 3G mobile phones]



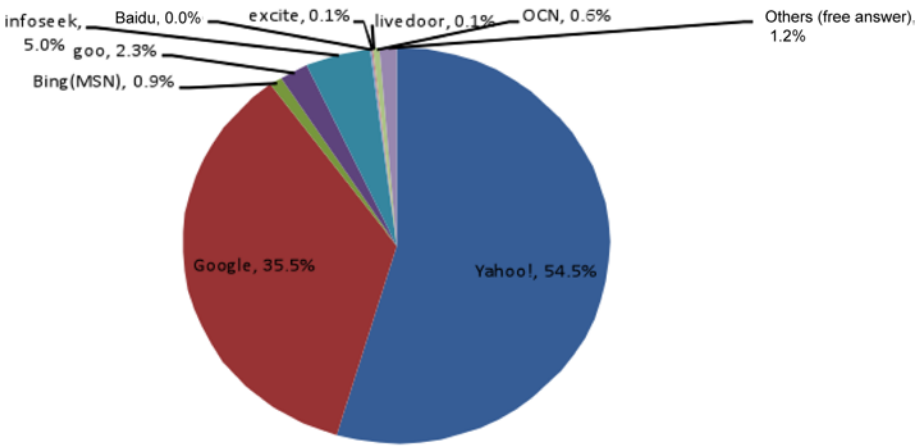
(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

8. Trends with users of search engines and Web mail, etc. (for reference)

A survey of Web applications used via the internet is examined here based on results from FY 2009 because the survey has been not conducted in the past. Yahoo! had the highest percentage of search engines used occasionally, followed by Google, with the two accounting for over 90% of the total.

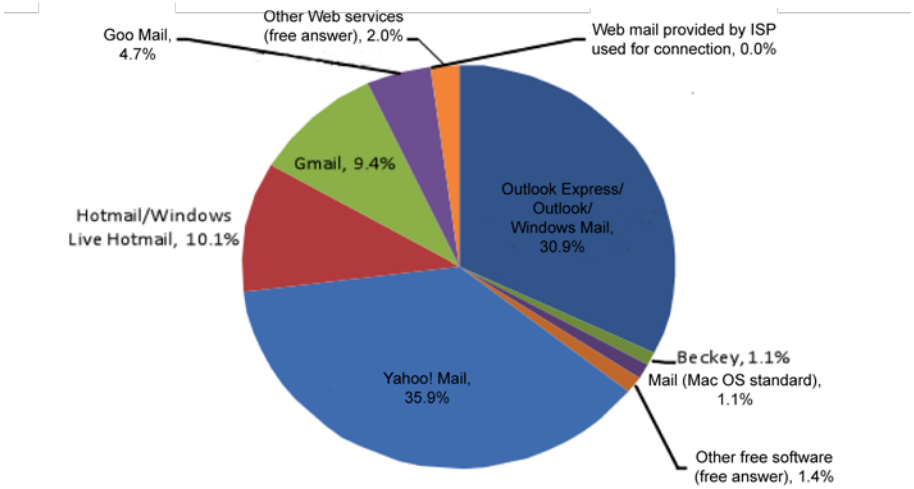
Examining the results of a survey on e-mail services reveals approximately 60% of respondents use Web mail. Of them Yahoo! Mail had the highest percentage, followed by Hotmail and Gmail.

[Figure V-22 Search engines occasionally used]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

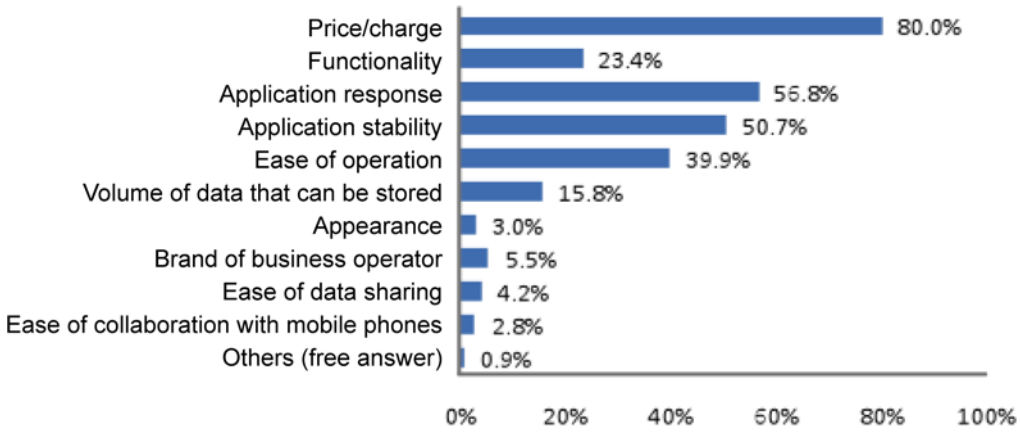
[Figure V-23 E-mail services occasionally used]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

The percentage of factors that users attach great importance to when using Web applications was the highest for prices/charges, followed by application response, application stability, and ease of operation. With privacy/security matters that are considered important when using Web applications financial accounting information, including bank accounts and credit card numbers, etc., and private information, including name, address, and occupation, etc., were high in percentage. Conversely however, the percentage was low for location information, health information, and purchase records.

[Figure V-24 Factors that are important when using Web applications]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[Figure V-25 Privacy/security matters considered important]

(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

Chapter 3 Conclusion

In this assessment sequential analysis of consumer preferences took place through utilizing the Web questionnaire surveys from the “Competition Review in the Telecommunications Business Field”.

Detailed analysis on fixed telephones, broadband, and mobile communications took place via fixed point assessments using data collected from business operators on the supply-side, and the results generally match the results of analysis in this assessment.

No clear trends were observed in sequential changes in the use of applications. The percentage of demand for migration to FTTH and optical IP telephones has been generally declining, which is considered to have resulted from the progress already made in that migration, and thus indicating that many users wishing to migrate to FTTH or IP telephones, etc. have already done so. This is consistent with the increasing trend of the percentage of users that subscribe to both FTTH and IP telephones and both FTTH and 3G mobile phones.

In this assessment qualitative analysis took place on the results of past Web questionnaire surveys, which is considered effective in identifying changes in consumer preferences and in starting to utilize the data amassed. Discussions will need to be held in the future on continuing surveys in enabling the data amassed and quantitative analysis to be utilized with consideration given to the results of the qualitative analysis in this assessment.

[Reference] Outline of Questionnaire Survey

1. Outline of survey

The questionnaire survey took place with the assumption that 2,000 responses would be received at the end of the survey. In order to secure the specified number of responses required in the analysis at the end of the survey any samples whose respondent data was clearly not reliable were treated as attrition samples.

Sample allocation was carried out on 2,000 responses at the end of the survey by assuming the following 10 categories based on sex and age in consideration of enabling analysis of the demand characteristics of different consumer attributes (sex and age). In addition, responses were collected separately to the sex/age categorization on the assumption of samples being allocated according to the population of the following 10 regions.

Sample allocation of responses at the end of questionnaire survey

	29 or younger	**Aged 30 to 39**	**Aged 40 to 49**	**Aged 50 to 59**	**60 or older**	**Total**
Males	200	173	143	171	281	968
Females	191	169	142	173	358	1,032
Total	391	342	285	344	638	2,000

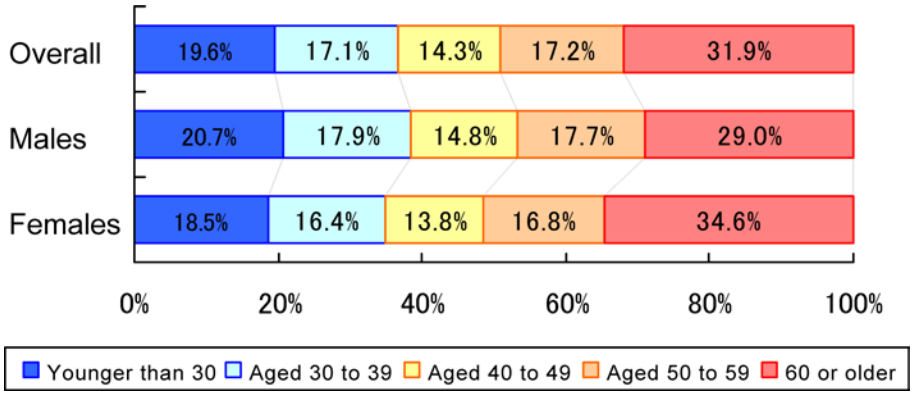
Region	**Prefecture**	**Total**
Hokkaido	Hokkaido	88
Tohoku	Aomori, Iwate, Miyagi, Akita, Yamagata, Fukushima	150
Kanto-Koshinetsu	Ibaraki, Tochigi, Gunma, Saitama, Chiba, Tokyo, Kanagawa, Yamanashi, Nagano, Niigata	738
Hokuriku	Toyama, Ishikawa, Fukui	49
Tokai	Gifu, Shizuoka, Aichi, Mie	235
Kinki	Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama	325
Chugoku	Tottori, Shimane, Okayama, Hiroshima, Yamaguchi	120
Shikoku	Tokushima, Kagawa, Ehime, Kochi	64
Kyushu/Okinawa	Fukuoka, Saga, Nagasaki, Kumamoto, Oita, Miyazaki, Kagoshima, Okinawa	232
Total		2000

(Source) Population, population dynamics, and number of households based on the Basic Resident Registers

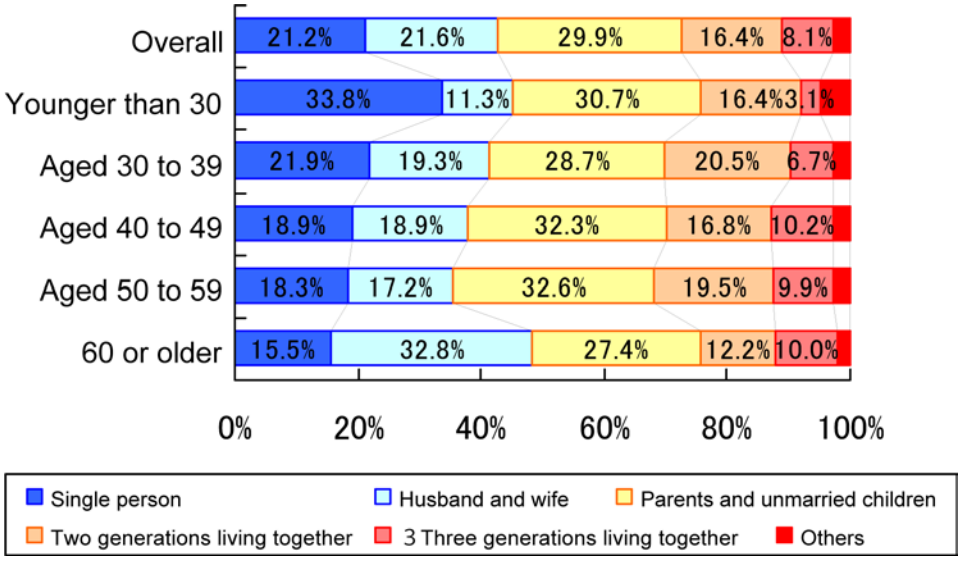
2. Attributes of respondents

The percentage distribution of respondents by sex and age is as follows. Responses were allocated as planned. By family structure the percentage was high with households of single persons younger than 30 and households of husbands and wives aged 60 or older.

Percentage distribution of respondents by sex and age

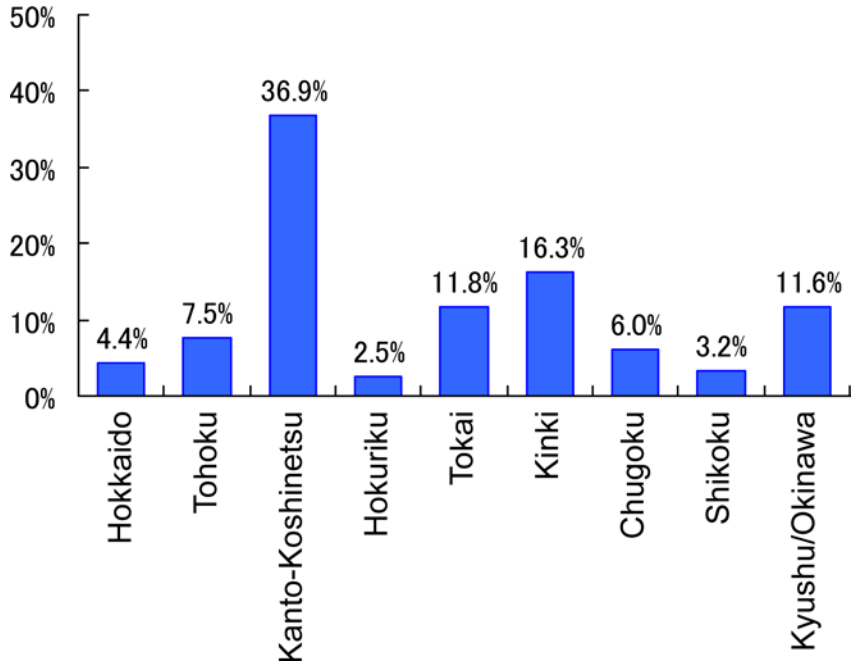


Percentage distribution of respondents by family structure

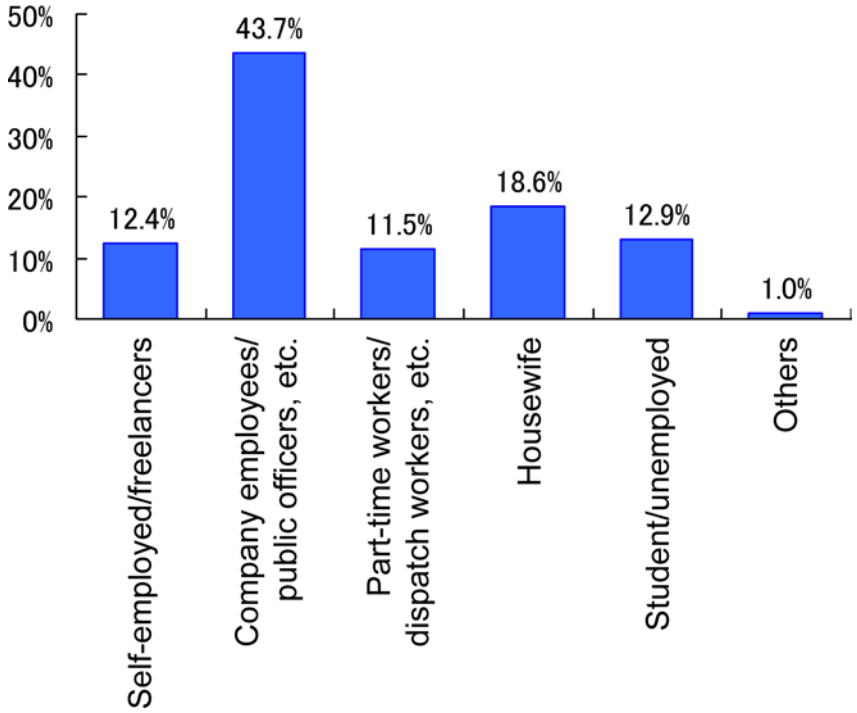


Responses by residential region were also allocated as planned. The percentage distribution of respondents by occupations is as follows.

Percentage distribution of respondents by residential region

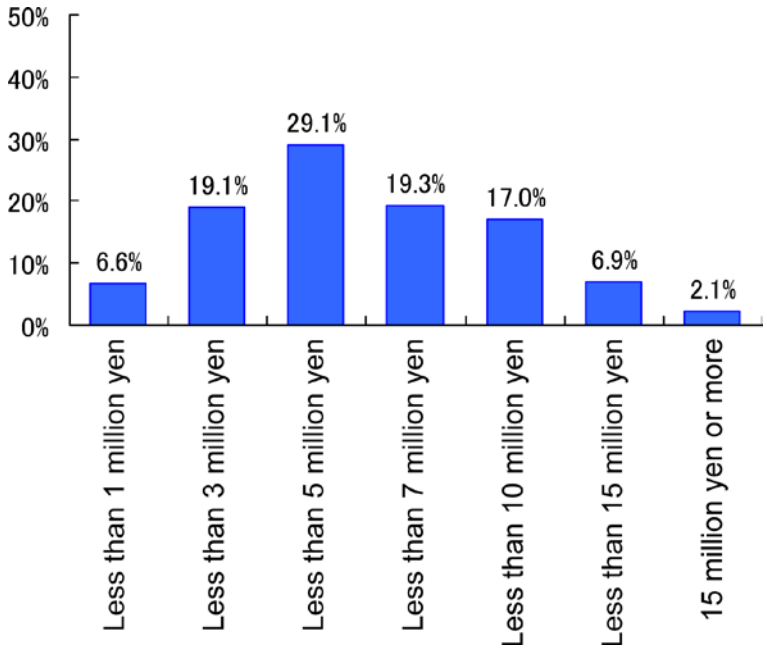


Percentage distribution of respondents by occupation

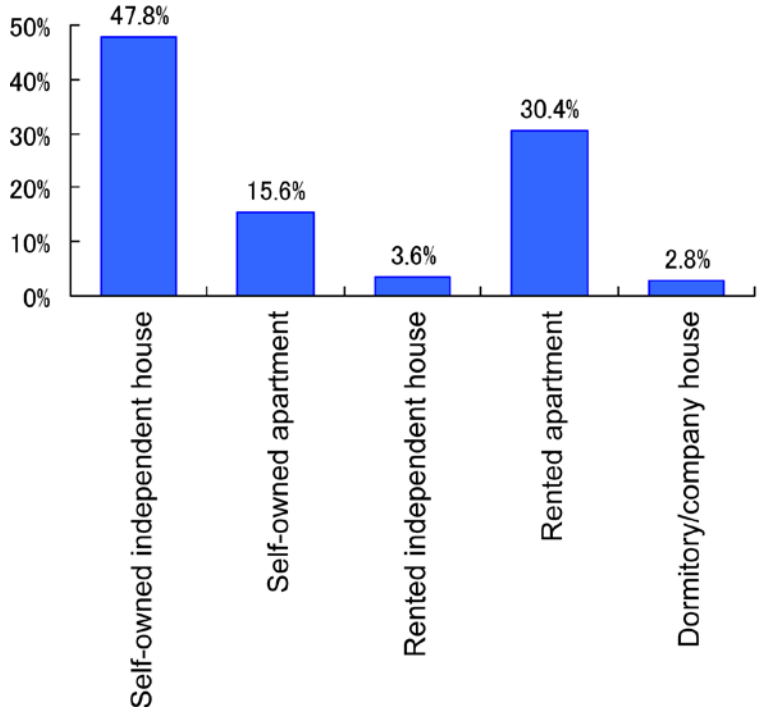


By residential type the percentage of independent houses was high with self-owned residences and that of apartment houses high with rented residences.

Percentage distribution of respondents by annual income



Percentage distribution of respondents by residential type



VI. Quantitative Analysis of Economic Impact of Past Competition Policies concerning Dissemination of Mobile and Broadband Services

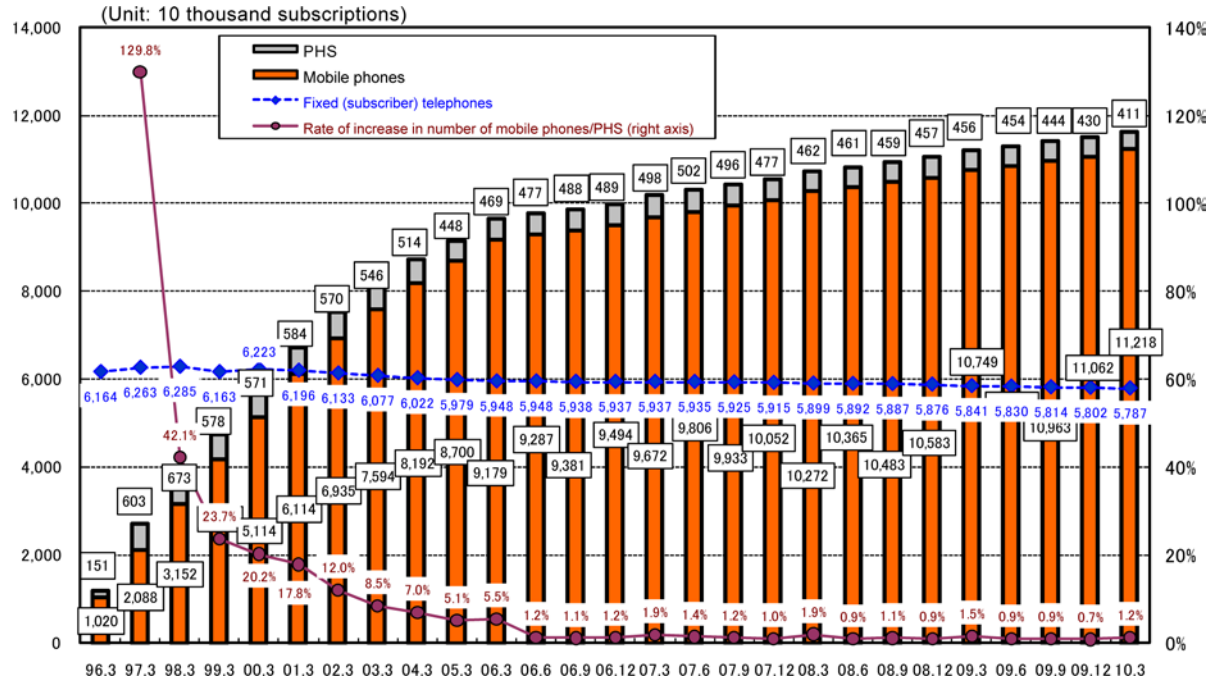
Table of Contents

Chapter 1 Purpose of Assessment

1. Background of analysis

Mobile and broadband markets continue to expand in Japan with advanced terminal devices, represented by smart phones, being made available and the dissemination of the use of video pictures via the internet, etc.[1] In the mobile market the total number of mobile phone and PHS subscriptions was 116.30 million as of the end of March 2010. In the broadband market the total number of ADSL, FTTH, and CATV internet subscriptions was 31.49 million as of the end of March 2010, with a migration from high-speed broadband such as ADSL, etc. to ultra-high-speed broadband represented by FTTH making progress.

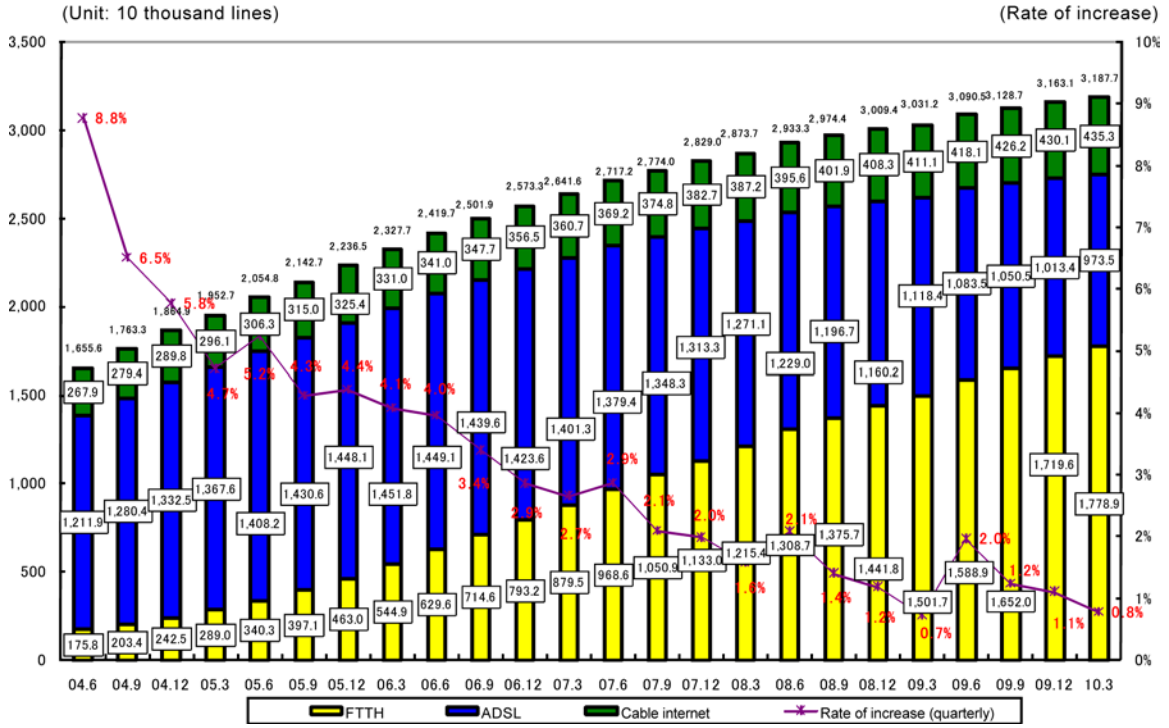
[Figure VI-1 Changes in mobile market]



(Source) Ministry of Internal Affairs and Communications

[1] Refer to “Mobile Communications Domain” and “Internet Connection Domain” of fixed point assessments for more details on trends in the respective markets.

[Figure VI-2 Changes in broadband market]



(Note) Figures before June 2004 partly include estimates.
(Source) Ministry of Internal Affairs and Communications

The main reasons for the widespread dissemination of mobile and broadband services are considered to be [1] the development of a competitive environment through policies that ensure competition, [2] improved services because of competition between business operators, and [3] changes in environment and technologies, etc., with the role of policies that ensure competition being considered to be quite large. In addition, the widespread dissemination of mobile and broadband services is considered to have had a significant economic impact on other industries.

The economic impact of specific policies was also analyzed in past “Competition Reviews in the Telecommunications Business Field”[2]. The approach of quantitatively analyzing how and what impact various competition policies have on the social and economic situation created by the expansion of the mobile and broadband markets and from the point of view of their economic impact is considered very important when discussing ideal future competitive policies.

[2] Analysis on the number portability system took place in the “Strategic Assessment” of the “Competition Review in the Telecommunications Business Field” of FY 2006 as competition policy related analysis.

2. Purpose of analysis

Because of the above background data that had been amassed and summarized from past "Competition Reviews in the Telecommunications Business Field" was utilized in this assessment and the theme of "quantitative analysis of the economic impact of past competition policies[3] concerning dissemination of mobile and broadband services" selected for quantitative analysis of the level of economic impact respective major competitive policies had in the past[4].

[3] Competitive policies here not only refer to revisions of laws and regulations such as revisions of ministerial ordinances, etc. but also policy recommendations, including guidelines, etc.

[4] This assessment took place with the help of Masatsugu Tsuji, Professor at the University of Hyogo, who was the chairperson of the Competition Review Advisory Board and provided assistance in the direction the assessment should take and the economic analysis methods used, etc. In addition, Yuji Akematsu, Professor at the University of Hyogo, also provided assistance in the actual analysis.

Chapter 2 Subjects and Methods of Analysis

1. Subjects of analysis

The theme of this assessment was “quantitative analysis of economic impact of past competition policies concerning dissemination of mobile and broadband services”. More concretely, analysis took place within the mobile market on the impact [1] introduction of the number portability system (“Number Portability Study Group” report published in April 2004, system commenced upon in October 2006), [2] promotion of MVNO entries (“MVNO Guidelines” published in June 2002, revised in February 2007, revised again in May 2008), and [3] clarification of separation of the price of handsets and communication charges (“Ideal Competition Rules in Response to Progress of IP-based Networks – Competition Promotion Program 2010 –” published in September 2006, “Mobile Business Study Group” report published in September 2007) had on the mobile phone market.

Analysis also took place within the broadband market on the impact [1] establishment of unbundling rules (metal cable: September 2000, FTTH: April 2001), [2] establishment of collocation rules (October 2000), and [3] lowered connection charges had on ADSL and FTTH services, along with the impact [4] open access to infrastructure for laying lines (“Guidelines on Use of Utility Poles and Conduits, etc. by Public Utility Business Operators” published in April 2001) had on FTTH[5].

In view of ensuring detailed analysis took place on the economic impact of competition policies in the respective markets it was conducted independently with respect to the mobile market and broadband market in this assessment. With the broadband market analysis also took place separately with respect to the ADSL market and FTTH markets.

In view of evaluating the results of the analysis in a unified manner, however, the same methods with regard to the definition of economic impact and quantitative analysis were used in analysing the respective markets.

[5] In addition various competition policies, including for example introduction of outright mobile phone sale system and abolishment of advance fee contract clause notification system, in principle, etc., can be considered to have had an actual economic impact. In this assessment, however, only the above mentioned major competition policies were subject to analysis. In addition, the PHS and cable internet markets, for example, were not subjects to this assessment. It should be noted therefore that the economic impact the subjected competition policies had on the expansion of these markets are not included in the results of the analysis.

2. Methods of analysis

(1) Analysis of economic impact via consumer surplus analysis

Various indices can be used to evaluate economic impact via quantitative analysis of the economic impact of competition polices. In this assessment, however, quantitative analysis of the economic impact of competition policies took place using consumer surplus analysis, which is a general method of analysing the impact of policies, to estimate the increase in consumer surplus that then led to lowered charges.

In assessing policies consumer surplus analysis focuses on the user benefits that usually account for a major part of the social benefit bestowed by policies. The framework is rather simple but it rarely results in significant errors and is considered fairly reliable[6].

The difference regarded as being the user benefit or consumer surplus is calculated by subtracting the amount actually paid by all consumers from the total value appreciated by all the customers as derived from the amount each customer intends to pay using an estimated demand function that is then used as the standard value in the assessment.

(2) Consumer surplus analysis procedure

1) Estimation of diffusion model

First a diffusion model based on the demand function (hereinafter referred to as diffusion model) is estimated. A diffusion model is based on the idea that the diffusion status in respective markets (number of subscriptions) is determined by charge and income levels, etc.[7], and can be represented as follows.

$$Q = Q\,(p, GDP, f)$$

Here Q indicates the number of subscriptions, p the charge level, GDP the income level, and f other factors that have an impact on the number of subscriptions. In this assessment analysis took place on the impact the number of subscriptions had on the charge level in the respective markets

[6] Refer to “Microeconomic Modeling for Policy Analysis” (2006), Yoshitsugu Kanemoto, Katsuhito Hasuike, Toru Fujiwara, Toyo Keizai, Inc. for more details on consumer surpluses and more advanced analysis methods, etc. that utilize them.

[7] This type of model is generally called a demand function. Accurately analyzing the mobile telephone, ADSL, and FTTH markets subject in this assessment as demand functions requires consideration being given to not only the number of subscriptions but also the communication volume (traffic) resulting from demand. This assessment assumed a model for use in determining the number of subscriptions from the point of view of analysing economic impact with regard to diffusion, and hence is represented as a diffusion model that was based on the demand function.

of mobile phone, ADSL, and FTTH using estimates after a model was concretely formulated.

Next the increase in number of subscriptions (progress with diffusion) that can be explained by changes in charge level was calculated using the aforementioned estimate model. When analyzing the economic impact of competition polices using the consumer surplus it is generally considered to be caused by lowered charge levels directly or indirectly having resulted from competition policies. As revealed in the previous chapter diffusion throughout the mobile and broadband markets has actually been taking place and in the course of that diffusion the charge level has tended to have declined in the respective markets[8].

2) Calculation of increment in number of subscriptions caused by competition policies

As illustrated in the model the level of progress made with diffusion is affected not only by the level of charge but also by level of income, etc. Analyzing the economic impact of competition policies therefore requires that the part of the progress made in diffusion resulting from decreased charge levels to be calculated. The contribution ratio of the charge level is calculated using the respective variable coefficients and then the increment in number of subscriptions (progress with diffusion) resulting from the decline in charge level then calculated.

3) Calculation of increment of consumer surplus

The increment of consumer surplus is calculated using the charge level and the increment in number of subscriptions resulting from the decline in charge level. The increment of consumer surplus is calculated annually, in principle, via trapezoidal approximation[9] and those calculated over the entire period covered by the analysis of the respective markets then totalled.

The period used in calculating the increment in consumer surplus after estimating the diffusion model was set at the three years and three months, of September 2006 through to December 2009 because of consideration being given to when the number portability system, etc. for use in the mobile phones market was introduced, the five years and three months of March 2001 through to June 2006 because of consideration being given to when the unbundling rules and their diffusion, etc. for use in the ADSL market were introduced, and the 8 years and nine months of May 2001 through to December 2009 because of consideration being given to when the unbundling rules, etc. for use in FTTH market were introduced[10].

[8] Refer to the fixed point assessments in the respective domains for the concrete charge levels in the respective markets.
[9] As illustrated below the model used in this assessment was not linear and the consumer surplus increment calculated using a trapezoidal approximation in which the area of the increment was calculated as a trapezoid.
[10] It should be noted that the estimate periods differ in the respective markets and therefore the consumer surplus increments (economic impact) in the respective markets cannot be directly compared.

3. Calculation of direct impact and spread on other industries from competition policies

(1) Definition of economic impact of competition policies

In this assessment consumer surplus analysis was used to analyze the economic impact of competition policies. However, the economic impact of competition policies with regard to the dissemination of mobile telephones and broadband is normally divided into a direct impact provided by the consumer surplus increment resulting from the introduction of the pertinent competition policies and an indirect impact resulting from the interaction of the pertinent competition policies and existing competition policies, etc.

In addition, the introduction of competition policies having the impact of lowering charge level results in the indirect impact through more active competition between business operators, etc. and the actual direct impact of competition policies on the charge level both needing to be considered.

Furthermore, the economic impact of competition policies is also considered to advantage users via an increase in the consumer surplus while also affecting suppliers and other industries, etc. at the same time.

(2) Analyzing direct economic impact using AHP analysis

In this assessment AHP analysis was first used to analyze the direct economic impact of the respective completion policies. AHP (Analytic Hierarchy Process) analysis is a decision making method that was developed by T. L. Saaty in 1977 which is now widely used as part of operational research. AHP analysis makes use of human judgment via the weights of evaluation criteria being set for making decisions. Questionnaire surveys, etc. are used in the analysis that then enable analysis of the qualitative factors.

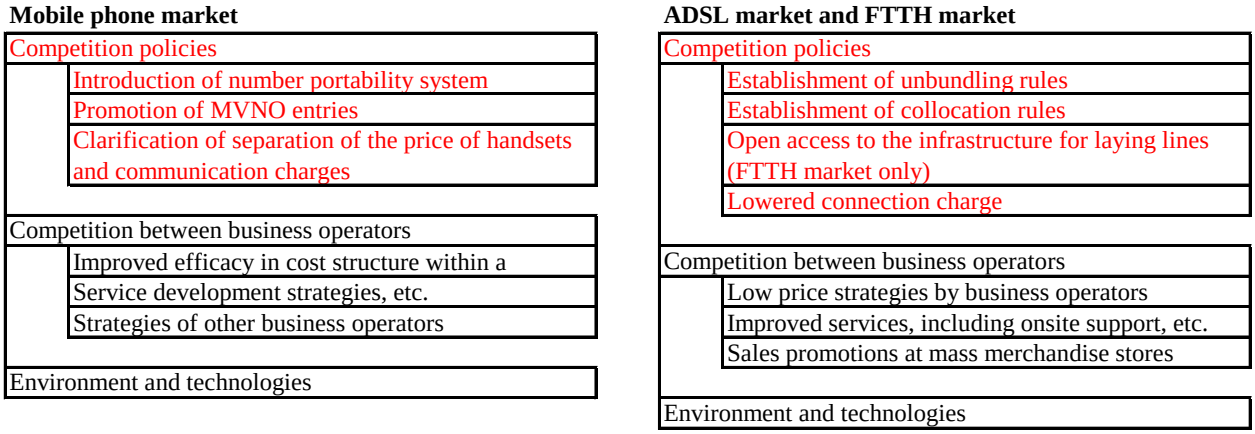
1) AHP analysis Procedure

[1] Pairwise comparison of priorities via questionnaire survey

In the respective markets of mobile phones, ADSL, and FTTH competition policies and other factors deemed to be the cause of dissemination were built into a hierarchy and a pairwise comparison of priorities then applied to each element of the respective hierarchy. A survey for use in a pairwise comparison was then conducted on major business operators in the respective markets[11]. The survey items were as indicated in Figure VI-3.

[11] Refer to the analysis in the respective markets in the next chapter for the number of business operators, etc. that were subjected to the survey.

[Figure VI-3 Survey items]



(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[2] Calculation of relative priorities

The relative priorities (weight) of the respective elements were calculated from the results of the pairwise comparison on the priorities of respective elements obtained in the survey using the eigenvalue method. The relative priorities of the respective elements calculation were then used to calculate the direct economic impact of the competition policies from consumer surplus increments obtained above.

(3) Analyzing spread impact to other industries using inter-industry relations table

The economic impact calculated via the AHP analysis provides the direct impact of competition policies within the mobile and broadband markets. The economic impact represented by the total consumer surplus increments includes the indirect economic impact resulting from more active competition between business operators because of the introduction of competition policies, whereas the economic impact outside the pertinent markets is not included.

The impact on other industries is therefore considered to be type of economic impact separate to that of advantages to consumers within the pertinent the market. In this assessment the spread impact to other industries was analyzed using an inter-industry relations table as the impact on other industries. More concretely, the total increase in market size in the respective mobile and broadband markets during the period covered was first calculated using the diffusion model obtained in the consumer surplus analysis. It was then multiplied by coefficients in an input inverse matrix of an inter-industry relations table of 2007 (71 sector tables) in obtaining the spread impact to other industries. A coefficient for the mobile telecommunications industry of an input inverse matrix was then used in the multiplication for the mobile phone market and that of the fixed telecommunications industry for ADSL and FTTH markets.

Chapter 3 Analysis of Mobile and Broadband Markets

1. Analysis of mobile market

(1) Analysis of mobile phone market

1) Consumer surplus analysis using diffusion model

First consumer surplus analysis using a diffusion model was conducted. The diffusion model described above was formulated as a logarithmic model for the estimation.

Quarterly data from June 2001 through to December 2009 was used. The number of samples was therefore 35. The number of subscriptions was provided by data on the number of subscriptions that was provided by the Telecommunications Carriers Association, the charge level from the price index of corporate services provided by the Bank of Japan, and income level from actual GDP. With regard to the conversion of the relative price in the charge level, the weighted average was obtained using the results of the Web questionnaire survey that took place within the "Competition Review in the Telecommunications Business Field" of this fiscal year and then further substantiated using a deflator.

Furthermore, March is the season for graduation from and admission to school, etc. and a seasonal factor in the increase in number of subscriptions in the mobile phone market is considered to exist because of it. A dummy function was therefore used as an "other factor" for the end of March period.

Consideration to the estimate using time-series data resulted in the generalized least square method and a Prais-Winsten transformation specifying a first-order auto regression being used.

The result of the diffusion model estimate for the mobile phone market was as follows.

$$\log Q = \underset{(0.000)}{-1.024 \log P} + \underset{(0.000)}{1.969 \log GDP} + \underset{(0.005)}{0.055\ SeasonD} + \underset{(0.000)}{0.606\ AR(1)}$$

Here Q indicates the number of subscriptions, P the charge level, GDP the income level, SeasonD the dummy for the end of March period, and AR(1) the first-order auto regression. The figures in parenthesis indicate p-values that show the significance of the estimated coefficients[12]. The estimated results showed each coefficient to be significant with the expected signs, and thus the estimation was deemed to be reasonable for use with the diffusion model[13].

[12] p-value indicates the probability of a hypothesis with a zero coefficient (null hypothesis) being correct. A smaller p-value therefore means that the probability of a null hypothesis being correct, or the coefficient zero, small.

[13] Estimates made using time-series data often involves an issue known as serial correlation. In this

Based on the results of the above estimation the increments in consumer surplus were calculated to be approximately 685 billion yen.

2) Calculation of direct impact of competition policies using AHP analysis

Next the relative weight of competition policies and other elements were calculated using AHP analysis to obtain the direct impact of competition policies. Hearings and questionnaire surveys took place in March 2010 involving four mobile phone business operators in indicating the priorities of the respective elements in the form of a pairwise comparison. All four business operators responded to the hearings and questionnaire surveys. The overall priorities in mobile phone market were calculated as the weighted average of the priorities obtained from the responses by market share.

The results of the analysis were as indicated in Figure VI-4.

[Figure VI-4 Priorities in mobile phone market]

Competition policies	0.0978	Introduction of the number portability system	0.0562
		Promotion of MVNO entries	0.0179
		Clarification of separation of the price of handsets and communication charges	0.0237
Competition between business operators	0.7125		
Environment and technologies	0.1898		

(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

The direct economic impact of competition policies was calculated by multiplying the overall priorities by the consumer surplus increments obtained earlier on. This then resulted in the overall direct impact of competition policies for use in the mobile phone market being estimated to be approximately 67 billion yen (the percentage of the contribution of competition policies to increase in consumer surplus in the mobile phone market being 9.8%). Of this the direct impact of introducing the number portability system was approximately 39 billion yen (the aforementioned, also in brackets, being 5.6%, and the same hereinafter), that of promoting MVNO entries approximately 12 billion yen (1.8%), and that of clarifying the separation of the price of handsets and communication charges approximately 16 billion yen (2.4%).

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assessment a Prais-Winsten transformation specifying a first-order auto regressive model was used to cope with the issue of serial correlation. Elimination of the serial correlation was verified through use of Box-Ljung Statistics, with the resulting statistic being 0.000. The (first-order) serial correlation was therefore deemed to have been eliminated.

3) Calculation of spread impact to other industries using inter-industry relationship table

The diffusion model estimated in the consumer surplus analysis was used to calculate the total increase in the size of the mobile phone market size during the period covered to be approximately 600 billion yen. The spread impact from the mobile phone market to other industries was then calculated by multiplying that by the mobile telecommunications industry coefficients of an inverse matrix of an inter-industry relations table of 2007 (71 sector tables) to be approximately 856 billion yen.

2. Analysis of broadband market

(1) Analysis on ADSL market

1) Consumer surplus analysis using diffusion model

First consumer surplus analysis using a diffusion model was conducted. Similar to the analysis of the mobile phone market the diffusion model described above was formulated as a logarithmic model for the estimation.

Quarterly data from March 2001 to June 2006 was used. The number of samples was therefore 22. The number of subscriptions was taken from data on the number of subscriptions provided by the Ministry of Internal Affairs and Communications, the charge level from the price index of corporate services provided by the Bank of Japan, and income level from actual GDP. With regard to conversion of the relative price within the charge level the weighted average was obtained using the latest charge plans of the respective business operators and then further substantiated using a deflator. The generalized least square method with a Prais-Winsten transformation was then used to make the estimate.

The result of the diffusion model estimate for the ADSL market was as follows.

$$\log Q = \underset{(0.000)}{-0.519 \log P} + \underset{(0.000)}{1.520 \log GDP} + \underset{(0.000)}{0.946\ AR(1)}$$

Here Q indicates the number of subscriptions, P the charge level, GDP the income level, and AR(1) the first-order auto regression. The figures in parenthesis indicate the p-values. The estimated results revealed each coefficient to be significant with the expected signs and thus the estimation was deemed to be reasonable for the diffusion model[14].

Based on the results of the above estimation the consumer surplus increments were calculated to be approximately 412 billion yen.

2) Calculation of direct impact of competition policies using AHP analysis

Next the relative weights of competition policies and other elements were calculated using AHP analysis in obtaining the direct impact of competition policies. Similar to the analysis of the mobile phone market, hearings and questionnaire surveys took place in March 2010 with the five major business operators in indicating the priorities of the respective elements in the form of a pairwise comparison. All five business operators responded to the hearings and questionnaire

[14] It should be noted, however, that the Box-Ljung Statistic was 33.708 and the (first-order) serial correlation was thus deemed not to have been eliminated.

surveys. The overall priorities in the ADSL market were calculated as the weighted average of priorities obtained from the responses by market share[15].

The results of the analysis were as indicated in Figure VI-5.

[Figure VI-5 Priorities in ADSL market]

Competition policies	0.3564	Establishment of unbundling rules	0.1137
		Establishment of collocation rules	0.1039
		Lowered connection charge	0.1388
Competition between business operators	0.3158		
Environment and technologies	0.3278		

(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

The direct economic impact of competition policies was calculated by multiplying the overall priorities by the consumer surplus increments obtained earlier on. This then resulted in the overall direct impact of competition policies on the ADSL market being estimated to be approximately 147 billion yen (percentage of contribution of competition policies to increase in consumer surplus in ADSL market being 35.6%). Of this the direct impact of establishing unbundling rules was approximately 47 billion yen (the same as the aforementioned, in brackets, being 11.4%, with the same hereinafter), that of establishing collocation rules approximately 43 billion yen (10.4%), and that of lowering connection charges approximately 57 billion yen (13.9%).

3) Calculation of spread impact to other industries using inter-industry relationship table

The diffusion model estimated in the consumer surplus analysis was used to calculate the total increase in the ADSL market size during the period covered to be approximately 130 billion yen. The spread impact from the ADSL market to other industries was then calculated by multiplying that by fixed telecommunications industry coefficients of an inverse matrix of an inter-industry relations table of 2007 (71 sector tables) to be approximately 207 billion yen.

(2) Analysis of FTTH market

1) Consumer surplus analysis using diffusion model

First consumer surplus analysis using the diffusion model was conducted. Similar to the analysis of the mobile phone and ADSL markets the diffusion model described above was formulated as a logarithmic model for the estimation.

[15] Only questionnaire surveys were conducted on some business operators and the survey items were partially not answered.

Quarterly data from March 2001 to December 2009 was used. The number of samples was therefore 36. The number of subscriptions was taken from data on number of subscriptions provided by the Ministry of Internal Affairs and Communications, the charge level from the price index of corporate services provided by the Bank of Japan, and income level from actual GDP. With regard to conversion of the relative price within the charge level, the weighted average was obtained from the latest charge plans of the respective business operators and then further substantiated using a deflator. The generalized least square method with a Prais-Winsten transformation was then used to make the estimate.

The result of the diffusion model estimation for the FTTH market was as follows.

$$\log Q = -13.619 \log P + 6.319 \log GDP + 0.987\ AR(1)$$
$$\qquad\quad (0.001) \qquad\quad (0.000) \qquad\quad (0.000)$$

Here Q indicates the number of subscriptions, P the charge level, GDP the income level, and AR(1) the first-order auto regression. The figures in parenthesis indicate the p-values. The estimated results revealed each coefficient to be significant with the expected signs and thus the estimation was deemed to be reasonable for the diffusion model[16].

Based on the results of the above estimation the consumer surplus increments were calculated to be approximately 131 billion yen.

2) Calculation of direct impact of competition policies using AHP analysis

Next the relative weight of competition policies and other elements were calculated using AHP analysis in obtaining the direct impact of competition policies. Similar to the analysis of the mobile phone and ADSL markets hearings and questionnaire surveys took place in March 2010 with the seven major business operators in indicating the priorities of the respective elements in the form of a pairwise comparison. All seven business operators responded to the hearings and questionnaire surveys. The overall priorities in the FTTH market were then calculated as the weighted average of the priorities obtained from the responses by market share[17].

The results of the analysis were as indicated in Figure VI-6.

[16] It should be noted, however, that the Box-Ljung Statistic was 24.011 and the (first-order) serial correlation was thus deemed not to have been eliminated.
[17] Only questionnaire surveys were conducted on some business operators and survey items were partially not answered.

[Figure VI-6 Priorities in FTTH market]

Competition policies	0.0986	Establishment of unbundling rules	0.0253
		Establishment of collocation rules	0.023
		Open access to the infrastructure for laying	0.0223
		Lowered connection charge	0.0281
Competition between business operators	0.4883		
Environment and technologies	0.4131		

(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

The direct economic impact of competition policies was calculated by multiplying the overall priorities by the consumer surplus increments obtained earlier on. This then resulted in the overall direct impact of competition policies in the FTTH market being estimated to be approximately 13 billion yen (percentage of contribution of competition policies to the increase in consumer surplus on the FTTH market being 9.9%). Of this the direct impact of establishing unbundling rules was approximately 3.3 billion yen (the same as the aforementioned, in brackets, being 2.5%, with the same hereinafter), that of establishing collocation rules approximately 3 billion yen (2.3%), open access to the infrastructure for laying lines approximately 2.9 billion yen (2.2%), and that of lowered connection charges approximately 3.7 billion yen (2.8%).

3) Calculation of spread impact to other industries using inter-industry relationship table

The diffusion model estimated in the consumer surplus analysis was used to calculate the total increase in the FTTH market size during the period covered to be approximately 1,079 billion yen. The spread impact from the FTTH market to other industries was then calculated by multiplying that by fixed telecommunications industry coefficients of an inverse matrix of an inter-industry relationship table of 2007 (71 sector tables) to be approximately 1,724 billion yen.

Chapter 4 Matters of Concern

The economic impact estimated through the consumer surplus analysis and AHP analysis indicates the portion of consumer surplus within social surplus that is explicitly considered to be the impact of the competition policies as revealed through AHP analysis. Therefore, and for example, the "improved services through competition between business operators" that is included in other factors in the AHP analysis can also be considered to be an indirect impact of competition policies. The economic impact figures estimated can thus be considered to be quite conservative[18].

In this assessment questionnaire surveys on major business operators took place within the AHP analysis. In order to make more detailed analysis from various angles in the future the questionnaire survey on experts would also be considered effective.

In addition, with consumer surplus analysis obtaining accurate price data that can be used to reflect the external quality, speed, and network in quantitative analysis in the telecommunications domain is difficult. It should be noted, therefore, that analysis that utilizes price indexes, etc. is of limited usefulness.

The mobile phone market has a large number of flat rate charge plans, and therefore analysis of subscription demands, in particular, with no consideration given to traffic is also considered of limited usefulness. However, the volume of traffic has not significantly changed over recent years and thus the results of analysis of subscription demands in this assessment can be considered reasonable to a certain extent (Figure VI-7).

[Figure VI-7 Daily average number of communications and communication time per mobile phone subscription]

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Number of communications per day	1.7 times	1.6 times	1.5 times	1.5 times	1.4 times
Communication time per day	3 min. and 16 sec	3 min. and 12 sec.	3 min. and 10 sec.	3 min. and 7 sec.	3 min. and 16 sec.
Average time of communication	[1 min. and 56 sec.]	[2 min.]	[2 min. and 4 sec.]	[2 min. and 8 sec.]	[2 min. and 16 sec.]

(Source) FY 2009 Competition Review Advisory Board (Second Meeting)

[18] Refer to the discussion held at the Second Meeting of the FY 2009 Competition Review Advisory Board (http://www.soumu.go.jp/main_content/000066680.pdf) for how to utilize the results of analysis in this assessment.