

Chapter 4

Current State of ICT

Part 2

Section 1 ICT Industry Trends

1. Economic size of the ICT industry

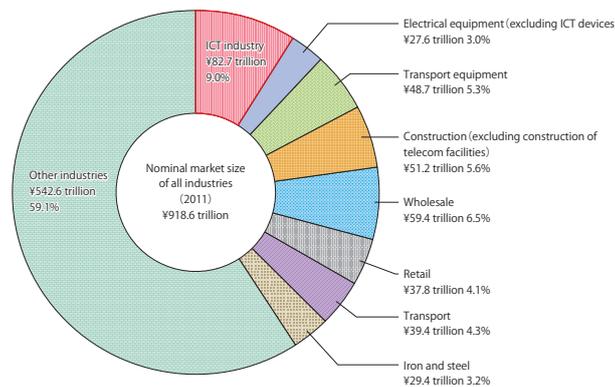
(1) Market size (domestic production)

- ICT industry market size accounted for about 9.0% of all industries

The ICT industry's market size in 2011 was 82.7 trillion yen (based on nominal domestic production value), accounting for 9.0% of all industries and making it the largest industry in the country (Figure 4-1-1). The market size leveled off between 2000 and 2005 before declining along with markets for other industries from

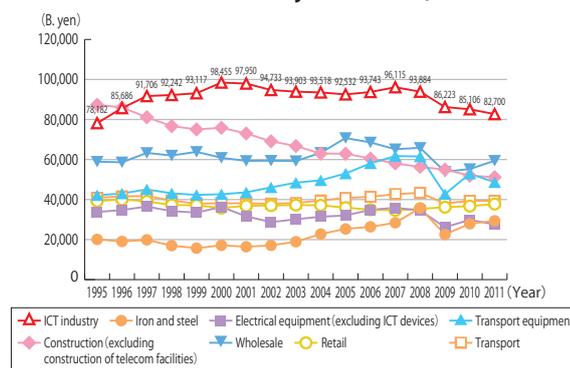
2008. Particularly, the market suffered a sharp plunge in 2009 due to the Lehman Shock. In 2011, it continued shrinking¹ (Figure 4-1-1-2).

Figure 4-1-1-1 Nominal market sizes of major industries (based on nominal domestic production) (breakdown) (2011)



(Source) MIC "Survey on Economic Analyses on ICT" (2013)

Figure 4-1-1-2 Trends of nominal market sizes of major industries (based on nominal domestic production)



(Source) MIC "Survey on Economic Analyses on ICT" (2013)

¹ The ICT industry's domestic production declined by about 2.4 trillion yen from 2010 to 2011 nominally. The ICT-related manufacturing sector made great contributions to the decline, logging a drop of about 1.9 trillion yen.

The sharp fall in production by the ICT-related manufacturing sector was attributable to two major factors. The first factor was a remarkable decrease of about 711.1 billion yen in radio and television receiver production. The second factor was that all of the sector's products other than fixed-line telecommunications equipment declined. Output decreased by about 232.1 billion yen for video equipment and by about 205.2 billion yen for personal computers.

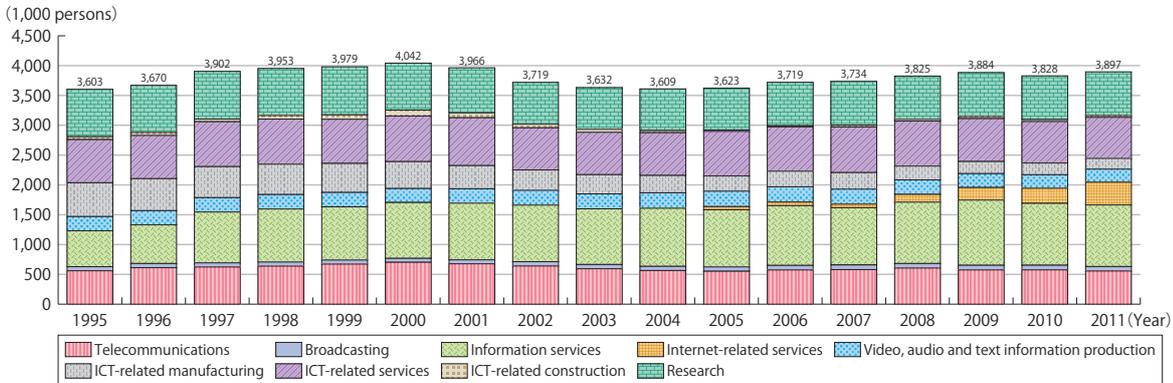
(2) Employment

- ICT industry employment totaled 3.897 million in 2011 accounting for 6.9% of total employment in Japan

The ICT industry's employment in 2011 totaled 3.897 million (up 1.8% from the previous year), accounting for 6.9% of total employment in Japan. Employment declined

by 8.0% from 2010 for the ICT-related manufacturing sector, by 5.3% for the ICT-related construction sector and by 3.5% for the video, audio and text information production sector. But employment for the Internet-related services sector scored a sharp expansion of 51.3% (Figure 4-1-1-3).

Figure 4-1-1-3 ICT industry employment trends



(Source) MIC "Survey on Economic Analyses on ICT" (2013)

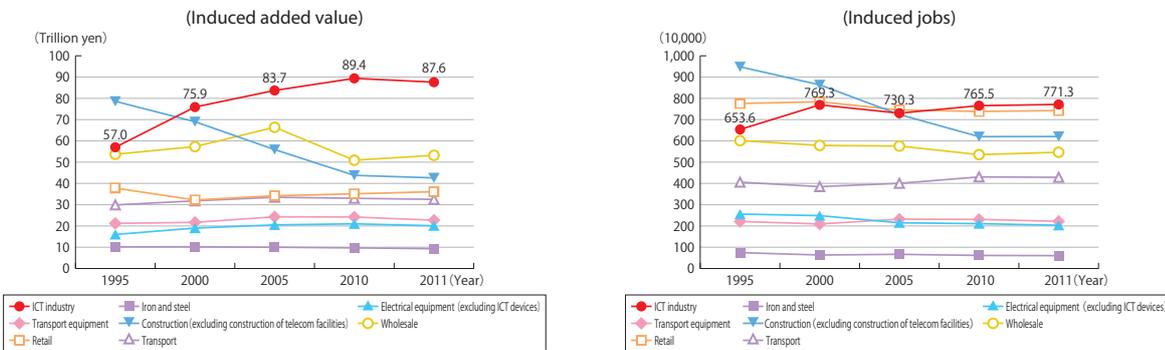
2. ICT industry's economic spillover effects

- ICT industry production operations' economic spillover effects on Japan's entire industry made the largest contributions to inducing added value and jobs among industries.

The ICT industry's economic spillover effects on Japan's entire industry in terms of added value and employment induction are compared with those of other industries. Economic spillover effects of each industry's

production operations² indicate that the ICT industry induced 87.6 trillion yen in added value and 7.713 million jobs in 2011. The ICT industry thus has the largest economic spillover effects among industries in Japan (Figure 4-1-2-1).

Figure 4-1-2-1 Transitions in economic spillover effects (induced added value and jobs) of major industries' production operations



(Source) MIC "Survey on Economic Analyses on ICT" (2013)

Section 2 ICT Industry Operations

1. Basic survey on the information and communications industry

The basic survey on the information and communications industry is an ordinary statistical survey (started in 2010) that the MIC and the Ministry of Economy, Trade and Industry jointly conduct under the Statistics Act (Law No. 53 of 2007) to specify trends of enterprises

belonging to the ICT industry as Large Category G of the Japan Standard Industry Classification and obtain basic data for ICT industry policies. Following is an overview of the survey for 2012.

² "Economic spillover effects of production operations" indicate economic spillover effects of production operations in each industry on Japan's entire industry.

(1) Number of enterprises and sales

● The ICT industry had 5,592 enterprises with 42.2784 trillion yen in sales in FY2011

The number of enterprises engaging in ICT business operations (irrespective of whether ICT business operations are mainstay operations) stood at 5,592, having 24,551 business establishments and 1,485,357 employees.

The ICT industry's sales in FY 2011 totaled 42.2784 trillion yen. The telecommunications sector accounted for the largest share of the industry's sales, followed by the software sector and the data processing and providing services sector. The three sectors capture 77.1% of the total ICT industry sales. The share of the total sales was 38.0% (down 1.3 percentage points from the previ-

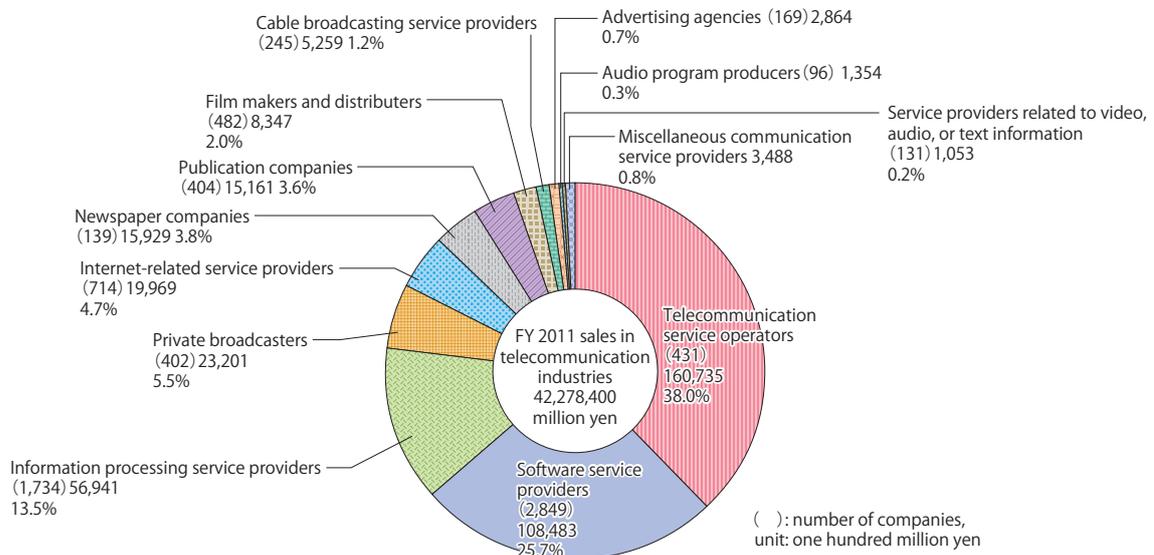
ous year) for the telecommunications sector and 25.7% (up 0.6 points) for the software sector (Figure 4-2-1-1).

(2) Breakdown

● Enterprises capitalized at less than 100 million yen accounted for more than 50% of all enterprises in each of eight of the 12 ITC industry sectors

A breakdown of ICT industry enterprises by capital size indicates that enterprises capitalized at less than 100 million yen accounted for more than 50% of all enterprises in each of eight of the 12 ITC industry sectors. In the film production and distribution, and audio program production sectors, particularly, enterprises capitalized at less than 50 million yen accounted for more than 50% (Figure 4-2-1-2).

Figure 4-2-1-1 ICT industry sales

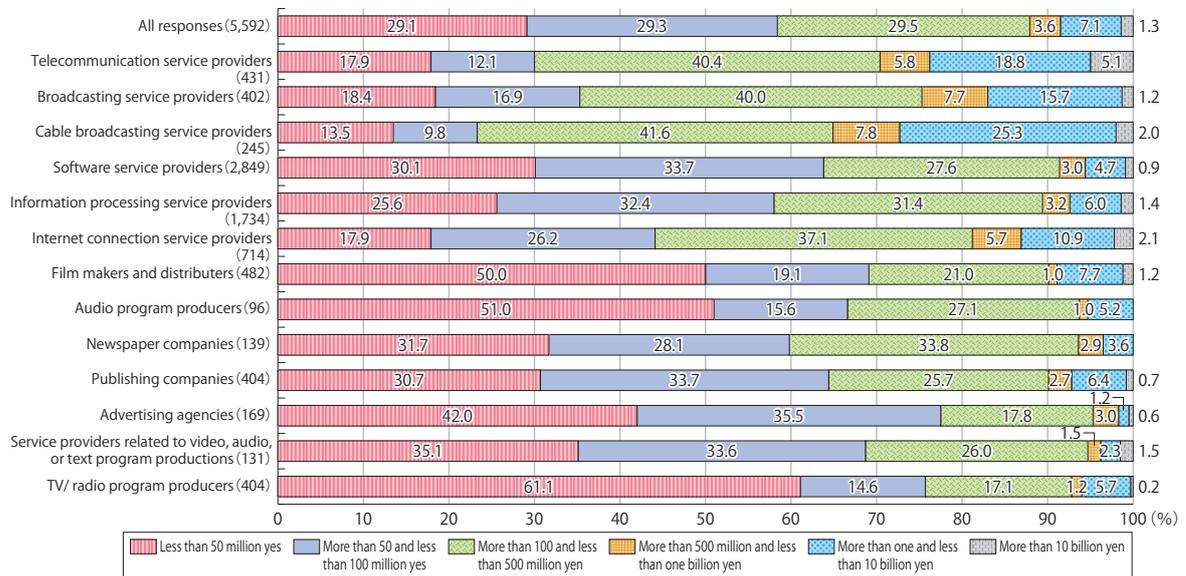


Note: "Primary sales" refers to sales in the primary activities of a company. For example, the primary sales of a telecommunication company are the sales in their activities in telecommunication out of their entire sales.

Note: A miscellaneous communication service provider refers to a company who chose "miscellaneous" for their primary business in their response to the questionnaire.

(Source) MIC/METI "2012 Basic survey on the Information and Communications industry"

Figure 4-2-1-2 Breakdown of ICT industry enterprises by capital size



(Source) MIC/METI "2012 Basic survey on the Information and Communications industry"

Section 3 Internet Usage Trends

1. Status of Internet diffusion

(1) Status of diffusion of major ICT tools (households)

- While ICT tool diffusion reached maturity, smartphone holders increased rapidly

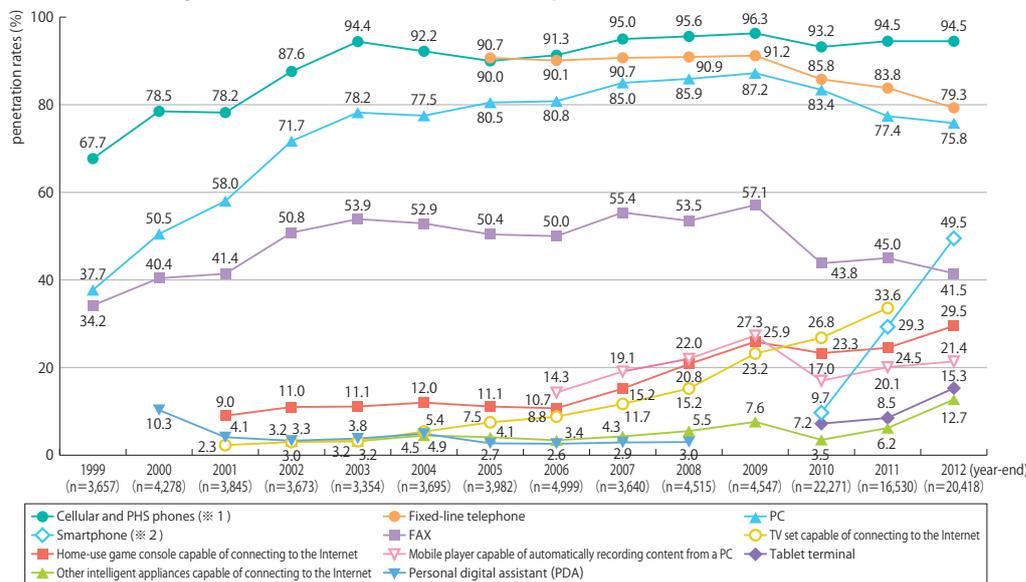
The household penetration rate at the end of 2012 was 94.5% for cellular phones and personal handyphone systems³ and 75.8% for personal computers. The rate for smartphones⁴ included into the total number of cellular phones and PHSs stood at 49.5% (up 20.2 percentage points from a year earlier), indicating a rapid diffusion (Figure 4-3-1-1).

(2) Status of Internet utilization

- Both the number of Internet users and the Internet population penetration rate continued to increase

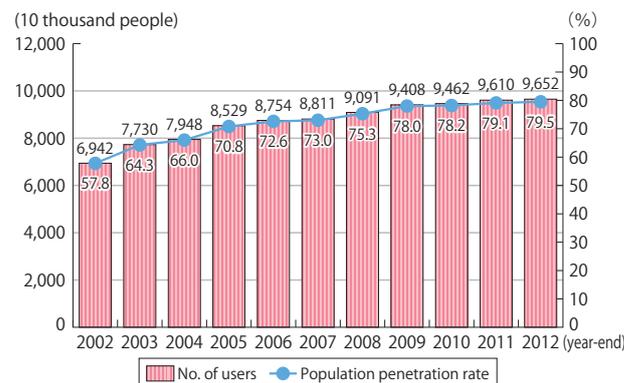
The number of Internet users⁵ at the end of 2012 reached 96.52 million, an increase of 0.42 million (0.4%) from the end of 2010. The Internet population penetration rate was 79.5% (up 0.4 percentage points from the previous year) (Figure 4-3-1-2). Those using personal computers at home to access the Internet accounted for 59.5% of total Internet users, the largest portion, followed by 42.8% for cellular phones, 34.1% for other per-

Figure 4-3-1-1 Transitions in household penetration rates for ICT terminals



(Source) MIC "2012 Communications Usage Trend Survey"

Figure 4-3-1-2 Transitions in the number of Internet users and the population penetration rate



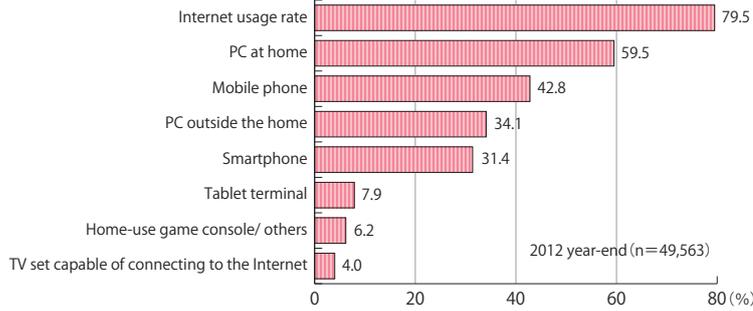
(Source) MIC "2012 Communications Usage Trend Survey"

³ Cellular phones and PHSs have included personal digital assistants, or PDAs, since the end of 2009 and smartphones since the end of 2010. The penetration rate for cellular phones and PHSs excluding smartphones came to 81.2 percent.

⁴ Smartphones are included into cellular phones and PHSs.

⁵ (1) The survey covers those aged 6 or older. (2) The estimated number of Internet users is an estimate based on the survey that checked if survey targets aged 6 or older used the Internet in a year subject to the survey. Internet connection tools include personal computers, cellular/PHS phones, smartphones, tablet terminals, game consoles and others (irrespective of whether users own these tools). Internet utilization purposes cover all possible ones including personal, business and school purposes. (3) The number of Internet users was calculated by multiplying the estimated population aged 6 or older (estimated from Population Census and death table data) with the Internet utilization rate obtained through the survey for people aged 6 or older. (4) The Communications Usage Trend Survey excludes those making no response. (But this note is not valid for Figure 4-3-1-1)

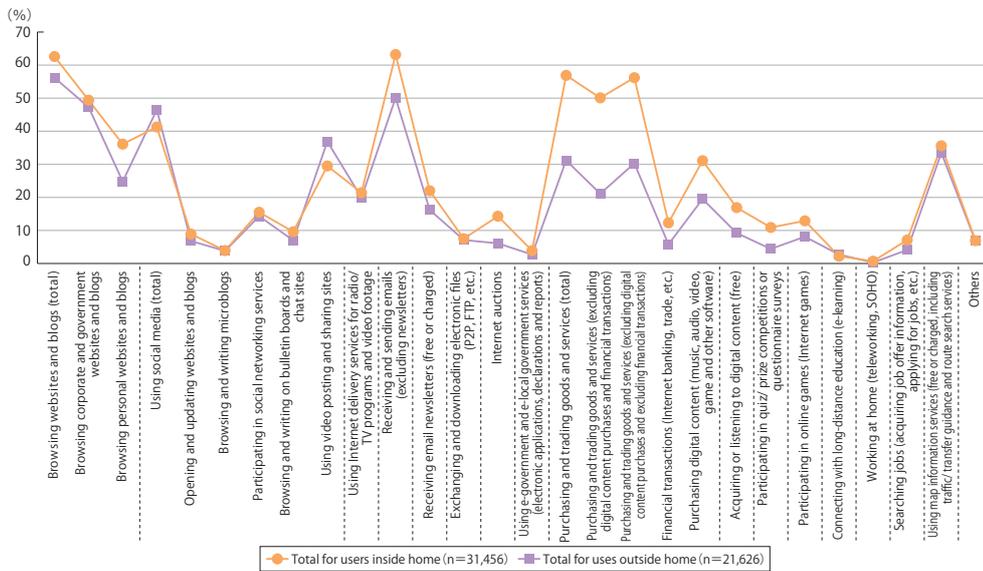
Figure 4-3-1-3 Breakdown of Internet access terminals (at the end of 2012)



* Figures indicate percentage shares for those who used respective terminals for accessing the Internet in 2012.

(Source) MIC "2012 Communications Usage Trend Survey"

Figure 4-3-1-4 Purposes for Internet users inside and outside home (individuals)



(Source) MIC "2012 Communications Usage Trend Survey"

sonal computers and 31.4% for smartphones (Figure 4-3-1-3).

(3) Purposes for Internet utilization

- "Receiving and sending emails" was cited by 63.2% of users at home, becoming the most frequently cited purpose for these users
- "Receiving and sending emails" was cited by 63.2% of

users at home, becoming the most frequently cited purpose for these users, followed by "browsing websites or blogs" (62.6%) and "purchasing and trading goods and services" (56.9%) (Figure 4-3-1-4).

2. Challenges for safe, secure Internet usage

(1) Matters of concern felt during Internet usage and problems with ICT networks

- **Virus infection is a matter of concern at home and enterprises**
Among matters of concern felt during Internet usage, 72.2% of households including at least one person who has ever used the Internet cited virus infection, followed by 71.0% for concern about personal information protection and 59.3% for uncertainties about how far Internet security measures should be taken (Figure 4-3-2-1).
Among problems with Internet and intranet LAN usage at enterprises, concern about virus infection was cited by 42.6% of respondents in the survey, becoming the most frequently cited problem, followed by operation and management personnel shortages (42.1%) and difficulties in security measure development (39.7%)

(Figure 4-3-2-2).

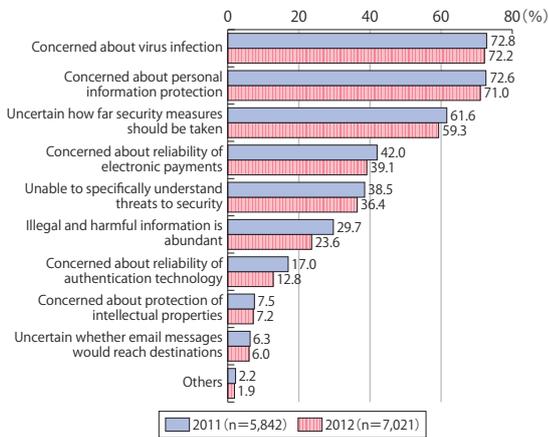
(2) Information security measures

- **More than 80% of households and more than 90% of enterprises have implemented some information security measures**
Households' information security measure implementation trends indicate households implementing some information security measures accounted for 88.2% of respondents in the survey at the end of 2012, up 1.2 percentage points from a year earlier. Among major security measures, 58.9% of respondents cited "introducing anti-virus software," followed by 41.8% for "refraining from opening emails from unknown people, attached files or HTML files carelessly" (Figure 4-3-2-3).
Information security measure implementation trends

at enterprises using ICT networks indicate that 97.8% of these enterprises have implemented some information security measures. Among specific measures, 88.3% of enterprises cited “introducing anti-virus programs for

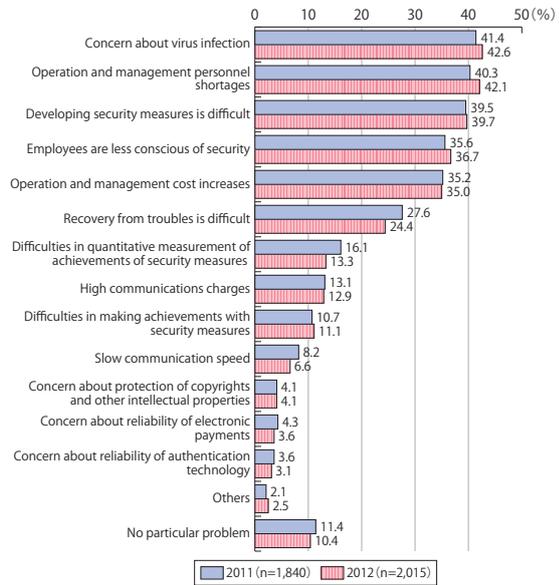
personal computers and other terminals (operating systems, software, etc.),” followed by 67.7% for “introducing anti-virus programs for servers” and 53.4% for “IDs and passwords for access control” (Figure 4-3-2-4).

Figure 4-3-2-1 Matters of concern felt during Internet usage at households (multiple answers permitted)



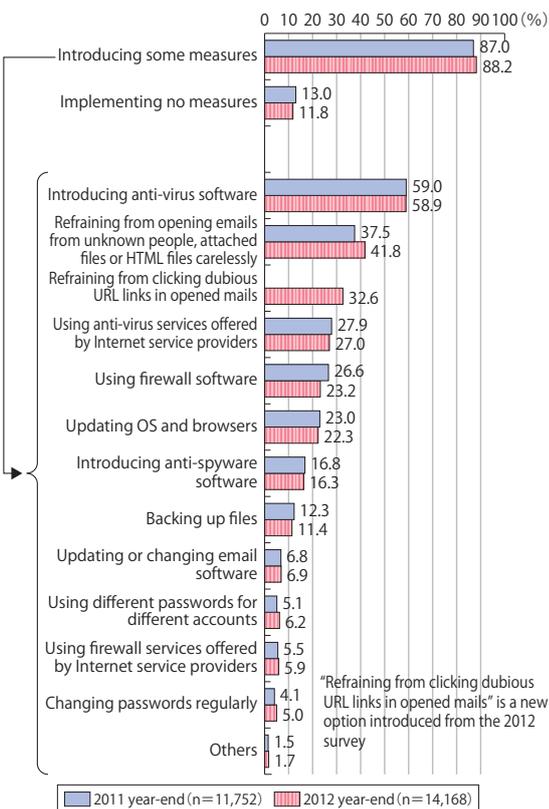
(Source) MIC “2012 Communications Usage Trend Survey”

Figure 4-3-2-2 Problems with Internet and intranet LAN usage at enterprises (multiple answers permitted)



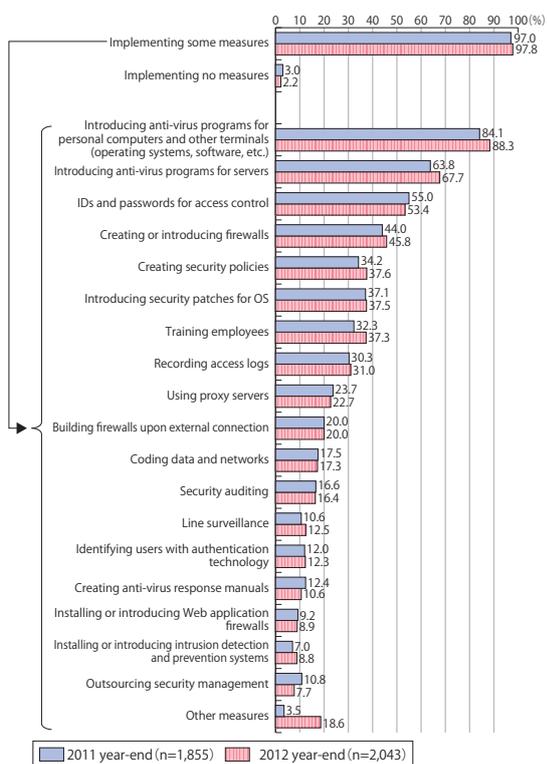
(Source) MIC “2012 Communications Usage Trend Survey”

Figure 4-3-2-3 Implementation of information security measures at households (multiple answers permitted)



(Source) MIC “2012 Communications Usage Trend Survey”

Figure 4-3-2-4 Implementation of information security measures at enterprises (multiple answers permitted)



(Source) MIC “2012 Communications Usage Trend Survey”

Section 4 Cloud service utilization trends

1. Status of cloud service utilization in Japan

(1) Cloud service utilization in Japan

- Cloud service users' share of enterprises rose from 21.6% at the end of 2011 to 28.2%

Enterprises that said they had used cloud services partially or extensively accounted for 28.2% of enterprise respondents in the survey, up 6.6 percentage points from 21.6% at the end of 2011 (Figure 4-4-1-1).

(2) Cloud service usage breakdown

- The most frequently used cloud service is "file storage and data sharing"

The most frequently used cloud service is "file storage and data sharing," cited by 47.7% of respondents, followed by 40.2% for "email" and 38.2% for "server utiliza-

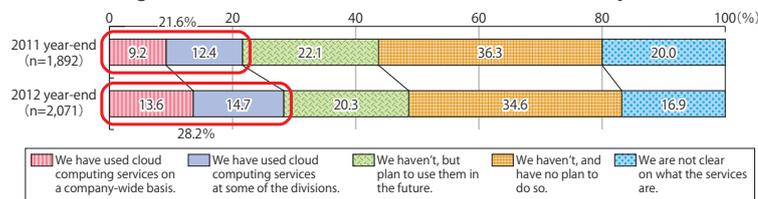
tion" (Figure 4-4-1-2).

(3) Reasons for introducing cloud services

- The "absence of needs for in-house assets or maintenance arrangements" was the most frequently cited reason for introducing cloud services, chosen by 42.6%

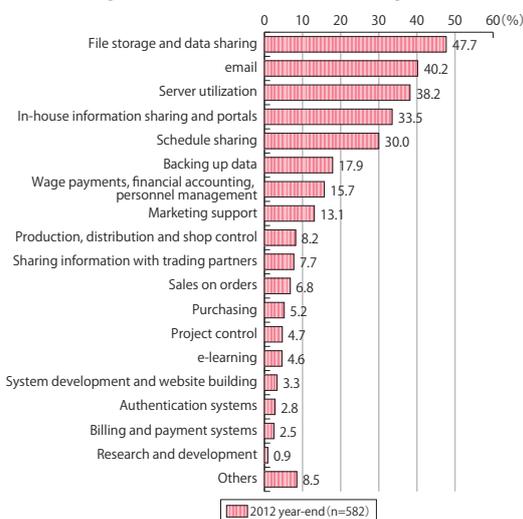
The "absence of needs for in-house assets or maintenance arrangements" was the most frequently cited reason for introducing cloud services, chosen by 42.6% of respondents, followed by "cheap initial costs" (36.4%) and "lower costs than for existing systems" (30.8%). Mainly, functional and cost reasons were cited as the reasons for introducing cloud services (Figure 4-4-1-3).

Figure 4-4-1-1 Status of cloud service utilization in Japan



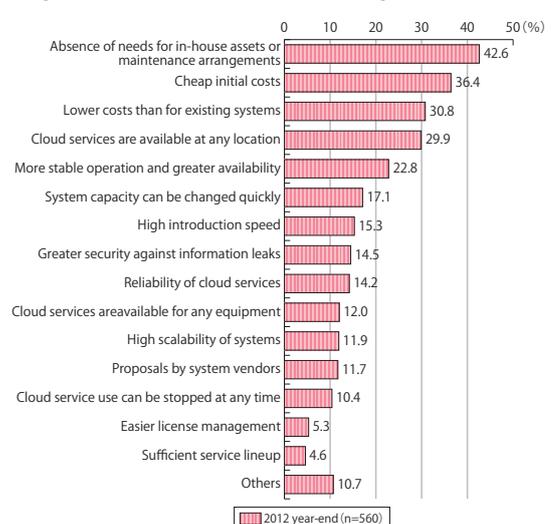
(Source) MIC "2012 Communications Usage Trend Survey"

Figure 4-4-1-2 Cloud service usage breakdown



(Source) MIC "2012 Communications Usage Trend Survey"

Figure 4-4-1-3 Reasons for introducing cloud services



(Source) Prepared from MIC "2012 Communications Usage Trend Survey"

Section 5 Telecommunications sector

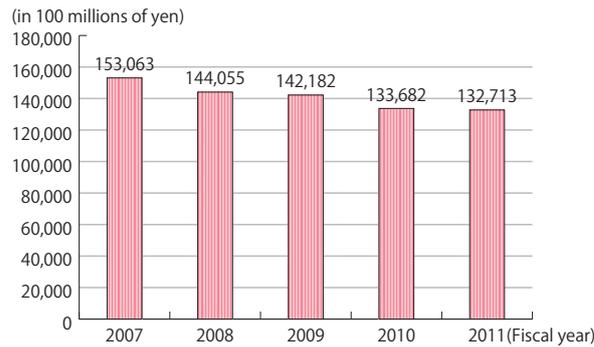
1. Telecommunications market

- Mobile communication services accounted for a majority of telecommunication sector sales with data transmission services' share rising

Sales in the telecommunications sector in FY 2011 totaled 13.2731 trillion yen (down 0.7% from the previous year) (Figure 4-5-1-1)

Fixed communications accounted for 38.2% of total sales and mobile communications (cellular phones and PHSs) for 51.1% (Figure 4-5-1-2). Of total sales, voice transmission services accounted for 43.3% and data transmission services for 46.0% (Figure 4-5-1-3).

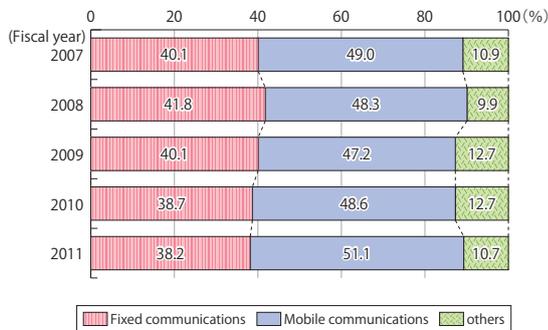
Figure 4-5-1-1 Transitions in telecommunications sector sales



* Comparisons must be made with caution, as sales represent the simple sum of figures from all responding carriers and the number of responding carriers differ from year to year.

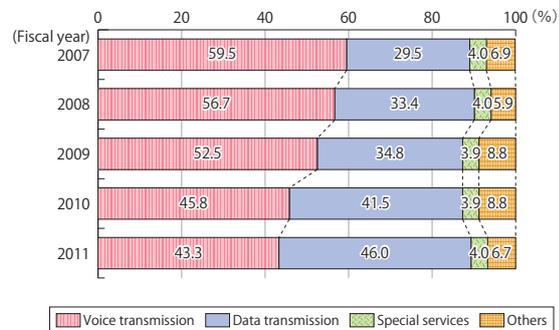
(Source) Prepared from MIC/METI "2012 Basic Survey on the ICT Industry"

Figure 4-5-1-2 Transitions in sales shares for fixed communications and mobile communications



(Source) Prepared from MIC/METI "2012 Basic Survey on the ICT Industry"

Figure 4-5-1-3 Transitions in sales breakdown by service category



(Source) Prepared from MIC/METI "2012 Basic Survey on the ICT Industry"

2. Status of telecommunications services provision

(1) Subscriptions to telecommunications services

- Subscriptions to fixed-line communications and 050-type IP phone services have tended to decline while those to mobile communications and 0ABJ-IP phone services have persistently increased

Subscriptions to fixed-line communications services (including NTT East and West services (including ISDN), non-NTT services⁶ and CATV-based telephone services) and the 050-type IP phone services have been declining, while those to mobile communications services (cellular phone and PHS services) and the 0ABJ-IP phone services have been growing steadily.

Subscriptions to mobile communications services overtook those to fixed-line communications services in FY2000 and were about 4.3 times as many as fixed-line service subscriptions at the end of FY2012 (Figure 4-5-2-1).

(2) Broadband development and utilization

- Ultra-high-speed broadband services⁷ were available for 97.3% of Japanese households at the end of March 2012

At the end of March 2012, ultra-high-speed broadband services⁷ were available for 52.35 million households or 97.3% of total Japanese households. Broadband services⁸ were available for 100% of Japan's 53.77 million households (Figure 4-5-2-2).

- Broadband service subscriptions have increased year by year, with a substantial increase seen in subscriptions to 3.9G (LTE) mobile phone services in FY2012

The number of subscriptions to broadband services⁹ at the end of FY2012 increased by 54.3% from a year earlier to 60.98 million (Figure 4-5-2-3). Of the total, the number of DSL service subscriptions declined by 19.1% to 5.42 million, indicating a downward trend. But the

⁶ Non-NTT services are provided by telecom carriers other than NTT East and West, covering direct subscriber telephone and ISDN services (subscriber telephone and ISDN services whereby carriers use their own lines without using NTT's exchange system) and new-type non-NTT telephone and ISDN services (subscriber telephone and ISDN services whereby carriers use dry copper lines leased from NTT).

⁷ Ultra-high-speed broadband services cover FTTH, CATV Internet, FWA and BWA services. (Other services than FTTH services are limited to those for downloading speeds of 30 Mbps or more). But households for which FWA and BWA services are available have been counted since the end of March 2012.

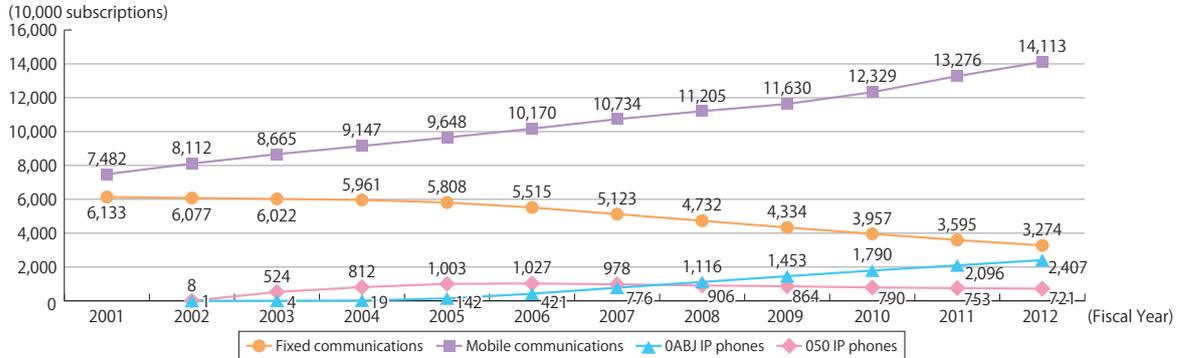
⁸ Broadband services cover FTTH, DSL, CATV Internet, FWA, satellite, BWA and 3.5G mobile phone services. But households for which 3.5G mobile phone services are available have been counted since the end of March 2011 and those for which satellite services are available have been counted since the end of March 2012.

⁹ The number of subscriptions to broadband services covers FTTH, DSL, CATV, FWA, BWA and 3.9G (LTE) mobile phone services.

number of FTTH service subscriptions increased by 7.0% to 23.86 million and that of 3.9G (LTE) mobile phone service subscriptions by about 8.9 times to 20.36

million. FTTH subscriptions accounted for 39.1% of total broadband service subscriptions and 3.9G (LTE) mobile phone service subscriptions for 33.4%.

Figure 4-5-2-1 Transitions in subscriptions to telecommunications services



Note: Subscriptions to fixed-line communications services cover NTT East and West services (including ISDN), non-NTT services and CATV-based telephone services.

Note: Subscriptions to mobile communication services cover cellular and PHS services.

Note: As for OABJ and 050-type IP phones, the numbers for FY2002 and FY2003 are based on the poll responses from telecommunications carriers, while the numbers for FY2004 and subsequent years are based on the carriers' reports submitted in accordance with the Regulations on Telecommunication Carriers' Report Submission.

Note: The numbers for the years before 2002 are estimated based on the detailed analysis.

(Source) Prepared from MIC "Status of Telecommunications Service Subscriptions" (March 31, 2013)

Figure 4-5-2-2 Broadband infrastructure development

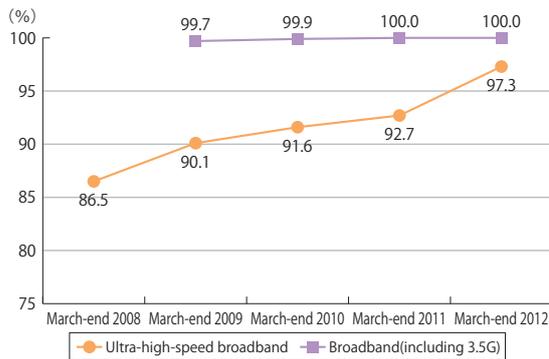
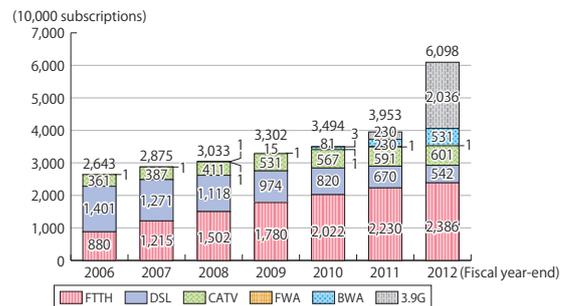


Figure 4-5-2-3 Transitions in broadband service subscriptions



(Source) Prepared from MIC "Announcement of Quarterly Data on Telecommunications Service Subscriptions and Shares (4th quarter of FY2011 (at March-end))"

Section 6 Broadcasting sector

1. Broadcasting market

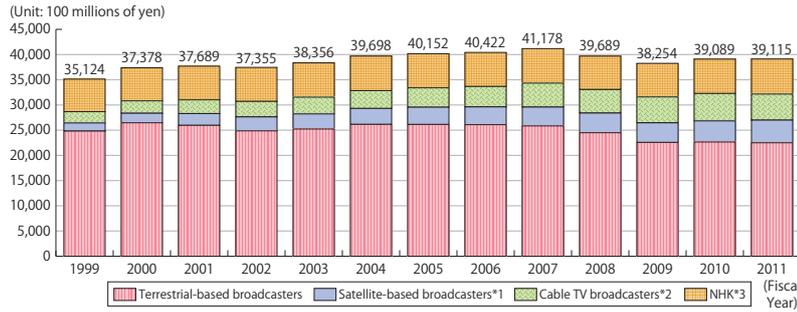
- Broadcasters' sales in FY2011 totaled 3.9115 trillion and satellite-based broadcasters' share has expanded over recent years

Japanese broadcasters are divided into two categories – Japan Broadcasting Corp., a public broadcaster known as NHK, which depends on reception fee revenues, and private broadcasters depending on advertisement or fee revenues. In addition, the Open University of Japan implements broadcasting services for educational purposes.

The entire broadcasting sector's sales including revenues from broadcasting and non-broadcasting operations in FY 2011 increased slightly (by 0.1%) from the previous year to 3.9115 trillion yen.

While terrestrial-based broadcasters accounted for 69.9% (down 0.3 percentage points from the previous year) of private broadcasters' sales, satellite-based broadcasters achieved a sales share expansion as seen in the previous year (Figure 4-6-1-1).

Figure 4-6-1-1 Transitions in the broadcasting sector's market size (total sales) and a breakdown



(Fiscal year)		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Private broadcasters	Terrestrial-based broadcasters	24,823	26,466	25,960	24,863	25,229	26,153	26,138	26,091	25,847	24,493	22,574	22,655	22,502
	(Community broadcasts included in total above)	-	125	137	139	141	140	140	144	148	150	123	116	120
	Satellite-based broadcasters*1	1,607	1,891	2,335	2,769	2,995	3,158	3,414	3,525	3,737	3,905	3,887	4,185	4,490
	Cable TV broadcasters*2	2,244	2,463	2,718	3,076	3,330	3,533	3,850	4,050	4,746	4,667	5,134	5,437	5,177
TOTAL		6,450	6,559	6,676	6,750	6,803	6,855	6,749	6,756	6,848	6,624	6,659	6,812	6,949
NHK*3		35,124	37,378	37,689	37,355	38,356	39,698	40,152	40,422	41,178	39,689	38,254	39,089	39,115

Note 1: For the satellite-based broadcasters, the numbers represent operating revenues from satellite-based broadcasting services.
 Note 2: Cable TV broadcasters are business corporations engaging mainly in cable TV broadcasting services and registered as general broadcasters conducting independent broadcasting services (general cable broadcasters) (excluding business operators who serve as general broadcasters solely by using cable TV broadcasting facilities based on Article 9 of the former Act on Cable Television Broadcasting).
 Note 3: For NHK, the number is their ordinary operating income.
 Note 4: Details for terrestrial-based broadcasters from 1997 to 1999 are not available.
 Note 5: Community broadcasting operators who provide cable TV broadcasting services are excluded.

(Source) Prepared from MIC materials and "NHK Yearbook" for each fiscal year

2. Status of broadcasting services

(1) Subscriptions

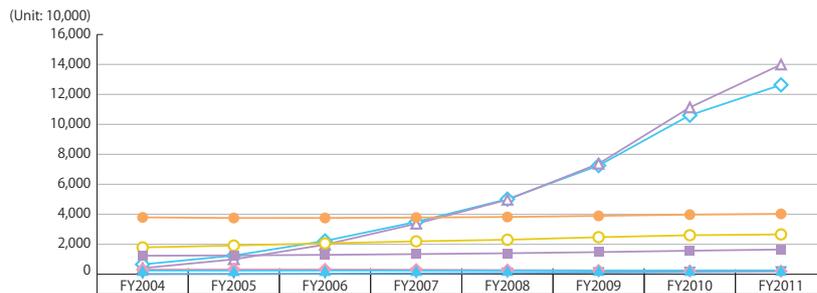
● Subscriptions to NHK terrestrial broadcasting, NHK-BS, WOWOW, 110 degree east longitude CS and cable TV services increased in FY2011
 Subscriptions to all broadcasting services, except the 124/128 degree east longitude CS (communications satellite) digital broadcast, increased in FY2011 (Figure

4-6-2-1).

(2) TV viewing hours

● TV viewing hours per day leveled off
 According to the Nationwide Individual TV Viewer-ship Rate Survey (June 2012) by the NHK Broadcasting

Figure 4-6-2-1 Subscriptions to broadcasting service



Terrestrial-based broadcasters	3,792.1	3,751.2	3,754.7	3,780.4	3,820.2	3,893.2	3,975.1	4,027.4
NHK-BS	1,235.9	1,254.3	1,292.2	1,342.3	1,399.9	1,475.2	1,567.2	1,649.6
WOWOW	246.1	238.2	243.4	243.8	247.6	249.0	251.2	254.8
124/128°East CS digital broadcasters	314.9	325.5	320.2	302.0	273.7	245.6	221.1	196.3
110°East CS digital broadcasters	16.1	23.4	35.7	55.9	83.0	112.6	140.4	173.7
Cable TV	1,788.2	1,912.8	2,061.1	2,194.4	2,300.7	2,470.6	2,601.6	2,655.6
Reference: No. of broadcast receivers shipped								
For terrestrial digital broadcasts	403.9	991.4	1,971.5	3,370.1	4,969.0	7,374.1	11,130.9	13,992.8
For BS digital broadcasts	655.3	1,242.5	2,221.1	3,492.5	5,010.0	7,254.0	10,609.0	12,637.7

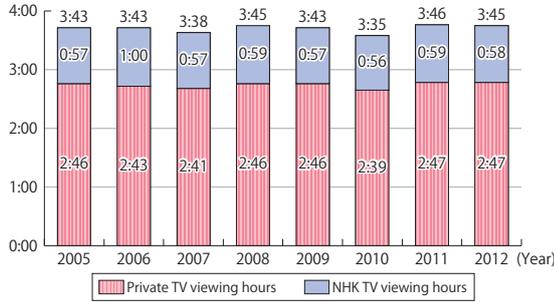
Note: The number of subscribers to NHK terrestrial broadcasting is the number of subscription contracts
 Note: The number of subscribers to NHK BS broadcasting is the number of subscription contracts.
 Note: The number of subscribers of 110 CS is the number of subscription contracts for Ska-per ! e2
 Note: The number of subscribers of 124/ 128 CS is the number of subscription contracts for Ska-per !
 Note: The number of subscribers of cable television is the sum of the numbers of subscribers of licensed broadcasting facilities (including the registered facilities according to the former Act Concerning Broadcast on Telecommunications Services, and the facilities using the same broadcasting methods as those stipulated in the former Cable Television Broadcast Act).
 Note: The number of BS digital broadcasting receiver shipments in FY2011 covers shipments for the fiscal year's first nine months to December 2011.

(Source) Prepared from data from JEITA, Japan Cable Laboratories, NHK, and MIC

Culture Research Institute, TV viewing hours per day in Japan stood at 3 hours and 45 minutes, leveling off from the previous year. NHK viewing accounted for 58 minutes (51 minutes for terrestrial-based broadcasting and

7 minutes for satellite-based broadcasting) and private TV viewing for 2 hours and 47 minutes (2 hours and 34 minutes for terrestrial-based broadcasting and 13 minutes for satellite-based broadcasting) (Figure 4-6-2-2).

Figure 4-6-2-2 Transitions in TV viewing hours per day



(Source) Prepared from the "Nationwide Individual TV Viewership Rate Survey (June 2012)" by the NHK Broadcasting Culture Research Institute

Section 7 Radio utilization

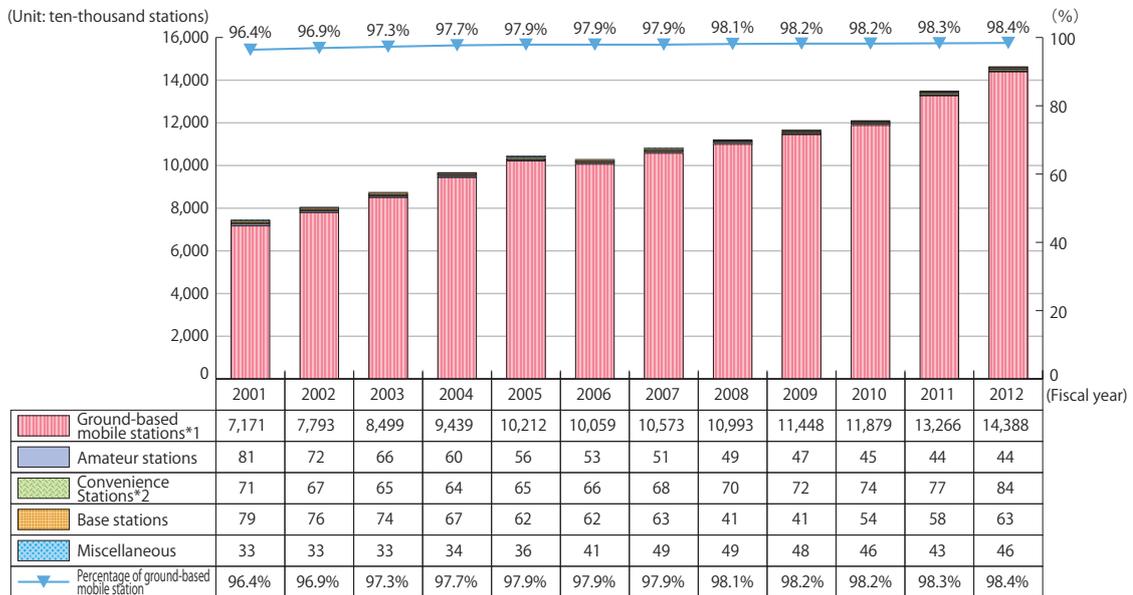
1. Status of radio utilization and the number of radio stations

- The number of radio stations in Japan has persistently increased since 2006

The number of radio stations (excluding PHS and wireless LAN terminals and other radio stations for which no license is required) at the end of FY 2012 increased by 8.4% from a year earlier to 146.23 million, in-

cluding 143.88 million land mobile stations (such as cellular phones), up 8.5%. The land mobile stations' share of the total number of radio stations was as high as 98.4%. The number of amateur stations increased by 9.1% to 840,000 (Figure 4-7-1-1).

Figure 4-7-1-1 Transitions in the number of radio stations



Note 1: A ground-based mobile station refers to a station which is operative during a displacement or in an unspecified place (ex. Mobile phones)

Note 2: A convenience station refers to a station used for convenient wireless communication.

2. Radio surveillance to exclude jamming of key radio communications, etc.

- The number of key communications interference reports came to 532 in FY2012 and the number of actions taken against illegal radio stations stood at 3,269

Since FY2010, we have operated a system to accept reports on jamming of key communications, including

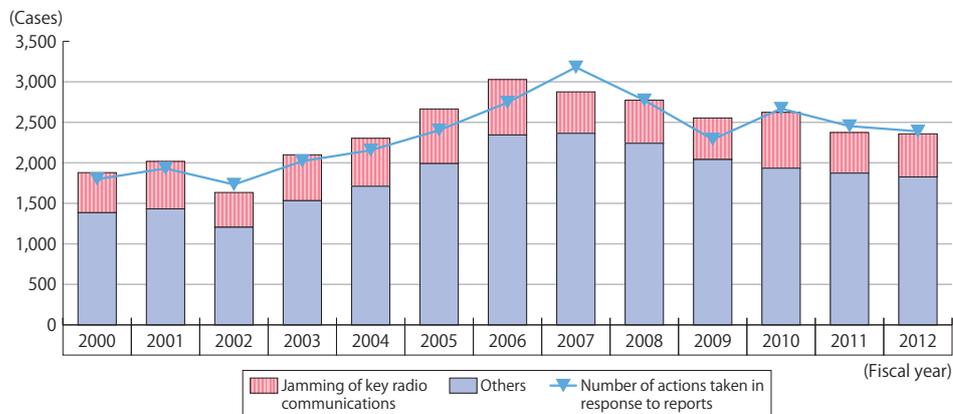
aeronautical and maritime radio, mobile phones and police/fire/emergency service radio, over 24 hours a day in an effort to promptly eliminate jamming. As for short-wave radio and cosmic radio surveillance, we operate international radio surveillance facilities registered at

the International Telecommunication Union.

In FY2012, the number of communications interference reports came to 2,358, down 16 or 0.7% from the previous year. The number included 532 reports of jam-

ming of key radio communications, up 31 or 6.2%. The number of actions¹⁰ taken in response to interference reports totaled 2,389 in FY 2012 (Figure 4-7-2-1).

Figure 4-7-2-1 Transitions in the number of radio station jamming/interference reports and the number of actions taken in response to such reports



Number of interference and jamming reports

Fiscal year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of reports	Jamming of key radio communications	494	585	429	566	592	674	684	512	532	513	689	501	532
	Others	1,385	1,432	1,205	1,533	1,711	1,991	2,344	2,364	2,241	2,041	1,934	1,873	1,826
	Total	1,879	2,017	1,634	2,099	2,303	2,665	3,028	2,876	2,773	2,554	2,623	2,374	2,358

Number of actions taken in response to reports

Fiscal year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of actions taken in response to reports	1,798	1,931	1,732	2,021	2,155	2,403	2,745	3,179	2,772	2,289	1,986	2,453	2,389

Section 8 Content market trends

1. Present status of Japan's content market

(1) Japan's content market size

- The Japanese content market's size was 11.16 trillion yen of which video software accounted for 49.3%, text software for 43.1% and voice software for 7.6%

The Japanese content market's size was 11.16 trillion yen in 2010. A breakdown of the market by software category indicates that video software accounted for about 50% of the market, text software for slightly more than 40% and voice software for slightly less than 10%¹¹.

Video software totaled 5.5026 trillion yen (49.3% of the

total market size) including 2.8094 trillion yen in terrestrial TV programs, 872.5 billion yen in satellite and CATV broadcast programs, 730.4 billion yen in game software, 625.2 billion yen movie software and 127.2 billion yen in original Internet video software. Voice software totaled 843.1 billion yen (7.6% of the total market size) including 640.9 billion yen in music software and 198.5 billion yen in radio programs. Text software totaled 4.8143 trillion yen (43.1% of the total market size) including 1.6898 trillion yen in newspaper articles,

¹⁰ The number includes actions taken in response to reports made in the previous year.

¹¹ Instead of aggregating medium-by-medium subtotals, we focused on software characteristics and aggregated software-by-software subtotals to estimate and analyze the total market size.

1.2271 trillion yen in magazine software¹², 719.3 billion yen in book software, 493.3 billion yen in comics, 391.2 billion yen in original Internet text software¹³ and 293.6 billion yen in database articles (Figure 4-8-1-1).

Japan's content market in 2011 totaled about 11.2 trillion yen, remaining almost unchanged from the previous year. By software category, the video, voice and text software markets remained almost unchanged over recent years (Figure 4-8-1-2).

(2) Communication content market trends

- The market size for communication contents for personal computers and mobile phones totaled 1.8341 trillion yen accounting for 16.4% of Japan's total content market.

The market size for communication contents for per-

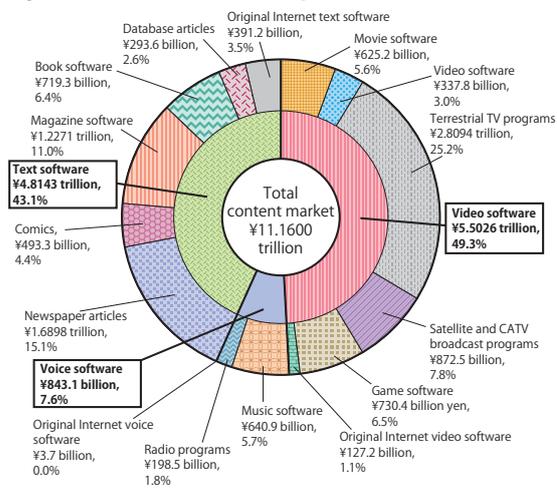
sonal computers and mobile phones in 2011 expanded by 7.1% from the previous year to 1.8341 trillion yen, accounting for 16.4% of Japan's total content market (Figure 4-8-1-3).

In the communication content market, text and voice software has leveled off, while video software has steadily increased and driven the communication content market growth (Figure 4-8-1-4).

- The market size for Japan's mobile content industry in 2012 expanded by 23.3% from the previous year to 2.3507 trillion yen

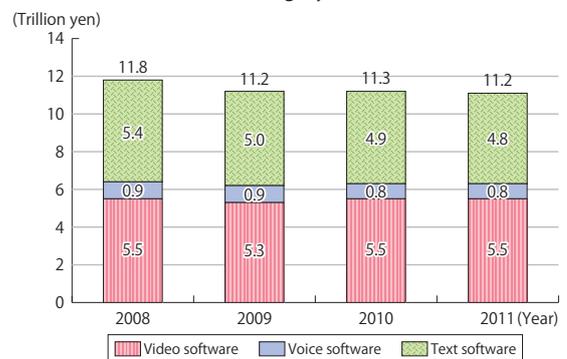
Including mobile content¹⁴ and mobile commerce markets, the market size¹⁵ for Japan's mobile content industry totaled 2.3507 trillion yen in 2012, up 23.3% from the previous year, continuing to grow (Figure 4-8-1-

Figure 4-8-1-1 Breakdown of Japan's content market (2011)



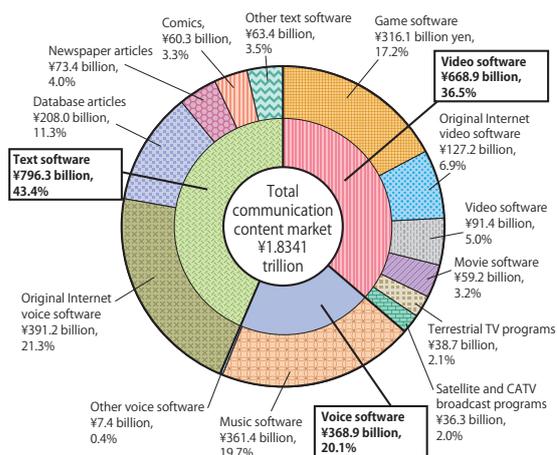
(Source) MIC Institute for Information and Communications Policy "Survey on Production and Distribution of Media Software"

Figure 4-8-1-2 Transitions in Japan's content market (by software category)



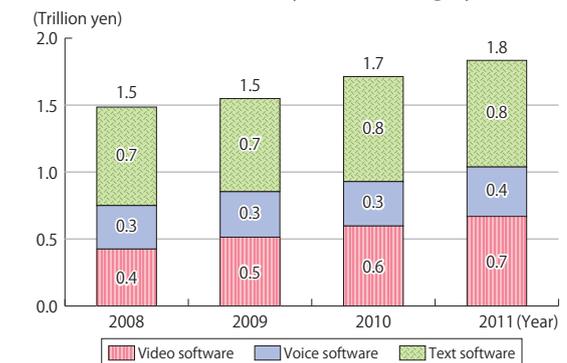
(Source) MIC Institute for Information and Communications Policy "Survey on Production and Distribution of Media Software"

Figure 4-8-1-3 Breakdown of Japan's communication content market (2011)



(Source) MIC Institute for Information and Communications Policy "Survey on Production and Distribution of Media Software"

Figure 4-8-1-4 Transitions in Japan's communication content market (by software category)



(Source) MIC Institute for Information and Communications Policy "Survey on Production and Distribution of Media Software"

¹² Including free newspapers

¹³ Including ordinary websites, blogs, SNS and email newsletters

¹⁴ In 2011, we expanded the scope of the mobile content market to cover the open platform market (including smartphones).

¹⁵ The mobile content market covers digital contents provided over mobile Internet (including ringtones, music, video, games and fortune-telling). The mobile commerce market covers goods sales (mail-order sales, etc.), service sales (ticket sales) and transactions (including stock brokerage commission, auction fee and other payments) conducted over mobile Internet.

5). Of the total, the mobile content market accounted for 851 billion yen, up 15.9% from the previous year, and the mobile commerce market for 1.4997 trillion yen, up 28.0%.

(3) Broadcast content market trends

- Information programs (including publicity programs) account for 70.2% of broadcast programs commanding the largest share among program categories

Information programs account for 70.2% (up 5.3 percentage points from the previous year) of broadcast programs, the largest share among program categories, followed by 58.0% (up 2.6 points) for commercial programs and 40.3% (up 1.8 points) for variety programs (Figure 4-8-1-6).

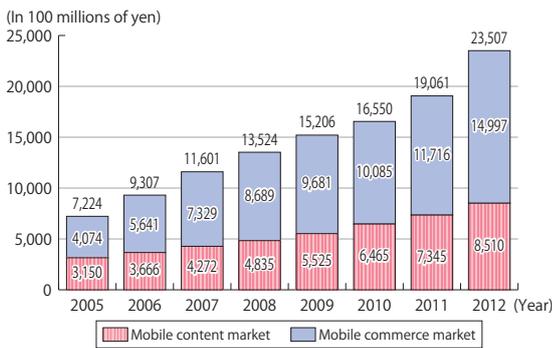
- Terrestrial TV program exports leveled off in 2011 after a downward trend

We estimated Japan's terrestrial TV program exports based on a questionnaire survey of major broadcasting

stations and program production companies. As a result, exports in FY2011 totaled 6.36 billion yen, up 110 million yen from FY2010 (Figure 4-8-1-7).

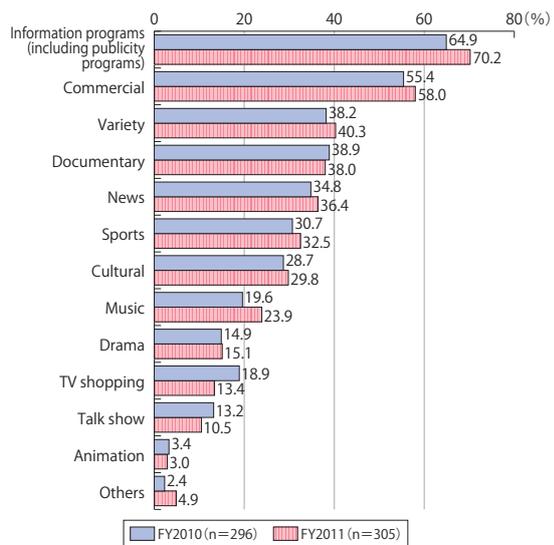
Among program categories, animation accounted for 48.8% of the exports, the largest share, followed by variety and drama programs (Figure 4-8-1-8).

Figure 4-8-1-5 Mobile content industry market size



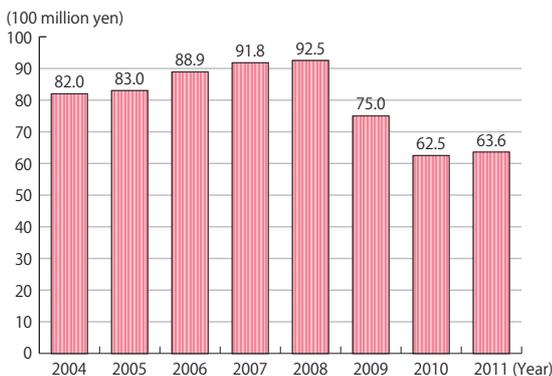
(Source) MIC "Survey Research on Mobile Content Business Structure Changes Including Smartphone Market Expansion, Copyright Treatment Changes and Mobile Content Market Size Calculation"

Figure 4-8-1-6 Breakdown of broadcast programs under production (multiple answers permitted)



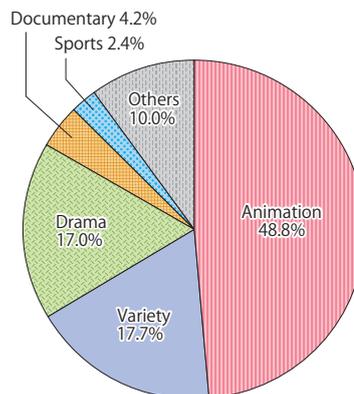
(Source) MIC/METI "2012 Basic Survey on the ICT Industry"

Figure 4-8-1-7 Japan's terrestrial TV program exports in value (estimated)



(Source) MIC Institute for Information and Communications Policy "Survey on Production and Distribution of Media Software"

Figure 4-8-1-8 Breakdown of TV program exports (in value, FY2011)



(Source) MIC Institute for Information and Communications Policy "Survey on Production and Distribution of Media Software"

Section 9 Research and development (R&D)

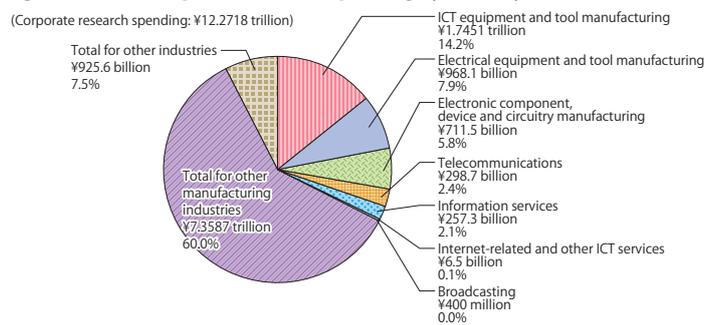
1. ICT industry research spending

- The ICT industry's research spending in FY2011 totaled 3.9875 trillion yen accounting for 32.5% of corporate research spending

According to the MIC's "2012 Research Investigation Report on Science and Technology," Japan's scientific and technological research spending (hereinafter referred to as research spending) in FY2011 stood at 17.3791 trillion yen (combining research spending at enterprises, nonprofit organizations, public agencies, universities, etc.).

Corporate research spending, which accounts for about 70% of total research spending in Japan, was 12.2718 trillion yen. The ICT industry¹⁶ spent 3.9875 trillion yen on research, capturing 32.5% of total corporate research spending. Among ICT industry sectors, the ICT equipment and tool manufacturing industry accounted for the largest share of the total ICT industry spending on research (Figure 4-9-1-1).

Figure 4-9-1-1 Corporate research spending by industry (FY 2010)



(Source) Prepared from MIC "2012 Research Investigation Report on Science and Technology"

2. Technology trading

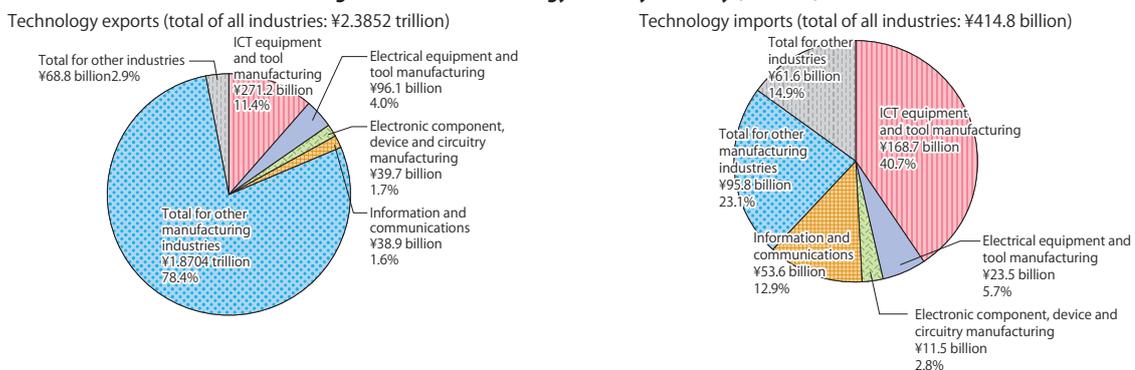
- The ICT industry's technology trade in FY2011 posted an export surplus

Of Japan's technology trade value¹⁷ in FY2011, exports in FY2011 totaled 2.3852 trillion yen, of which the ICT industry¹⁸ accounted for 446 billion yen or 18.7%. Technology imports aggregated 414.8 billion yen, of

which the ICT industry captured 257.3 billion yen or 62.0%. Thus, technology trade posted an export surplus each for the entire Japan and the ICT industry.

The ICT equipment and tool manufacturing industry accounted for the largest share of the ICT industry's technology imports and exports (Figure 4-9-2-1).

Figure 4-9-2-1 Technology trade by industry (FY 2011)



(Source) Prepared from MIC "2012 Research Investigation Report on Science and Technology"

¹⁶ ICT industry research spending indicates the total research spending by the ICT equipment and tool manufacturing industry, the electrical equipment and tool manufacturing industry, the electronic component, device and circuitry manufacturing industry and the information and communications industry (including information services, telecommunications, broadcasting and Internet-related service sectors).

¹⁷ The technology trade value indicates revenues from the provision of patents, know-how, technical guidance, etc. to foreign countries (exports) and payments for their reception from these countries (imports).

¹⁸ The ICT industry here covers the ICT equipment and tool manufacturing industry, the electrical equipment and tool manufacturing industry, the electronic component, device and circuitry manufacturing industry and the information and communications industry (including information services, telecommunications, broadcasting and Internet-related service sectors).

3. Number of researchers

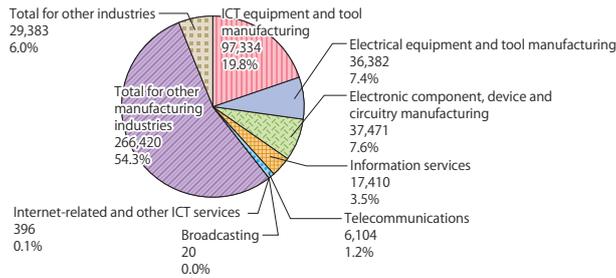
- The ICT industry accounts for 195,117 persons or 39.8% of corporate researchers in Japan

As of March 31, 2012, the number of researchers (covering researchers at enterprises, nonprofit organizations, public agencies, universities, etc.) stood at a record high of 844,430 persons, continuing to increase for the 10th straight year. Corporate researchers accounted

for 490,920 persons or about 60% of the total. The ICT industry¹⁹ captured 195,117 persons or 39.8% of the corporate researchers. Of the ICT industry researchers, the ICT equipment and tool manufacturing industry accounted for the largest share among ICT industry categories (Figure 4-9-3-1).

Figure 4-9-3-1 Corporate researchers by industry (as of March 31, 2012)

(Number of corporate researchers: 490,920)



(Source) Prepared from MIC "2012 Research Investigation Report on Science and Technology"

¹⁹ The ICT industry researchers cover those working for the ICT equipment and tool manufacturing industry, the electrical equipment and tool manufacturing industry, the electronic component, device and circuitry manufacturing industry and the information and communications industry (including information services, telecommunications, broadcasting and Internet-related service sectors).