Chapter 5

Basic Data on the ICT Field

Section 1 ICT Industry Trends

1. Economic size of the ICT industry

(1) Market size (domestic production value)

● **ICT industry market accounted for about 9.6 percent of all industries, making it the largest industry**

The ICT industry's market size in 2016 was 94.4 trillion yen (based on nominal domestic production value), accounting for 9.6 percent of all industries and making it the largest industry in the country (Figure 5-1-1-1). Looking at the industry's performance over time finds that its production value cooled off for several years after 2000 in response to the collapse of the IT bubble. The industry entered positive growth territory again starting in 2005, but its production value plummeted between 2008 and 2009 due to the global financial crisis. ICT's production value continued to slide even after 2010 until signs of recovery finally started to appear in the years after 2013. After it rose to 96.4 trillion yen in 2015, it decreased to 94.4 trillion yen in 2016 (Figure 5-1-1-2).

Looking at the transitions in market size (based on real domestic production) of the main industries in constant 2011 values reveals that the ICT industry fell down by the 2008 – 2009 global financial crisis to 91.3 trillion yen in 2012 but trended gradual upward after 2013 and recovered to 98.2 trillion yen in 2015 (Figure 5-1-1-2). The ICT industry's market size (based on real domestic production) in 2016 was 96.6 trillion yen. The industry's average annual growth rate from 2000 to 2016 was 0.7 percent.

(2) Gross domestic product (GDP)

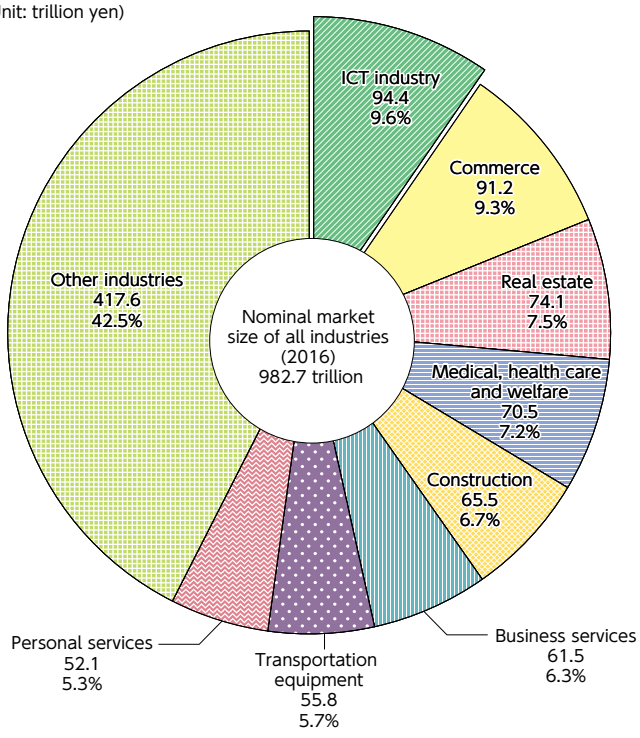
● **The real GDP of the ICT industry in 2016 is 45.4 trillion yen accounting for 9.4 percent of all industries**

The nominal GDP of the ICT industry rose in 2016 by 0.5 percent year-on-year to 43.6 trillion yen. Conversely, the real GDP of the ICT industry in constant 2011 values increased 0.3 percent year-on-year in 2016 to 45.4 trillion yen. (Figure 5-1-1-3).

Looking at the size of nominal GDP of the main industries finds that the ICT industry's nominal GDP accounts

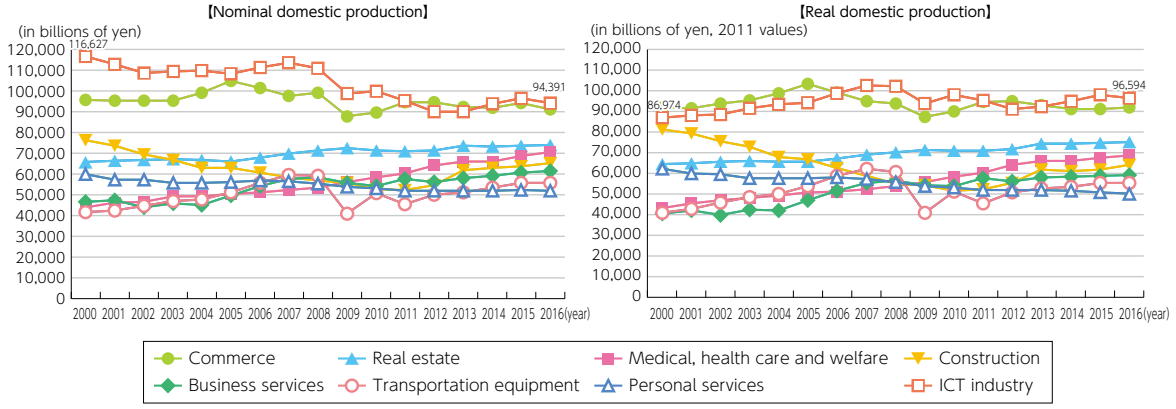
Figure 5-1-1-1 Market sizes of major industries (based on nominal domestic production) (breakdown) (2016)

(Unit: trillion yen)



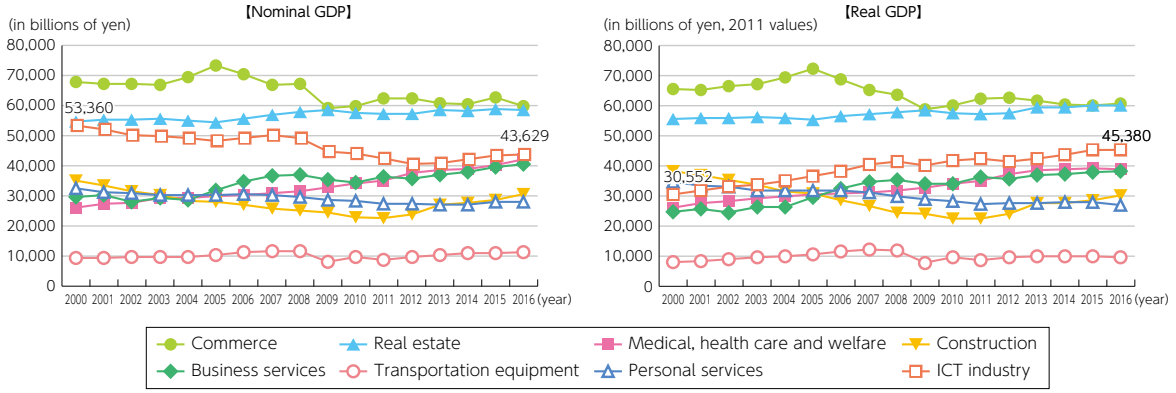
(Source) "Study on Economic Analysis of ICT," MIC (2018)

Figure 5-1-1-2 Transitions in market sizes of major industries (based on nominal domestic production and real domestic production)



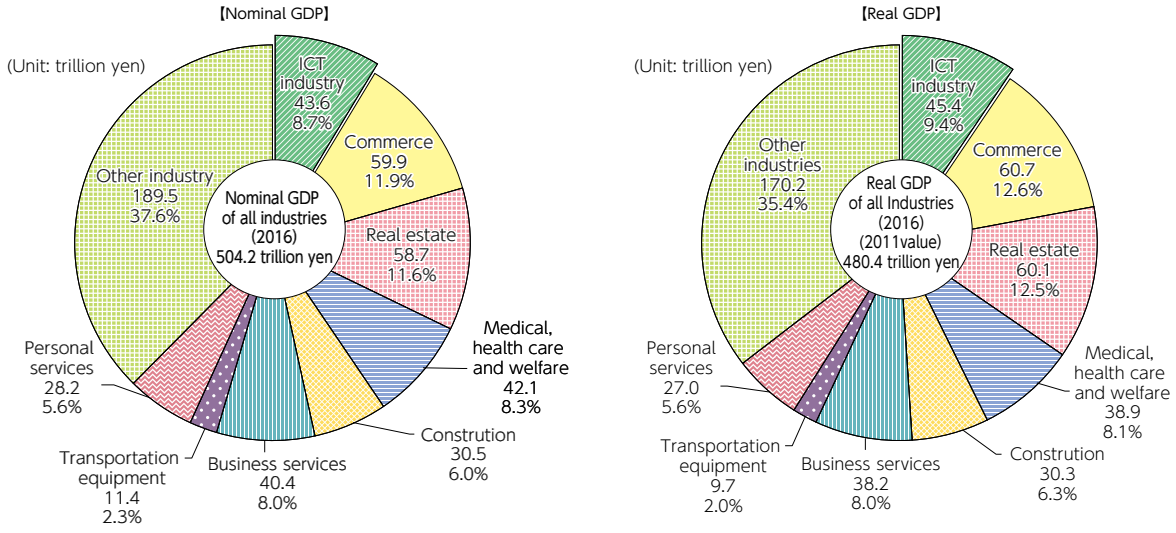
(Source) "Study on Economic Analysis of ICT," MIC (2018)

Figure 5-1-1-3 Transitions in the nominal GDP and real GDP of major industries



(Source) "Study on Economic Analysis of ICT," MIC (2018)

Figure 5-1-1-4 Nominal GDP and real GDP of major industries



(Source) "Study on Economic Analysis of ICT," MIC (2018)

for 8.7 percent of the combined nominal GDPs of all industries and is the third largest after the 'commerce' and 'real estate' industry. The growth rate of the ICT industry in terms of nominal GDP bounded to plus 0.5 percent over 2015 and 2016. Examining the real GDPs of the main industries finds that the ICT industry's real GDP in 2016 accounts for 9.4 percent of all industries, making it the third largest industries following 'commerce' and 'real estate' industries (Figure 5-1-1-4).

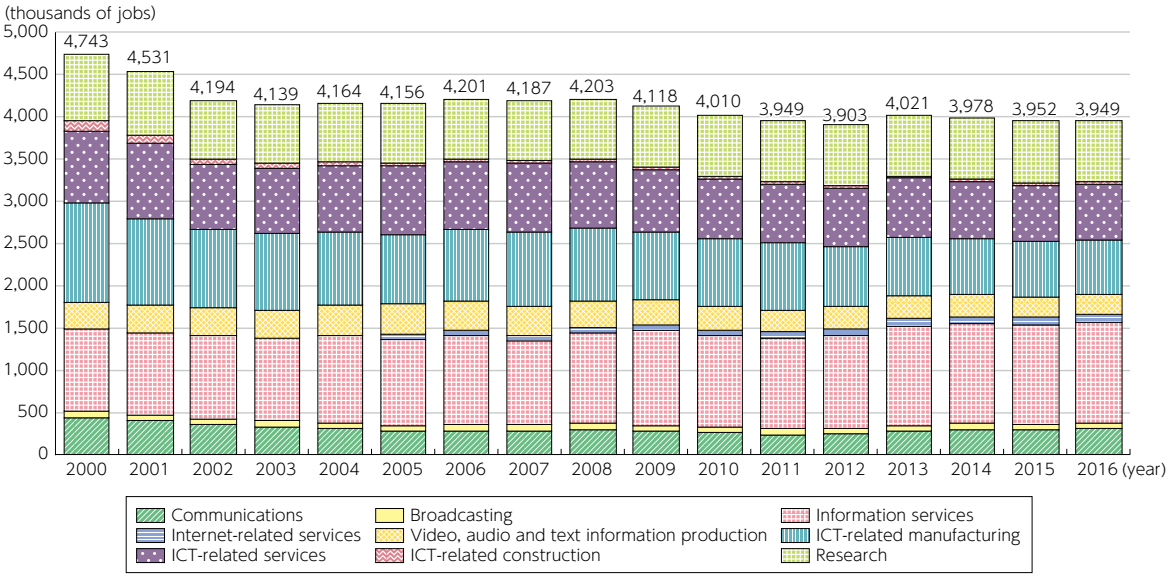
(3) Employment

● **ICT industry employment totaled 3.949 million in 2016 accounting for 5.8 percent of total employment in all industries**

The ICT industry employed 3.949 million people in 2016 (down 0.1 percent from the previous year), accounting for 5.8 percent of total employment in all indus-

tries. Employment increased by 5.7 percent from 2015 in the communications sector, by 1.0 percent in the information services sector, and by 5.8 percent in the Internet-related services sector. However, employment in other sectors in the ICT industry decreased respectively (Figure 5-1-1-5).

Figure 5-1-1-5 Transitions of employment in ICT industry



(Source) "Study on Economic Analysis of ICT," MIC (2018)

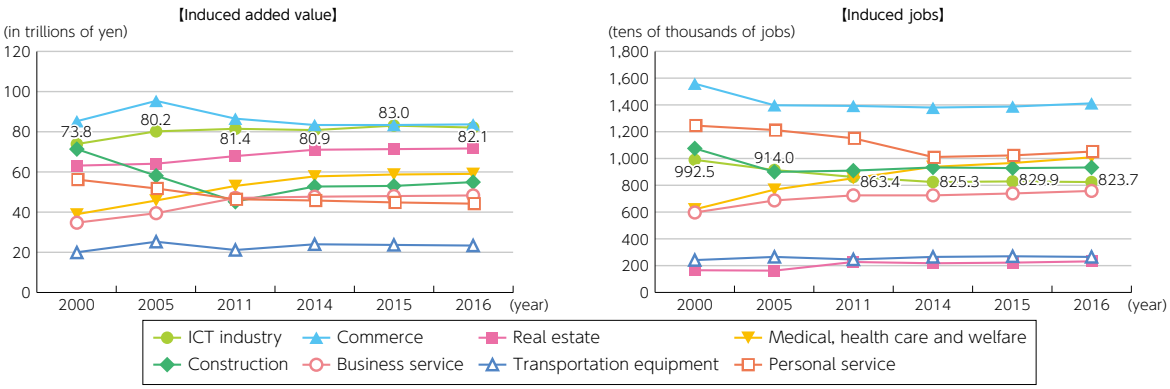
2. ICT industry contributions to the national economy

(1) ICT industry's economic spillover effects

● The ICT industry contributes to large economic spillover effects of all industries in terms of added value

The ICT industry's real domestic production in 2016 was 96.6 trillion yen. The industry's economic spillover effects,[22] were estimated to be 82.1 trillion yen in induced added value and 8.237 million in induced jobs. By comparison, in 2000 the ICT industry's real domestic production value was 87 trillion yen, which contributed 73.8 trillion yen in induced added value and 9.925 million in induced jobs. Since technological innovation has a large impact on the ICT industry, the industry is believed to be a stronger driver of added value than employment (Figure 5-1-2-1).

Figure 5-1-2-1 Transitions in economic spillover effects (induced added value and jobs) from major industries' production activities



(Source) "Study on Economic Analysis of ICT," MIC (2018)

[22] There are two methods of calculating economic spillover effects: (1) calculating the economic spillover effects for all Japan's industries brought about by each industry sector's final demand, focusing on the goods and services that constitute the industry sector's final demand and (2) calculating the economic spillover effects for all Japan's industries brought about by each industry sector's production activities (total of final demand and intermediate demand), focusing on the industry sector itself. The latter method was used here.

3. Research and development in the ICT field

(1) Research and development spending

● **The ICT industry[23] spent 3.6715 trillion yen on research in FY 2016, accounting for 27.6 percent of all corporate research spending**

According to the "2017 Research Investigation Report on Science and Technology", Japan's total scientific and technological research spending (i.e., research spending) in FY 2016 stood at 18.4326 trillion yen (the combined research spending by enterprises, nonprofit organizations, public agencies, universities, etc.).

Corporate research spending, which accounts for about 70 percent of all research spending, was 13.3183 trillion yen. Of this amount, 3.6715 trillion yen (27.6 percent) was spent on research by the ICT industry. The ICT equipment and appliance manufacturing segment was the largest research spender in the ICT industry (Figure 5-1-3-1).

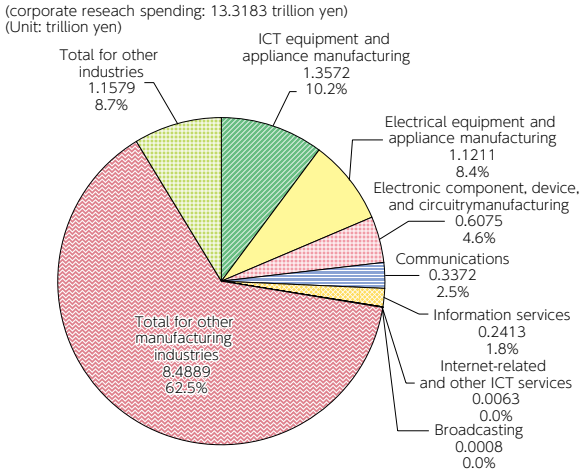
(2) Technology trading

● **The ICT industry posted a surplus in technology exports[24] in FY 2016**

The value received from Japan's technology exports in FY 2016 totaled 3.5719 trillion yen, to which the ICT industry contributed 467.1 billion yen, or 13.1 percent. On the other side, the costs of technology imports was 452.9 billion yen, of which the ICT industry paid out 178.8 billion yen, or 39.5 percent. Both total and the ICT industry posted export surpluses in technology trading.

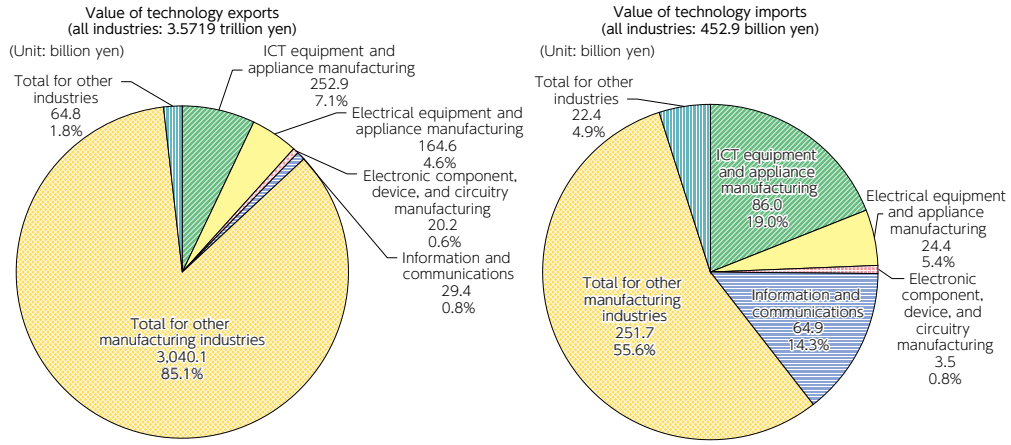
The ICT equipment and appliance manufacturing segment accounted for the largest share of the ICT industry's technology imports and exports (Figure 5-1-3-2).

Figure 5-1-3-1 Breakdown of corporate research spending by industry (FY 2016)



(Source) Prepared from the "2017 Research Investigation Report on Science and Technology," MIC

Figure 5-1-3-2 Technology trading by industry (FY 2016)



(Source) Prepared from the "2017 Research Investigation Report on Science and Technology," MIC

[23] ICT industry here refers to the ICT equipment and appliance manufacturing segment, the electrical equipment and appliance manufacturing segment, the electronic component, device, and circuitry manufacturing segment, and the information and communications segment (including the information services, communications, broadcasting, Internet-related services, and other ICT sectors).

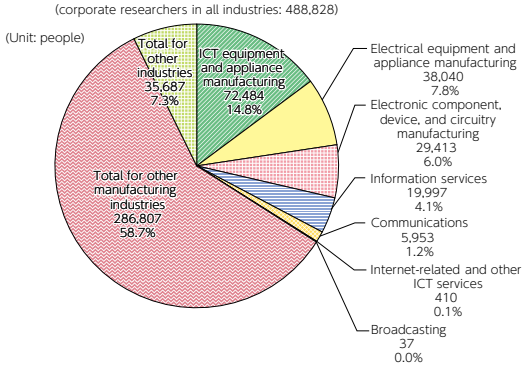
[24] The value of technology trade is the equivalent value received from the provision (export) of patents, knowledge, technical direction, and other forms of technology transfers to other countries or the equivalent value paid the reception (import) of the same forms of technology transfers from other countries.

(3) Number of researchers

● **The ICT industry employed 166,334 researchers, or 34.0 percent of all corporate researchers in Japan**

There were 853,704 researchers in Japan on March 31, 2017 (the total of all researchers at enterprises, nonprofit organizations, public agencies, universities, etc.). Enterprises employed 488,828 researchers, or about 60 percent of the total. The ICT industry employed 166,334 researchers, or 34.0 percent of all corporate researchers in Japan. The ICT equipment and appliance manufacturing segment had the most researchers of any ICT industry sector (Figure 5-1-3-3).

Figure 5-1-3-3 Corporate researchers by industry (as of March 31, 2017)



(Source) Prepared from the "2017 Research Investigation Report on Science and Technology," MIC

4. State of ICT enterprise operations

The Basic Survey on the Information and Communications Industry is a general statistical survey (started in 2010) that MIC and the Ministry of Economy, Trade and Industry jointly conduct under the Statistics Act (Law No. 53 of 2007) to clarify the operations of enterprises belonging to the ICT industry — a Large Category G in the Japan Standard Industry Classification — and to obtain basic data for ICT industry policies. The following sections provide an overview of the 2017 survey that pertains to enterprises operations.

(1) Summary of enterprises engaging in ICT business operations (activity-base results)

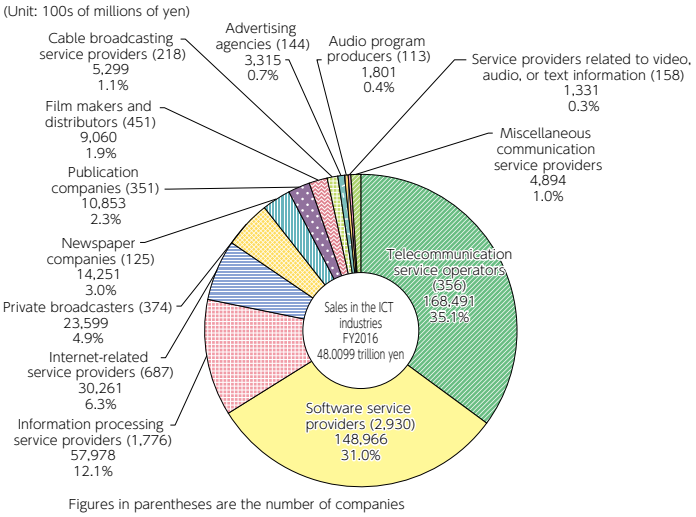
a. General summary of the survey results

● **5,519 enterprises were engaged in ICT business operations with sales in excess of 48 trillion yen**

Sales attributed to ICT business operations in FY 2016 totaled 48.0099 trillion yen (total sales by all enterprises were 71.9756 trillion yen). By sector, the telecommunications sector accounted for 35.1 percent of all sales (up 0.5 percentage points from the previous year), the software sector 31.0 percent (down 0.5 points), and the information processing services sector 12.1 percent (up 0.4 points) (Figure 5-1-4-1).

The number of enterprises engaging in ICT business

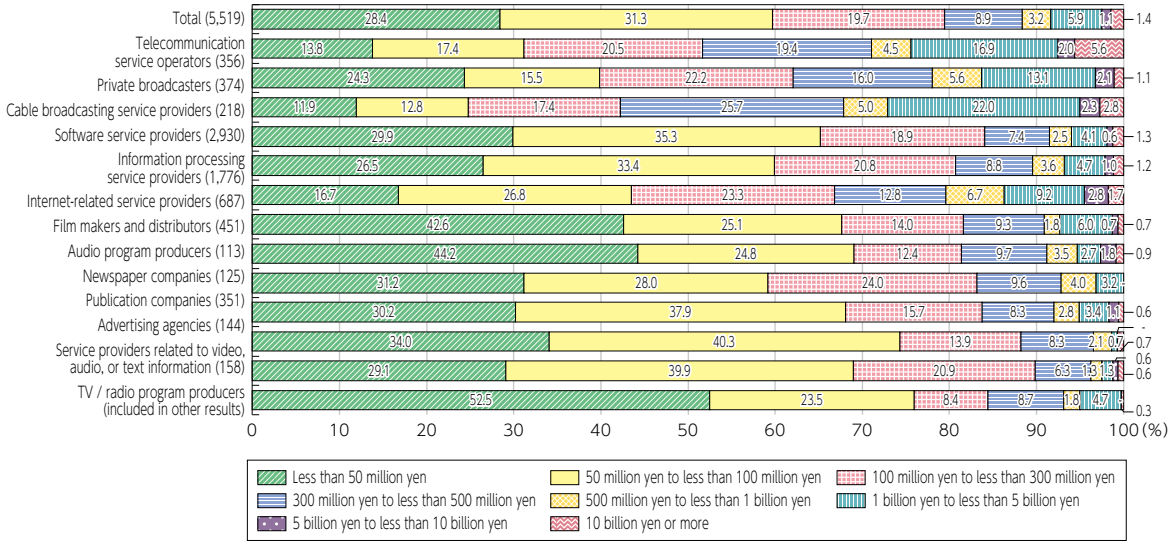
Figure 5-1-4-1 ICT industry sales



(Note) "Miscellaneous communication service providers" refers to enterprises that selected "other" as the primary business in the breakdown of sales attributable to ICT business operations.

(Source) "2017 Basic Survey on the Information and Communications Industry," MIC / METI

Figure 5-1-4-2 Breakdown of ICT industry enterprises by capital size



(Source) "2017 Basic Survey on the Information and Communications Industry," MIC / METI

operations (irrespective of whether ICT business operations are the enterprise's mainstay operations) stood at 5,519. Operating profits were 6.1015 trillion yen, ordinary income was 6.4894 trillion yen, and the enterprises held 10,842 subsidiaries and associated companies.

b. Breakdown of sales

● **Enterprises capitalized at less than 100 million yen accounted for more than 50 percent of all enterprises in 8 of the 12 ICT industry sectors**

A breakdown of ICT industry enterprises by capital size discovers that enterprises capitalized at less than 100 million yen accounted for more than 50 percent of all enterprises in 8 of the 12 ICT industry sectors. Of particular note is the video information production and distribution sector and the audio information production sector, where enterprises capitalized at less than 50 million yen accounted for more than 40 percent of all enterprises in the respective sectors (Figure 5-1-4-2).

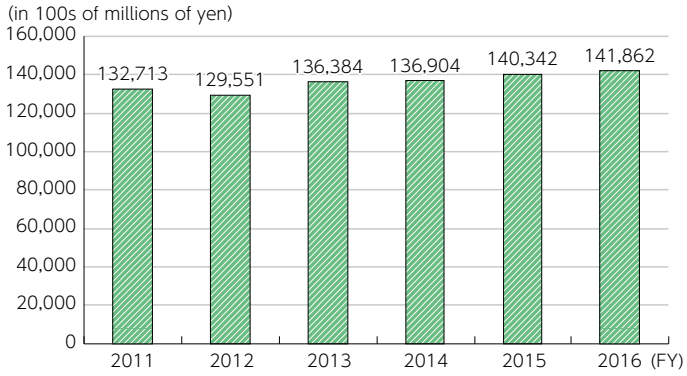
5. Telecommunication market trends

(1) Market size

● **Mobile communications accounted for more than 50 percent of sales in the telecommunications sector, while, by service category, the data transmission services' share is increasing year by year**

Sales in the telecommunications sector in FY 2016 were 14.1862 trillion yen (an increase of 1.1 percent from the previous year) (Figure 5-1-5-1). Fixed-line communications accounted for 31.4 percent of all sales in FY 2016, and mobile communications for 51.4 percent (Figure 5-1-5-2). Looking at sales by service category finds voice transmission services accounted for 26.1 percent and data transmission services for 56.8 percent (Figure 5-1-5-3). The average revenue per user (ARPU) among the main mobile communication service providers was 4,680 yen for NTT docomo, 6,500 yen for KDDI, and 4,350 yen for SoftBank (Figure 5-1-5-4).

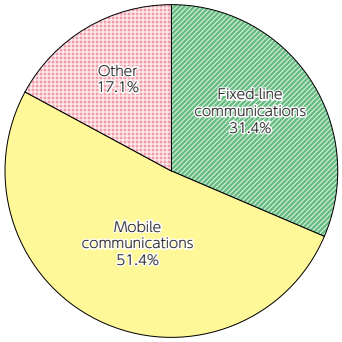
Figure 5-1-5-1 Transitions in telecommunications sector sales



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

(Source) Prepared from "2017 Basic Survey on the Information and Communications Industry," MIC / METI

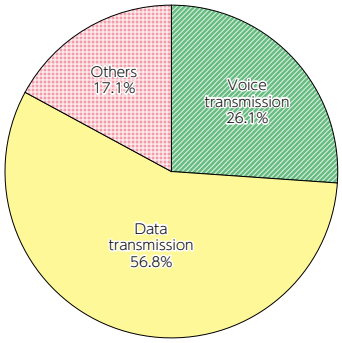
Figure 5-1-5-2 Telecom carriers' sales breakdown by fixed-line communications and mobile communications



(Note) Calculating excluding sales breakdown "Unknown"

(Source) Prepared from "2017 Basic Survey on the Information and Communications Industry," MIC / METI

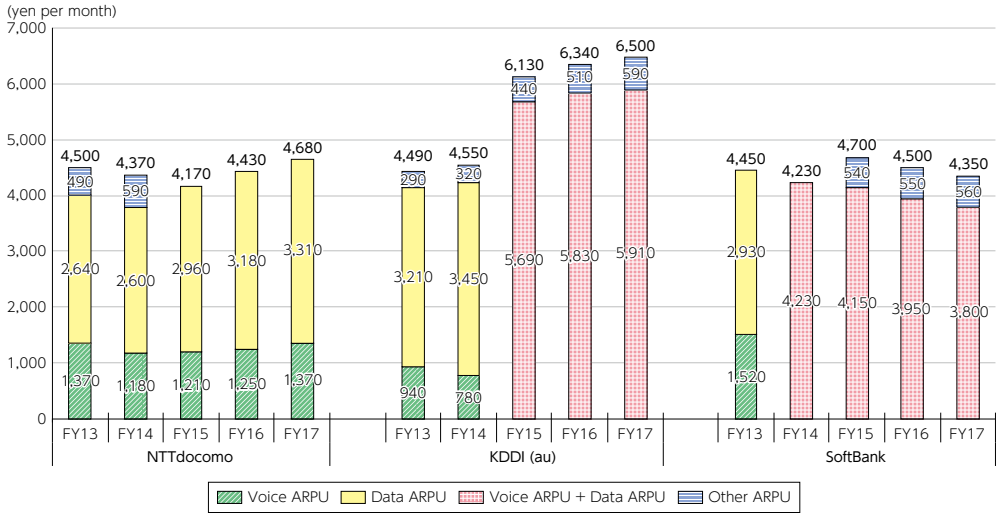
Figure 5-1-5-3 Telecom carriers' sales breakdown by voice transmission and data transmission



(Note) Calculating excluding sales breakdown "Unknown"

(Source) Prepared from "2017 Basic Survey on the Information and Communications Industry," MIC / METI

Figure 5-1-5-4 Transitions in mobile ARPU in the past five years for 3 domestic mobile operators



(Notes) *Each company's ARPU is calculated and released based on the respective company's criteria. The figures were not calculated using the same method.

*Due to rounding, the total of individual ARPU figures may not equal the total ARPU figures.

*NTT docomo includes Smart ARPU, KDDI includes value added ARPU, and SoftBank includes service ARPU.

*The ARPU figures for KDDI after FY 2012 were taken from au Communications ARPU under the personal segment. Applied discount amounts were subtracted from the voice ARPU.

*SoftBank ARPU figures included communication modules until FY 2011.

*SoftBank Mobile took over SoftBank BB, SoftBank Telecom, and Y!Mobile on April 1, 2015 (name changed to SoftBank on July 1, 2015).

*NTT docomo's and KDDI's ARPU in FY15 are monthly sales per user.

(Source) Prepared from financial statements from each company

6. Broadcasting market trends

(1) Size of the broadcasting market

a. Broadcaster sales

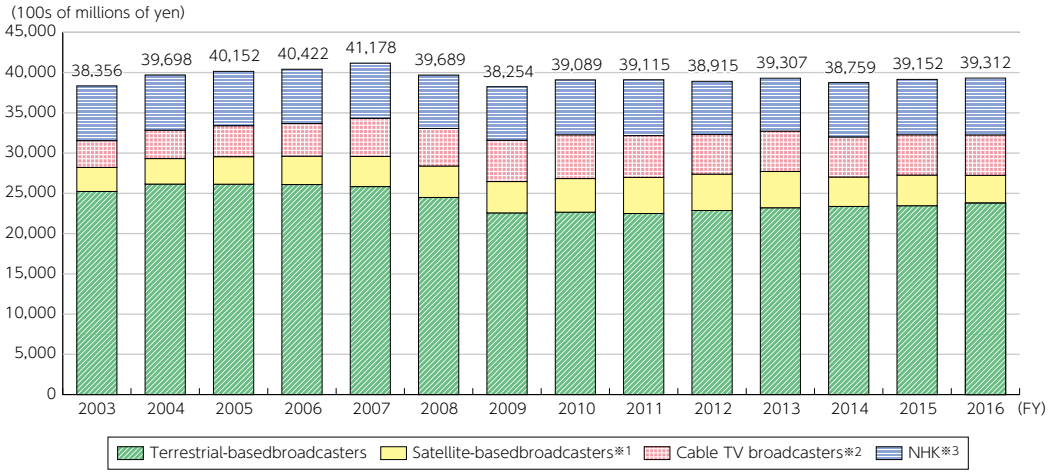
● **Broadcaster sales totaled 3. 9312 trillion yen in FY 2016**

Japanese broadcasters are divided into 2 categories: Japan Broadcasting Corp., a public broadcaster known as NHK, which depends on reception fee revenues, and private broadcasters that depend on advertisements or paid programming. Apart from these categories, the Open University of Japan provides broadcasting services for educational purposes.

The entire broadcasting sector's sales, including revenues from broadcasting and non-broadcasting operations, increased since FY 2015 and to 3.9312 trillion yen (by 0.4 percent up from the previous year) in FY2016. By category, terrestrial-based private broadcasters' sales were 2. 3773 trillion yen (up 1.3 percent from the previous year), satellite-based private broadcasters' sales were 346.3 billion yen (down 9.1 percent from the previous year), cable TV broadcasters' sales were 503.1 billion yen (up 0.6 percent from the previous year), and NHK's ordinary operating income was 704.5 billion yen (up 2.4 percent from the previous year).

In terms of market share, terrestrial-based private broadcasters accounted for 73.7 percent (up 1.0 percentage points from the previous year) of private broadcasters' sales. (Figure 5-1-6-1).

Figure 5-1-6-1 Transitions in and breakdown of the broadcasting sector market size (total sales)



fiscal year		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
private broadcaster	Terrestrial-based broadcasters	25,229	26,153	26,138	26,091	25,847	24,493	22,574	22,655	22,502	22,870	23,216	23,375	23,461	23,773
	(Community broadcasters included in total above※4)	141	140	140	144	148	150	123	116	120	115	124	127	126	136
	Satellite-based broadcasters※1	2,995	3,158	3,414	3,525	3,737	3,905	3,887	4,185	4,490	4,510	4,491	3,661	3,809	3,463
	Cable TV broadcasters※2	3,330	3,533	3,850	4,050	4,746	4,667	5,134	5,437	5,177	4,931	5,030	4,975	5,003	5,031
NHK※3		6,803	6,855	6,749	6,756	6,848	6,624	6,659	6,812	6,946	6,604	6,570	6,748	6,879	7,045
total		38,356	39,698	40,152	40,422	41,178	39,689	38,254	39,089	39,115	38,915	39,307	38,759	39,152	39,312

(※1) Figures for satellite-based broadcasters represent operating revenues from satellite-based broadcasting services.

(※2) Cable TV broadcasters until FY 2010 were business enterprises providing independent broadcasting services with facilities licensed under the former licensing scheme under the former Act on Cable Television Broadcasting. (Note that facilities registered under the former Act on Broadcast on Telecommunications Services included those that use the same broadcasting method as facilities licensed under the former licensing scheme). From FY 2011 on, cable TV broadcasters were registered general broadcasting enterprises with wired telecommunication facilities providing independent broadcasting services. (Both exclude business operators using IP multicasts.)

(※3) Figures for NHK represent ordinary operating income.

(※4) Community broadcasting operators that also provide cable TV broadcasting services are excluded.

(Source) Prepared from MIC materials and the "NHK financial statements" for each fiscal year

7. Content market trends

(1) Size of Japan's content market

● **The Japanese content market was valued at 11.6986 trillion yen, over 50 percent of which was attributable to video content, less than 40 percent to text-based content, and less than 10 percent to audio-based content**

The Japanese content market was valued at 11.6986 trillion yen in 2016. By content segment, video content accounted for 55.7 percent of the market, text-based content, 37.3 percent, and audio-based content, 7.0 percent.[25] (Figure 5-1-7-1).

The overall size of the content market has been in-

[25] The market size was measured and analyzed by assessing the primary nature of the content works and recalculating the value at each distribution level, such as primary distribution or multiuse. The value of content was not calculated by media channel.

creasing since 2012. The size of each content segment as well stayed flat by 2012, after 2013 the video content segment expanded while the text-based content segment contracted (Figure 5-1-7-2).

(2) Trends in the online content market

● **The market for online content, which is via the Internet to computers or mobile phones, was 3.2904 trillion yen, accounting for 28.1 percent of the entire content market**

As part of the overall content market, the market for online content, which is via the Internet to computers or mobile phones, reached 3.2904 trillion yen, which exceeded 3 trillion yen for the first time. By content segment, the video content segment accounted for 58.6 percent of the online content market, the text-based content segment, 29.8 percent, and the audio-based content segment, 11.6 percent. (Figure 5-1-7-3).

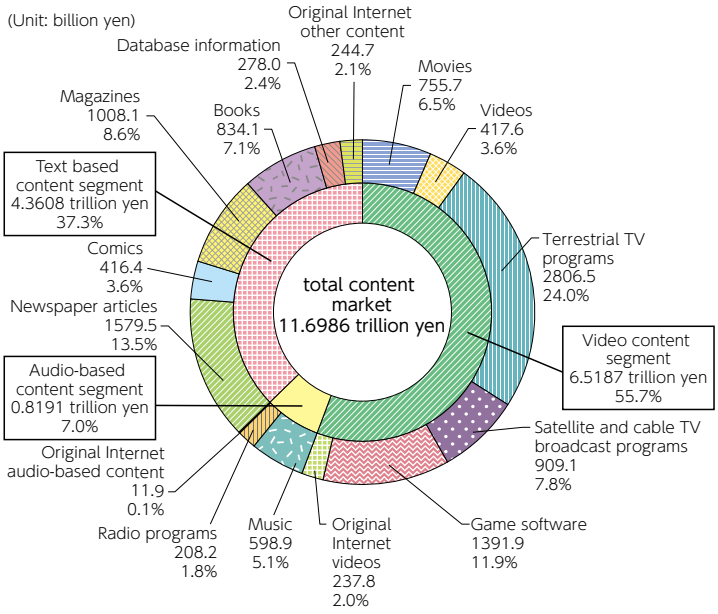
The online content market has been growing steadily since 2012. The market by content segment shows that the video content segment, which more than doubled from 2012 to 2016 in particular due to the hot game software portion increase, has been driving the online content's market expansion (Figure 5-1-7-4).

(3) Trends in the broadcast content market

● **Export value of Japanese broadcast content was 39.35 billion yen in FY 2016**

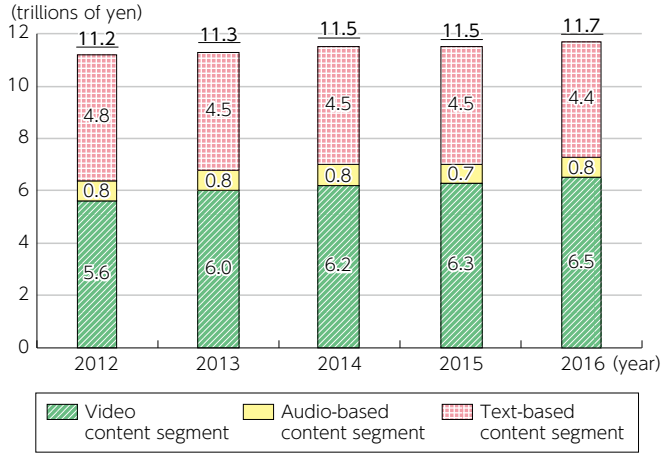
The export value of Japanese broadcast content in FY 2016 was 39.35 billion yen (Figure 5-1-7-5). Looking at the composition of the export value of Japanese broadcast content, 'program broadcast rights' (31.4%) and 'merchandising rights' (32.7%) accounts for the majority, and 'Internet distribution rights' (26.9%) is the next. 'Format and restaging rights' (5.3%) holds a certain

Figure 5-1-7-1 Breakdown of Japan's content market (2016)



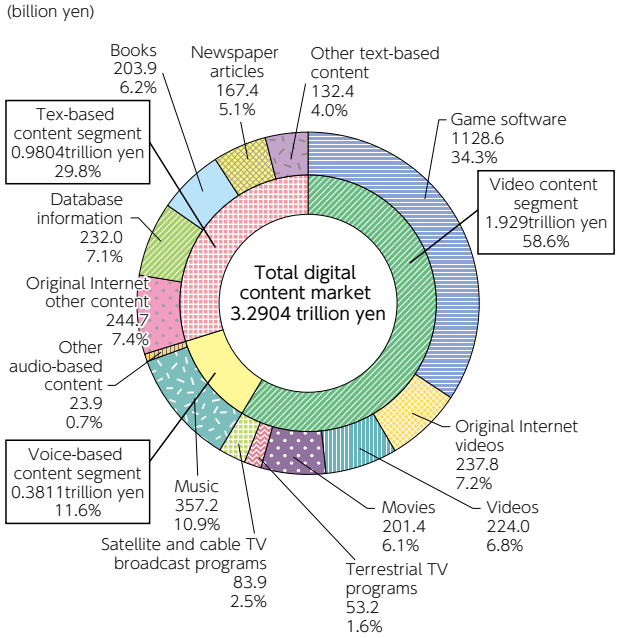
(Source) "Survey on the Production and Distribution of Media Content," Institute for Information and Communications Policy, MIC

Figure 5-1-7-2 Transitions in Japan's content market size (by content segment)



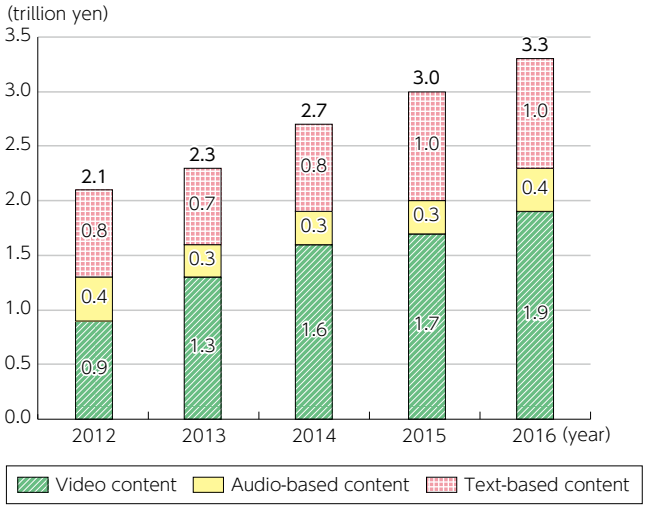
(Source) "Survey on the Production and Distribution of Media Content," Institute for Information and Communications Policy, MIC

Figure 5-1-7-3 Breakdown of the online content market (2016)



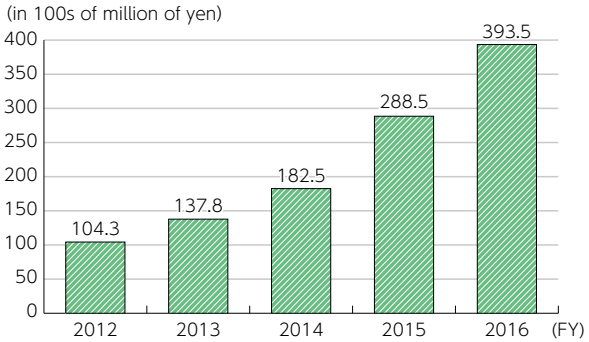
(Source) "Survey on the Production and Distribution of Media Content," Institute for Information and Communications Policy, MIC

Figure 5-1-7-4 Transitions in the online content market size (by content segment)



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

Figure 5-1-7-5 Export value of Japanese broadcast content



(Notes) *Export value of broadcast content: total export value of program broadcast rights, Internet distribution rights, video and DVD rights, format and restaging rights, merchandising rights, and similar rights.
*Calculated based on the questionnaire responses by NHK, main commercial broadcast stations, production, sub-main commercial broadcast stations in Osaka, local stations and satellite broadcasting stations.
*Calculation of FY 2016 was changed in that survey sheet questionnaire was changed from the FY 2015 survey and calculated by including digital gaming rights in merchandising rights.

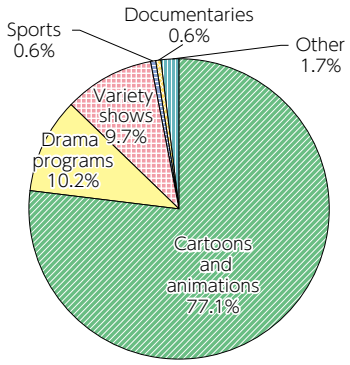
(Source) "Survey on the State of Overseas Expansion of Broadcast Content (FY 2016)," MIC

scale. Looking at the value of the export of Japanese broadcast content by entity, 49.0% is by "NHK and main commercial broadcast stations", "production etc." is 45.2%, "sub-main commercial broadcast stations in Osaka" is 5.2%, "local stations" is 0.5% and "satellite broadcasting stations" is 0.3%. In the export value of program selling rights (total of program broadcast rights, Internet distribution rights and video and DVD rights), ratio of "production" is lower.

● **Cartoons and animations account for over 80 percent of export value by program category, followed by drama programs and variety shows, and Asia accounts for nearly 60 percent of exports, followed by North America and Europe**

Looking at the broadcast content export value by program category finds 'cartoons and animations' account for nearly 80 percent of total, 'drama programs', 10.2 percent, and 'variety shows', 9.7 percent, followed by 'documentaries' (0.6%) and 'sports programs' (0.6%) (Figure 5-1-7-6). The largest export market for broadcast content was Asia, at 58.7 percent of the total, followed by North America at 27.2 percent, Europe at 8.0 percent, and South and Central America (1.6%). Diverse export destinations for Japanese broadcast content are developing, particularly in Asia.

Figure 5-1-7-6 Export value of Japanese broadcast content by program category



(Source) "Survey on the State of Overseas Expansion of Broadcast Content (FY 2016)," MIC

Section 2 ICT Service Usage Trends

1. Internet usage trends

(1) State of ICT device ownership

a. State of major ICT device ownership (households)

● **Ownership of smartphones exceeds that of computers**

The household ICT device ownership rate of 2017 was 94.8 percent for 'mobile terminals[26]' and 72.5 percent for 'computers'. The rate for 'smartphones', which are included in 'mobile terminals' category, increased to 75.1 percent (up 3.3 percentage points from a year earlier), exceeding the households ownership rates of "computers" (Figure 5-2-1-1).

(2) State of Internet usage

a. Internet usage rate (personal)

● **The usage of Internet via smartphone exceeds the usage via computers**

The Internet usage rate (personal) was 80.9 percent (Figure 5-2-1-2). Those using smartphones to access the Internet accounted for 59.7 percent of all Internet users, which is the highest and exceeded 52.5 percent for computers (Figure 5-2-1-3).

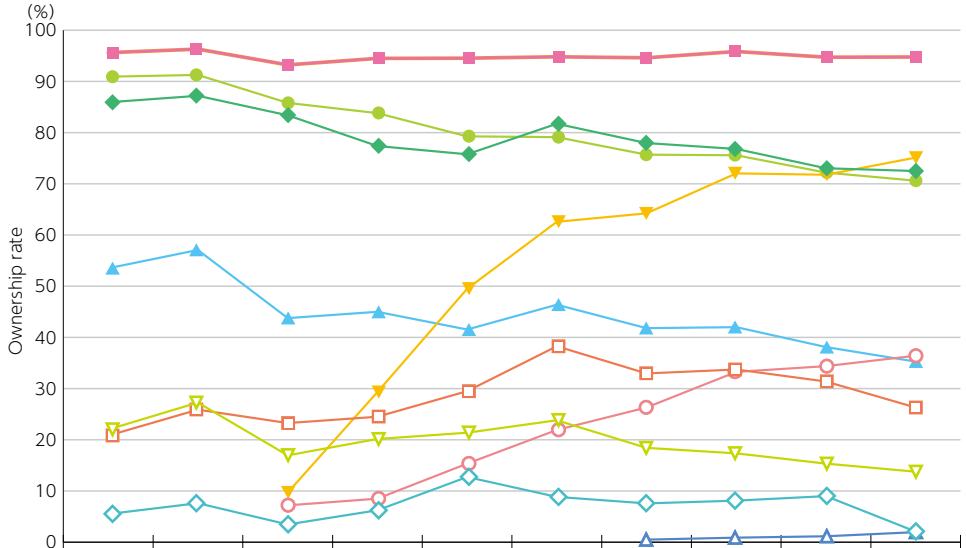
b. Purposes of using the Internet

● **"Sending and receiving emails" was the most common purpose of using the Internet**

While among all age groups, the most common purpose of using the Internet was "sending and receiving emails", the number of users varies by age groups for "using social media," and "using video posting / sharing sites" (Figure 5-2-1-4).

[26] The figures for "mobile terminals" includes mobile phones and PHS handsets, and personal digital assistants, or PDAs from 2009 to 2012 and smartphones since 2010.

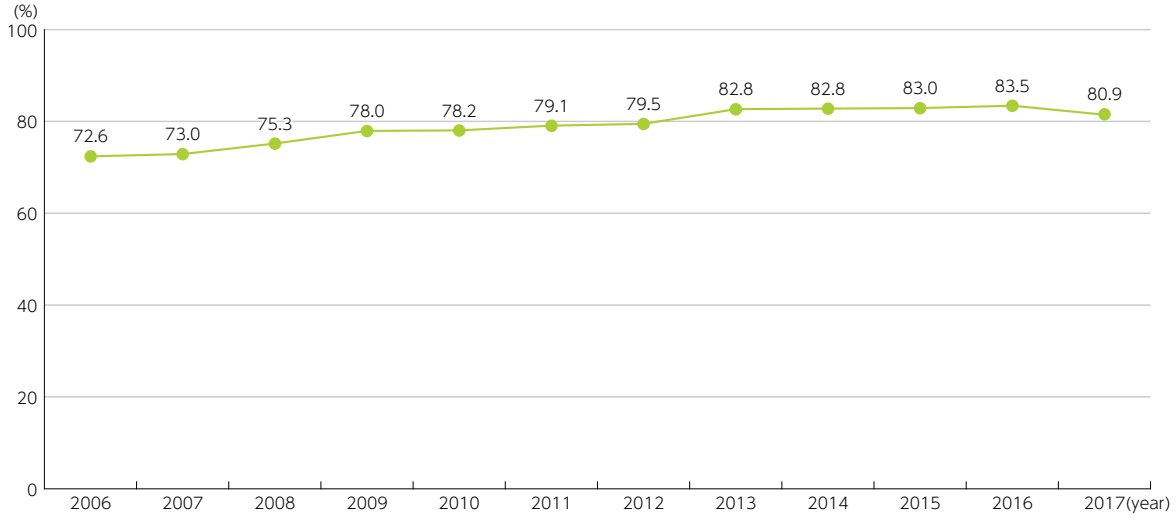
Figure 5-2-1-1 Transitions in household ownership rates for ICT devices



	2008 (n=4,515)	2009 (n=4,547)	2010 (n=22,271)	2011 (n=16,530)	2012 (n=20,418)	2013 (n=15,599)	2014 (n=16,529)	2015 (n=14,765)	2016 (n=17,040)	2017 (n=16,117)
Fixed-line telephones	90.9	91.2	85.8	83.8	79.3	79.1	75.7	75.6	72.2	70.6
FAX	53.5	57.1	43.8	45.0	41.5	46.4	41.8	42.0	38.1	35.3
Mobile terminals	95.6	96.3	93.2	94.5	94.5	94.8	94.6	95.8	94.7	94.8
Smartphones	–	–	9.7	29.3	49.5	62.6	64.2	72.0	71.8	75.1
Computers	85.9	87.2	83.4	77.4	75.8	81.7	78.0	76.8	73.0	72.5
Tablets	–	–	7.2	8.5	15.3	21.9	26.3	33.3	34.4	36.4
Wearable devices	–	–	–	–	–	–	0.5	0.9	1.1	1.9
Home TV game consoles with Internet connectivity	20.8	25.9	23.3	24.5	29.5	38.3	33.0	33.7	31.4	26.3
Portable music players with Internet connectivity	22.0	27.3	17.0	20.1	21.4	23.8	18.4	17.3	15.3	13.8
Other appliances (Smart appliances) with Internet connectivity	5.5	7.6	3.5	6.2	12.7	8.8	7.6	8.1	9.0	2.1

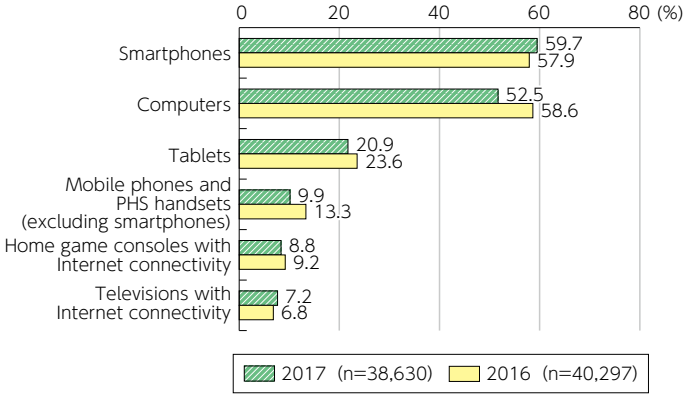
(Source) "Communications Usage Trend Survey," MIC

Figure 5-2-1-2 Transitions in the Internet usage rate



(Source) "Communications Usage Trend Survey," MIC

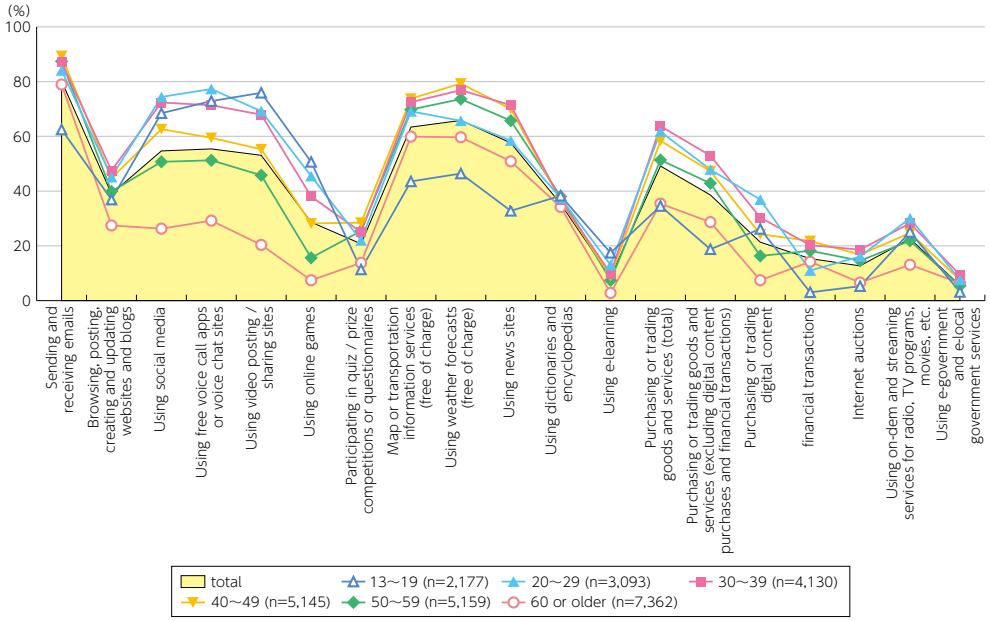
Figure 5-2-1-3 Internet usage device by category



(Note) Figures indicate the percentage of people who accessed the Internet using the corresponding device during the past one year.

(Source) "Communications Usage Trend Survey," MIC

Figure 5-2-1-4 Applications / purposes of using the Internet by age group (multiple answers)



(Source) "Communications Usage Trend Survey," MIC

(3) Challenges for secure Internet usage

a. Matters of concern with Internet usage and problems with ICT networks usage

● **Individuals are concerned about personal information exposure, and enterprises are concerned about virus infections**

The percentage of individuals who feel insecure with the Internet usage which includes respondents of total of "insecure" and "somewhat insecure" reached 66.8 percent, about 70 percent feel insecure (Figure 5-2-1-5). Among matters of concerns about using the Internet, 89.5 percent cited of "external disclosure or exposure of personal information or Internet usage histories without permission" as a concern. This was followed, in order, by "computer virus infections" (69.6 percent) and "unsolicited email" (53.5 percent) (Figure 5-2-1-6). Among enterprises, 47.4 percent, the highest response rate, mentioned "concern about virus infections" as a problem when using the ICT networks (the Internet and internal LANs) (Figure 5-2-1-7).

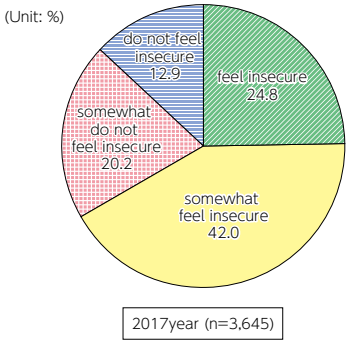
b. Information security measures

● **Almost 70 percent of households and almost all of enterprises have implemented some form of information security measures**

Looking at the state of information security measures taken by households that use the Internet finds that 65.4 percent of households have taken some form of information security measures. The leading security measures were "install or update security software" (46.2 percent) and "sign up for or renew a security service" (25.4 percent) (Figure 5-2-1-8).

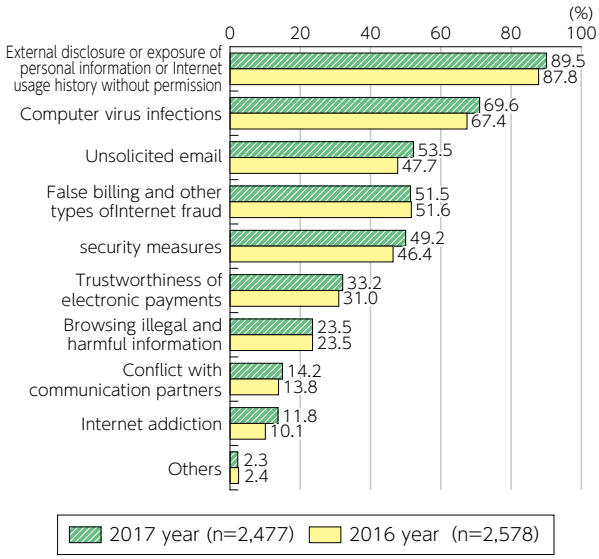
Looking at the state of information security measures implemented by enterprises that use ICT networks finds that 99.3 percent of enterprises have implemented some form of information security measures, which represents almost all the enterprises. The leading security measure was "install anti-virus programs on computers and other devices (operating systems, software, etc.)," which is done by 88.9 percent of enterprises. This was followed, in order, by "install anti-virus programs on servers" (66.5 percent) and "train employees" (57.6 percent). (Figure 5-2-1-9).

Figure 5-2-1-5 Percentage of individuals to feel insecure with Internet usage (multiple answers permitted)



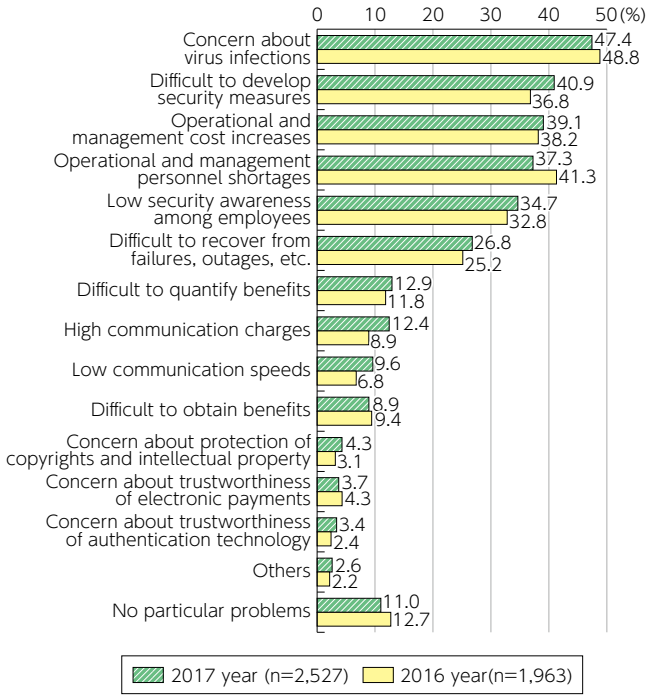
(Source) "Communications Usage Trend Survey," MIC

Figure 5-2-1-6 Matters of concern with Internet usage



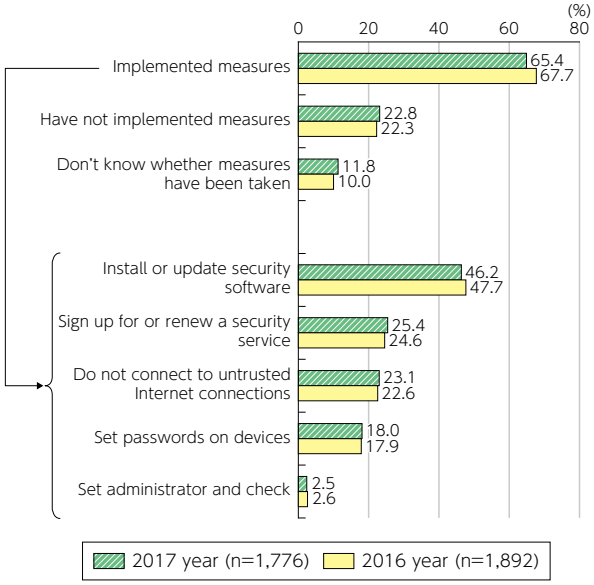
(Source) "Communications Usage Trend Survey," MIC

Figure 5-2-1-7 Problems with ICT network usage at enterprises (multiple answers permitted)



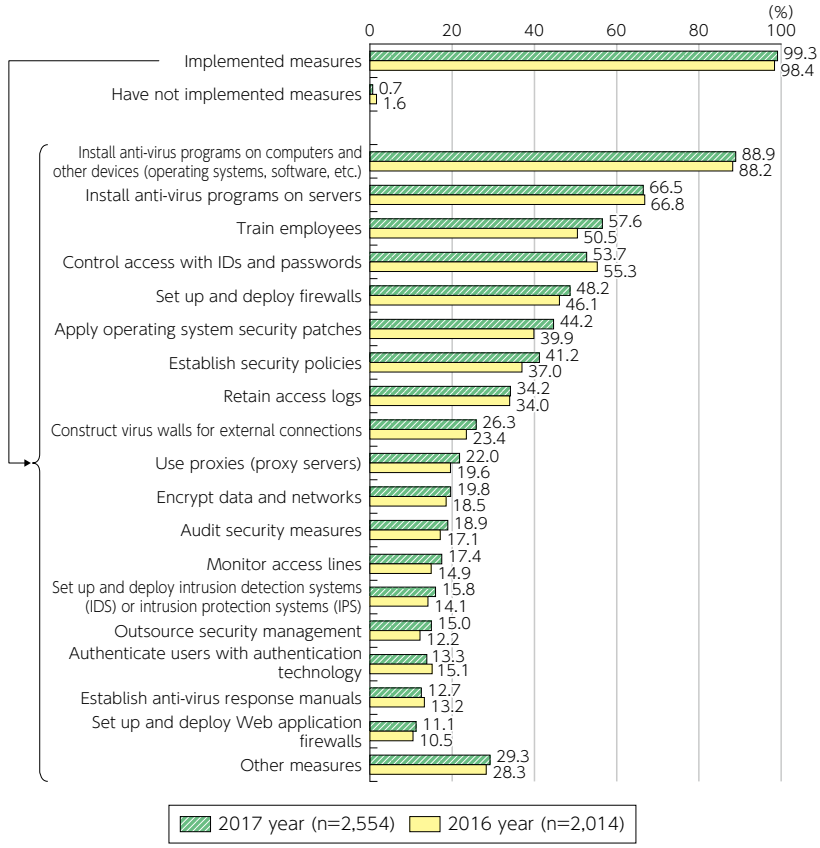
(Source) "Communications Usage Trend Survey," MIC

Figure 5-2-1-8 Implementation of information security measures at households (multiple answers permitted)



(Source) "Communications Usage Trend Survey," MIC

Figure 5-2-1-9 Implementation of information security measures at enterprises (multiple answers permitted)



(Source) "Communications Usage Trend Survey," MIC

(4) Cloud service usage trends of enterprises

a. State of cloud service usage

● **The percentage of enterprises using cloud services significantly rose from 2016**

56.9 percent of enterprises answered they had used cloud services either partially or extensively, which significantly rose from 46.9 percent from the previous year. (Figure 5-2-1-10)

b. Effectiveness of cloud services

● **Many enterprises recognized the effectiveness of cloud services**

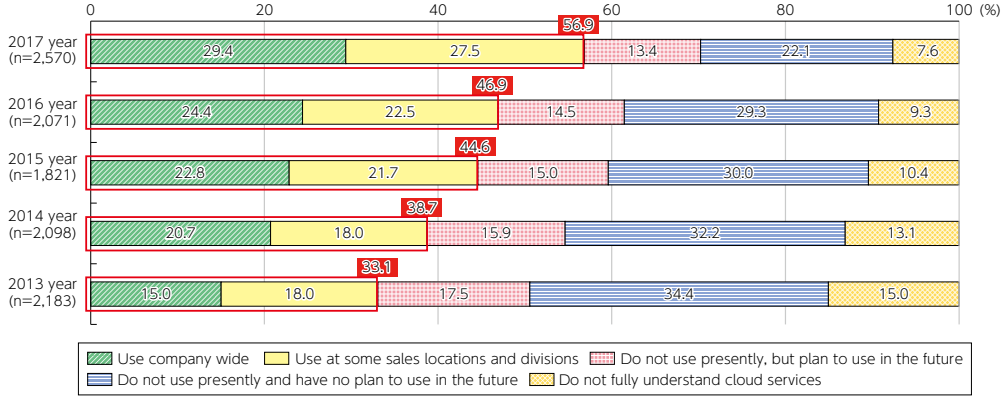
Among enterprises using cloud services, 85.2 percent responded "very effective" or "somewhat effective". Many enterprises recognized the effectiveness (Figure 5-2-1-11).

c. Breakdown of cloud service usage

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

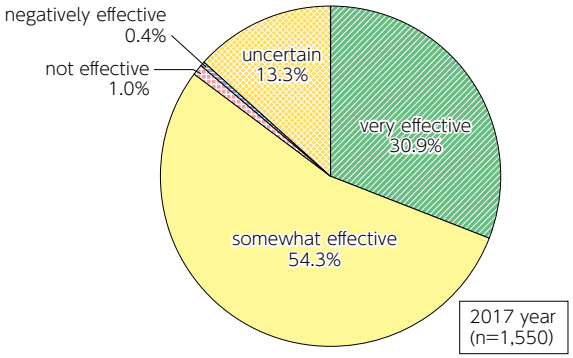
The most frequently used cloud service is "file storage and data sharing" cited by 51.2 percent of respondents, followed, in order, by 47.6 percent for "server usage" and 46.3 percent for "emails" (Figure 5-2-1-12).

Figure 5-2-1-10 State of cloud service usage



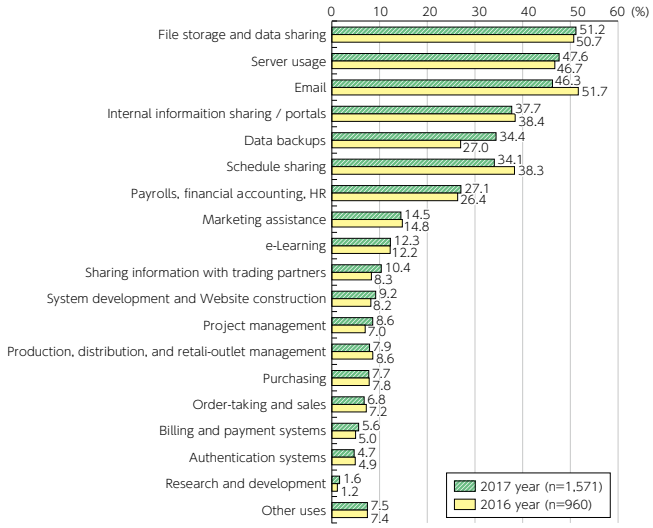
(Source) "Communications Usage Trend Survey," MIC

Figure 5-2-1-11 Effectiveness of cloud services



(Source) "Communications Usage Trend Survey," MIC

Figure 5-2-1-12 Breakdown of cloud service usage



(Source) "Communications Usage Trend Survey," MIC

2. State of telecommunication service provision and usage

(1) State of provision

a. Overview

(i) Subscriptions to voice communication services

● **Subscriptions to fixed-line communications are trending downward while subscriptions to mobile communications and 0ABJ-IP phone services have increased steadily**

Subscriptions to fixed-line communication services (including NTT East and West subscriber telephone services (including ISDN), non-NTT telephone services,[27] and cable TV-based telephone services but excluding 0ABJ-IP phone services) have been declining, while those to mobile communication services (mobile phone and PHS handset services) and 0ABJ-IP phone services have been growing steadily. Subscriptions to 050-IP phone services have been flat in recent years.

There were about 8.1 times more mobile communication subscriptions than fixed-line communication subscriptions (Figure 5-2-2-1).

(ii) State of broadband usage

● **Subscriptions to mobile ultra-high-speed broadband services have leaped dramatically year by year**

The number of subscriptions to fixed-line broadband services[28] at the end of FY 2017 stood at 39.35 million (up 1.9 percent from the previous year). Subscriptions to mobile ultra-high-speed broadband services was 120.73 million for 3.9G and 4G (LTE) services (up 17.3 percent) and 58.22 million for BWA services (up 21.6 percent) (Figure 5-2-2-2). Trends of the net increase in the number of subscriptions to FTTH and DSL shows that DSL continues to decrease while FTTH continues to increase.

b. Mobile communications

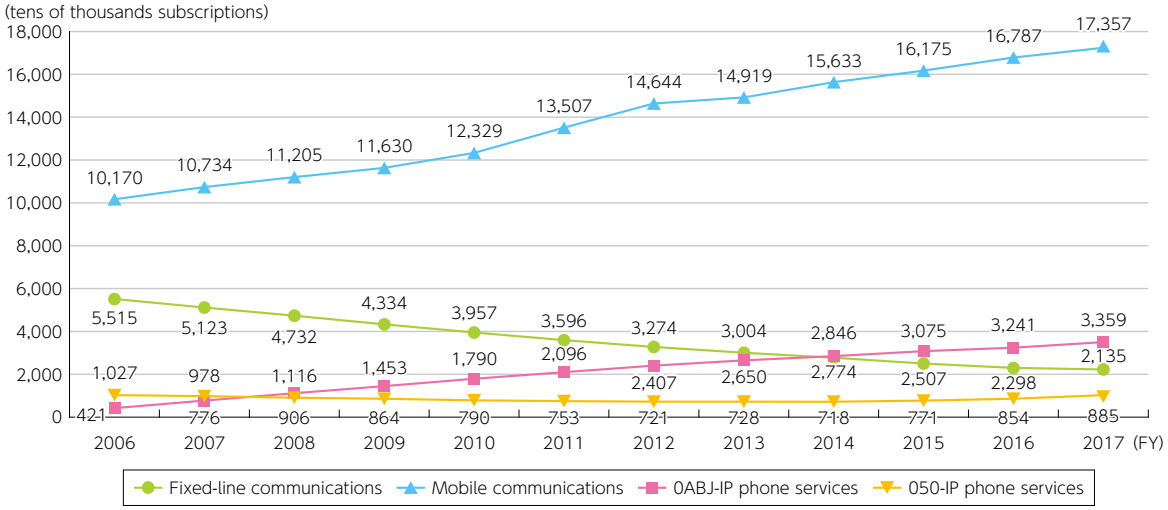
● **Subscriptions to mobile communication services have risen each year; subscriptions to MVNO services counted as mobile communication subscriptions also surged**

Subscriptions to mobile communication services[29] (mobile phones, PHS handsets, and BWA) at the end of FY 2017 totaled 173.57 million (an increase of 3.4 percent from the previous year). The net growth compared to end of FY2016 was 5.70 million subscriptions, which continues the upward trend (Figure 5-2-2-3).

The carrier (Group) shares by mobile communication subscription were 38.7 percent for NTT docomo (down 1.1 percentage points from the previous year), 27.6 percent for the KDDI Group (up 0.8 percentage points), and 23.1 percent for the SoftBank Group (down 0.8 percentage points) (Figure 5-2-2-4). The carrier (Group) shares by MVNO services were 5.3 percent for NTT docomo MVNO (up 0.5 percentage points from the previous year), 2.8 percent for the KDDI Group MVNO (up 0.2 percentage points), and 2.4 percent for the SoftBank Group (up 0.3 percentage points)

Subscriptions to MVNO services[30] in the subscriptions to mobile communication services (mobile phones,

Figure 5-2-2-1 Transitions in subscriptions to voice communication services



(Notes) *Subscriptions to mobile communication services cover mobile phone, PHS services and BWA.

*Figures for mobile communication services from FY 2013 forward are the figures 'after adjusting for *internal group transactions*'. 'After adjusting for internal group transactions' refers the adjustments made to count 1 mobile phone device as 1 contract and not 2 contracts so as not to diverge from the actual state, when an MNO receives mobile phone or BWA services as an MVNO from another MNO in the same group and provides these services together with its own services to 1 mobile phone device.

*Figures of the past years are different from those in the last year's publication due to amendments by the target enterprises.

(Source) Prepared from "Announcement of Quarterly Data on Telecommunication Service Contracts and Market Shares (4Q of FY 2017 (March 31, 2018))," MIC

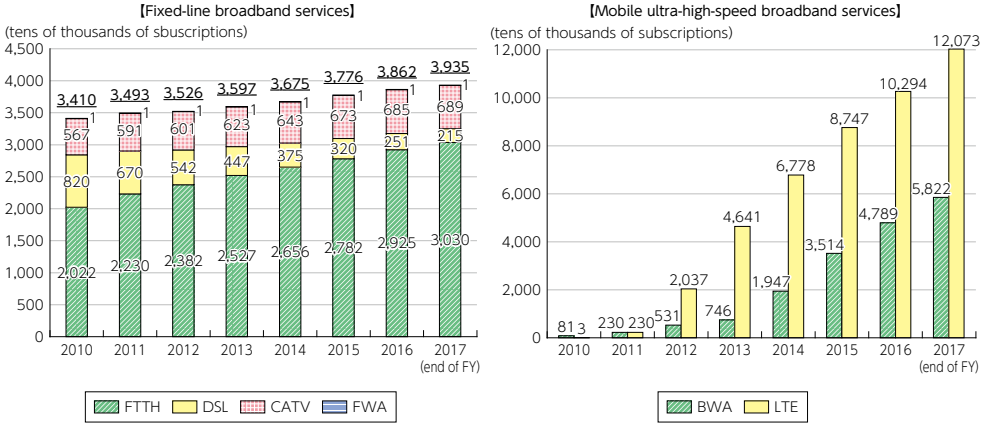
[27] Non-NTT services are subscriber phone services provided by telecom carriers other than NTT East and West and cover direct subscriber telephone and ISDN services and new-type non-NTT telephone and ISDN services.

[28] Figures for subscriptions to fixed-line broadband services cover FTTH, DSL, cable TV, and FWA services.

[29] Figures after adjusting for internal group transactions.

[30] Figures after subtracting subscriptions to MVNOs that are MNOs.

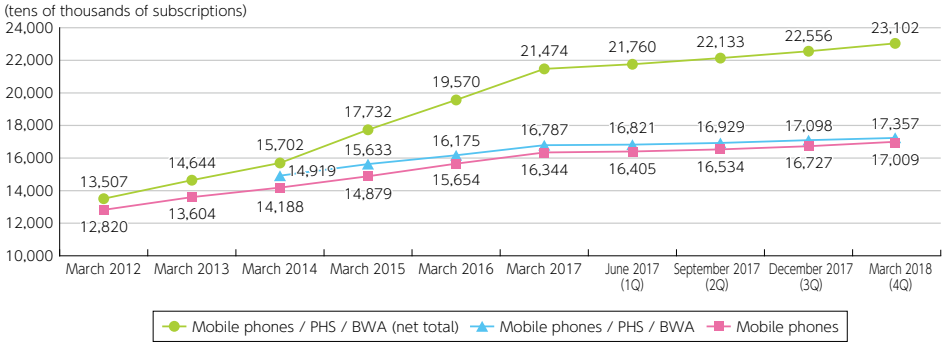
Figure 5-2-2-2 Transitions in broadband service subscriptions



*Figures of the past years are different from those in the last year's publication due to amendments by the target enterprises.

(Source) Prepared from "Announcement of Quarterly Data on Telecommunication Service Contracts and Market Shares (4Q of FY 2017 (March 31, 2018))," MIC

Figure 5-2-2-3 Transitions in mobile phone subscriptions

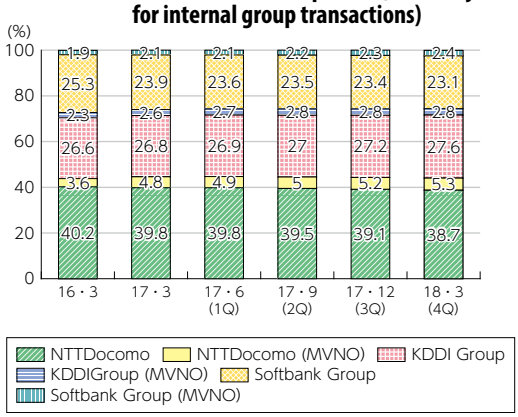


*(Note) 'After adjusting for internal group transactions' refers the adjustments made to count 1 mobile phone device as 1 contract and not 2 contracts so as not to diverge from the actual state, when an MNO receives mobile phone or BWA services as an MVNO from another MNO in the same group and provides these services together with its services in 1 mobile phone device.

*Figures of the past years are different from those in the last year's publication due to amendments by the target enterprises.

(Source) Prepared from "Announcement of Quarterly Data on Telecommunication Service Contracts and Market Shares (4Q of FY 2017 (March 31, 2018))," MIC

Figure 5-2-2-4 Transitions in carrier shares in mobile communication subscriptions (after adjusting for internal group transactions)



KDDI Group share includes KDDI, Okinawa Cellular, and UQ Communications; Softbank Group share includes Softbank, Y!Mobile, and Wireless City Planning.

(Source) Prepared from "Announcement of Quarterly Data on Telecommunication Service Contracts and Market Shares (4Q of FY 2017 (March 31, 2018))," MIC

PHS handsets, and BWA) continue to increase, reaching 18.40 million (an increase of 16.0 percent from the FY 2016). (Figure 5-2-2-5)

(2) State of telecommunication usage

a. State of traffic

(i) Internet traffic

- **Total download traffic by broadband service subscribers in Japan reached an average of 10.8 Tbps as of November 2017, 31.6 percent increase from the same month of a year ago**

(a) Transitions in traffic by broadband subscribers

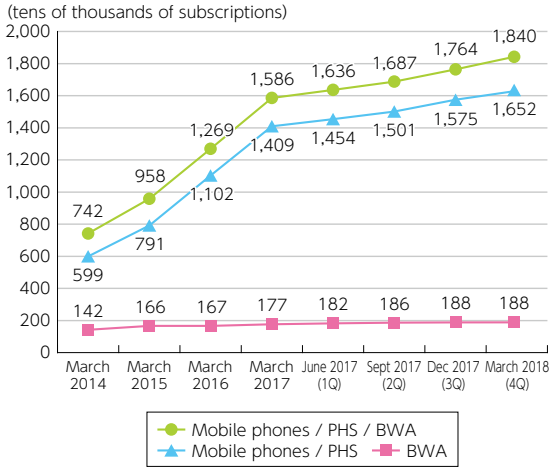
Traffic by ISP5[31] broadband service subscribers continues to grow, with download traffic (A1 OUT) reaching a monthly average of 4,359.2 Gbps in November 2017 (28.3 percent increase from the same month a year ago). Download traffic (A1 OUT) widened its gap with upload traffic (A1 IN: 597.1 Gbps), from 5.6 times last fiscal year to 7.3 times. Thus, most traffic is download traffic (Figure 5-2-2-6).

(b) Transitions in traffic exchanged between ISPs

The traffic exchanged with major domestic internet exchanges (IX)s (B1), the traffic exchanged with do-

[31] ISP5 is the total for five cooperating ISPs, namely the Internet Initiative Japan (IIJ), NTT Communications, K-Opticom, KDDI, and SoftBank.

Figure 5-2-2-5 Transitions in subscriptions to MVNO services (excluding MVNOs that are MNO)



(Source) Prepared from "Announcement of Quarterly Data on Telecommunication Service Contracts and Market Shares (4Q of FY 2017 (March 31, 2018))," MIC

mestic ISPs without passing through major domestic IX[32] (B2) and traffic exchanged with overseas ISPs (B3), data inflow has exceeded outflow in all types. The gap has been increasing (Figure 5-2-2-6).

(c) Estimations in traffic passing over the Internet in Japan

We estimated the total download traffic by broadband service subscribers in Japan from A1 — the traffic of ISP5 broadband service subscribers (DSL, FTTH, CATV, FWA) — and the percentage of ISP5 subscriptions among all broadband subscriptions in Japan. This estimate found that an average of approximately 10.8 Tbps of traffic passed over the Internet during November 2017. This was a 31.6 percent increase from the same month 1 year ago, continuing the increase in traffic over the Internet (Figure 5-2-2-6).

(ii) Mobile communication traffic

● **Mobile communication traffic increased at a pace of about 1.4 times over the last year**

The rapid increase in traffic, particularly data communications, in recent years is a significant factor in radio spectrum congestion in the frequencies assigned to mobile communication systems. In view of this, five mobile communication carriers (NTT docomo, KDDI, SoftBank, UQ Communications, and Wireless City Planning) worked together to tabulate and analyze data on mobile communication traffic volumes (non-voice traffic). As of December 2017 mobile communication traffic increased about 1.4 times over the last year, reaching an average of 2314.2 Gbps (Figure 5-2-2-7).

Figure 5-2-2-6 Tabulations and estimates of Internet traffic in Japan[*1*2]

【Traffic tabulations and estimates】

Year	Month	Total traffic by broadband service subscribers in Japan (estimated) [Gbps] ※3		Traffic per broadband service subscriber (estimated) [kbps]		(A1) Traffic by broadband service subscribers (DSL, FTTH, CATV, FWA etc.) [Gbps]		(A2) Traffic by other subscribers (leased lines, data centers, etc.) [Gbps]		(B1) Traffic exchanged between major domestic IXs and ISP5 [Gbps]		(B2) Traffic exchanged between domestic ISPs and ISP5 without passing through major domestic IXs [Gbps]		(B3) Traffic exchanged between overseas ISPs and ISP5 [Gbps]		(X) ISP5 share (calculated from subscription numbers) ※4
		in	out	in	out	in	out	in	out	in	out	in	out	in	out	
2012	5	652	1,714	18.6	48.9	287.8	756.6	251.5	243.0	118.4	98.6	317.4	145.1	528.7	178.8	44.13%
	11	664	1,897	18.8	53.8	294.0	840.3	268.3	257.2	103.2	83.2	316.6	135.7	571.3	201.6	44.29%
2013	5	776	2,293	21.9	64.7	347.8	1,027.8	300.3	286.4	114.5	85.5	423.3	161.3	633.9	231.6	44.82%
	11	830	2,571	23.2	72.0	370.0	1,146.3	336.5	326.2	138.9	94.9	520.8	186.2	714.5	259.7	44.59%
2014	5	904	2,889	25.0	80.0	398.9	1,274.5	359.2	317.2	163.6	101.5	614.9	214.3	808.3	282.3	44.11%
	11	932	3,560	25.5	97.6	407.6	1,557.0	496.1	426.1	192.3	104.6	765.1	246.5	924.6	340.6	43.73%
2015	5	1,054	4,448	28.4	119.9	457.0	1,928.9	525.6	440.2	198.9	117.5	955.6	287.5	941.5	308.1	43.37%
	11	1,060	5,467	28.2	145.7	452.9	2,336.1	581.1	503.0	251.9	137.1	1,306.4	366.6	1,059.7	307.9	42.73%
2016	5	1,317	6,840	34.6	179.5	551.5	2,863.3	652.7	570.5	277.0	112.6	1,765.1	453.8	1,080.1	292.4	41.86%
	11	1,460	8,232	37.8	212.9	602.5	3,396.6	1,246.0	653.6	311.0	113.6	1,989.2	518.2	1,221.9	353.8	41.26%
2017	5	1,814	9,636	46.6	247.7	743.7	3,950.6	1,304.0	690.9	427.4	146.5	2,809.3	625.9	1,248.5	308.7	41.00%
	11	1,483	10,830	37.8	276.0	597.1	4,359.2	1,347.2	755.0	514.5	123.6	3,091.0	587.3	1,390.8	348.8	40.25%

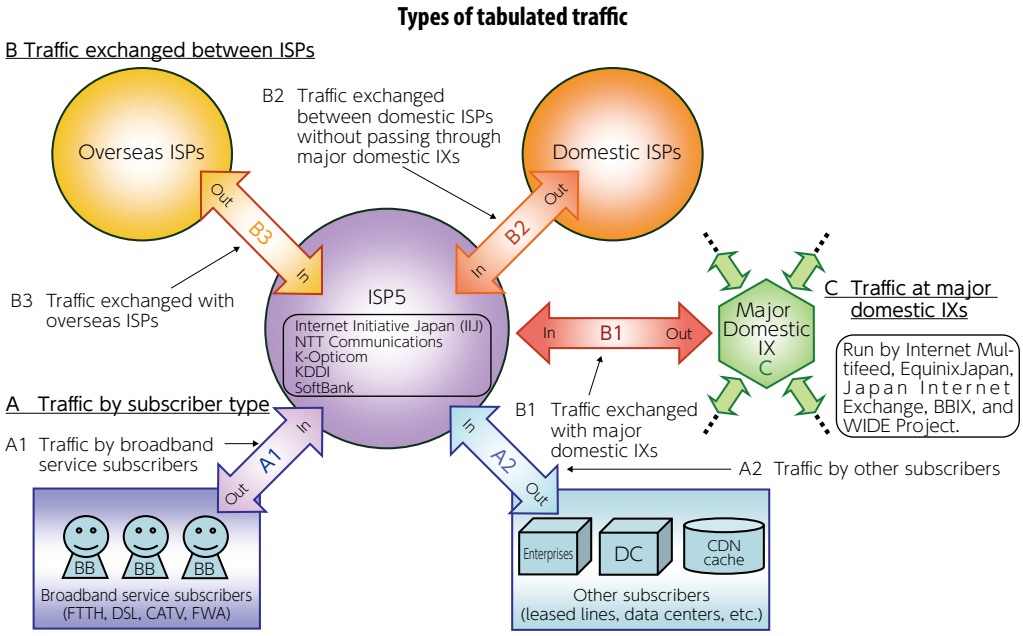
(Notes) *1 ISP5 is the total for five cooperating ISPs, namely the Internet Initiative Japan (IIJ), NTT Communications, K-Opticom, KDDI, and SoftBank.

*2 The total traffic by broadband service subscribers in Japan (estimated), the traffic per broadband service subscriber (estimated) for A1, and for A2 columns, *In* stands for uploads and *Out* stands for downloads.

*3 Total traffic by broadband service subscribers in Japan was estimated from the traffic of ISP5 broadband service subscribers (A1) and the ISP5 share of all subscriptions (X).

*4 Estimation by linear interpolation using the data of "Announcement of Quarterly Data on Telecommunication Service Contracts and Market Shares"

[32] Total for IXs run by Internet Multifeed, Equinix Japan, Japan Internet Exchange, BBIX, and WIDE Project.



*A1 includes the following types of traffic:
- Some traffic on public wireless LAN services from some ISP carriers
- Some traffic on femtocell services from some mobile communication carriers

*Clarified that from November 2016, traffic by CDN cache and traffic by customer ISPs connecting with cooperating ISPs which provide transit are handled as A2.

*B2 includes traffic exchanged via the following:
- private peering with domestic ISPs
- transit provided by domestic ISPs
- public peering at other domestic IXs other than major domestic IXs

*B3 includes traffic exchanged via the following; however, clarified that from November 2016, among the traffic, the traffic at domestic connection points are handled as B2.
- private peering with overseas ISPs
- transit provided by overseas ISPs
- public peering at overseas IXs.

(Source) Prepared from "Announcement Japan's Internet Traffic Tabulations and Estimates for November 2017," MIC

Figure 5-2-2-7 Transitions in the monthly average mobile communication traffic in Japan

Tabulated Month	June 2016			September 2016			December 2016			March 2017			June 2017			September 2017			December 2017		
Average monthly traffic	up	down	total	up	down	total	up	down	total	up	down	total	up	down	total	up	down	total	up	down	total
Average (Gbps)	196.7	1227.9	1424.6	217.5	1345.0	1562.5	225.0	1411.6	1636.6	249.0	1566.6	1815.6	266.9	1724.2	1991.1	289.3	1910.4	2199.7	315.3	1998.9	2314.2

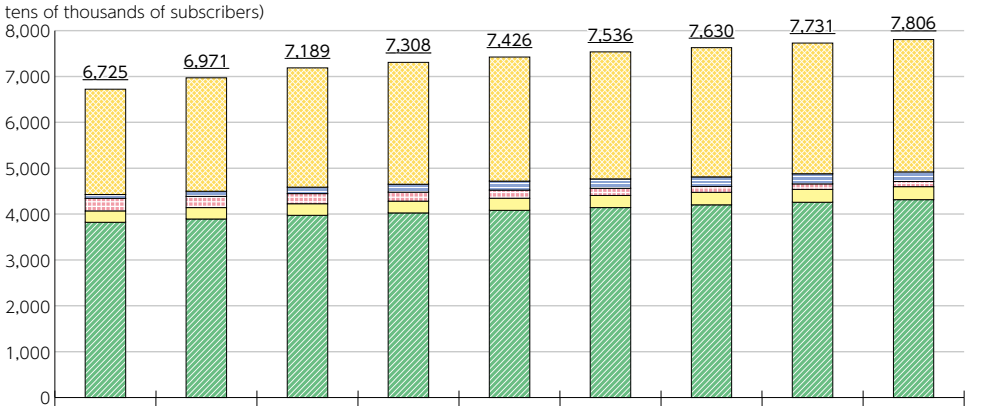
(Source) Prepared from "Information and Communications Statistics Database," MIC

3. State of broadcasting service provision and usage

● **Subscriptions to NHK terrestrial, NHK-BS, WOWOW and cable TV services in FY 2016 increased from the previous year**

Subscriptions to all broadcasting services, except 110° CS, 124/128° CS broadcasts, increased in FY 2016 (Figure 5-2-3-1).

Figure 5-2-3-1 Subscribers to broadcasting services



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cable TV	2,300.7	2,470.6	2,601.6	2,655.6	2,707.0	2,767.0	2,817.0	2,852.0	2,885.0
110° East CS	83.0	112.6	140.4	173.7	196.3	205.6	212.0	219.5	209.3
124/128° East CS	273.7	245.6	221.1	196.3	176.2	157.1	125.4	120.3	114.4
WOWOW	247.6	249.0	251.2	254.8	263.1	264.8	275.6	280.5	282.3
errestrial-based broadcasters(NHK)	3,820.2	3,893.2	3,975.1	4,027.4	4,082.9	4,141.2	4,200.1	4,258.2	4,315.4
NHK-BS	1,399.9	1,475.2	1,567.2	1,649.6	1,737.4	1,823.2	1,911.3	1,993.3	2,066.7

(FY)

(Notes) *NHK terrestrial subscribers are the number of all NHK subscription contracts.
*NHK-BS subscribers are the number of NHK satellite contracts.
*WOWOW subscribers are the number of WOWOW contracts.
*110° East CS subscribers are the number of Sky PerfecTV contracts.
*124/128° East CS subscribers are the number of Sky PerfecTV premium contracts.
*Until FY 2010, cable TV subscribing households are the number of subscribing households to business enterprises providing independent broadcasting services with facilities licensed under the former licensing scheme. From FY 2011 on, it represents the number of subscribing households to registered business enterprises with wired telecommunication facilities providing independent broadcasting services. (Both exclude broadcasts using IP multicasts.)

(Source) Prepared using materials from Japan Electronics and Information Technology Industries Association, materials from Japan Cable Laboratories, materials from NHK, and "State of Satellite Broadcasting" and "State of Cable Television" from MIC

4. Promoting informatization in government services

(1) Promoting e-government

● State of promoting e-government based on the inventory of administrative procedures

In order to improve the convenience of the whole administrative services, Cabinet Secretariat conducted a detailed survey on the administrative procedures (inventory survey). The result shows that 1% (580 types) of the total types of procedures (46,385 types), which had more than 0.1 million filings in a year accounted for 99% (4.8 billion) of the number of procedure fillings. Especially, the online usage rate of 57 types of the improvement promotion procedures[33], which are frequently used by citizens and enterprises has steadily been rising (190,455,866 procedures out of all 413,709,993 procedure fillings were filed online, online usage rate is 46.0%, an increase of 2.5 percentage points from the previous fiscal year) (Figure 5-2-4-1). Factors influencing the online usage rate such as the presence or absence of attached documents or the method of identity verification have also been clarified to a certain extent.

(2) Promoting informatization in local governments

a. State of online usage

● The usage rate of local government procedures selected for online-usage promotion increased over the previous fiscal year

The online usage rate of local government administrative procedures[34] was 51.4 percent in FY 2016 (Figure 5-2-4-2).

Figure 5-2-4-1 Transitions in the online usage of improvement promotion procedures

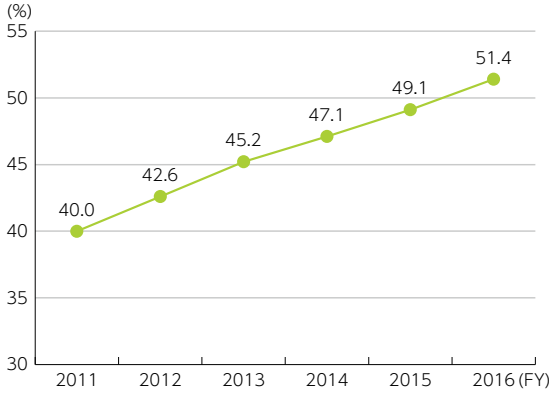
fiscal year	procedure filings	Filings done online	Online usage rate [%]
2016	413,709,993	190,455,866	46.0
2015	401,460,093	174,595,944	43.5
2014	393,192,170	162,501,867	41.3

(Source) "Online of Inventory Results of Administrative Procedures" Cabinet Secretariat and MIC
https://cio.go.jp/tetsuduki_tanaoroshi

[33] Improvement promotion procedures are frequently used procedures that are filed 1 million or more times a year by citizens or enterprises or that are mainly used iteratively or continuously by enterprises even if annual filings are less than 1 million.

[34] The targeted procedures were those selected for online-usage promotion under the E-Local Government Online Usage Advancement Policy.

Figure 5-2-4-2 Transitions in the usage of local government procedures selected for online-usage promotion



fiscal year	Total procedure filings for the year	Filings done online	Online usage rate [%]
2011	337,590,000	135,031,153	40.0
2012	349,000,000	148,496,598	42.6
2013	367,327,000	165,922,189	45.2
2014	368,733,000	173,807,766	47.1
2015	384,473,000	188,831,889	49.1
2016	397,823,000	204,525,754	51.4

(Note) The total yearly filings are an estimate for the entire country calculated based on the total number of filings and the populations in the jurisdictions of local governments that had already placed the targeted procedures online.

(Source) "State of Online Administrative Procedures in FY 2016," MIC
http://www.e-gov.go.jp/doc/facilitate/announce.html

Section 3 Radio Spectrum Usage Trends

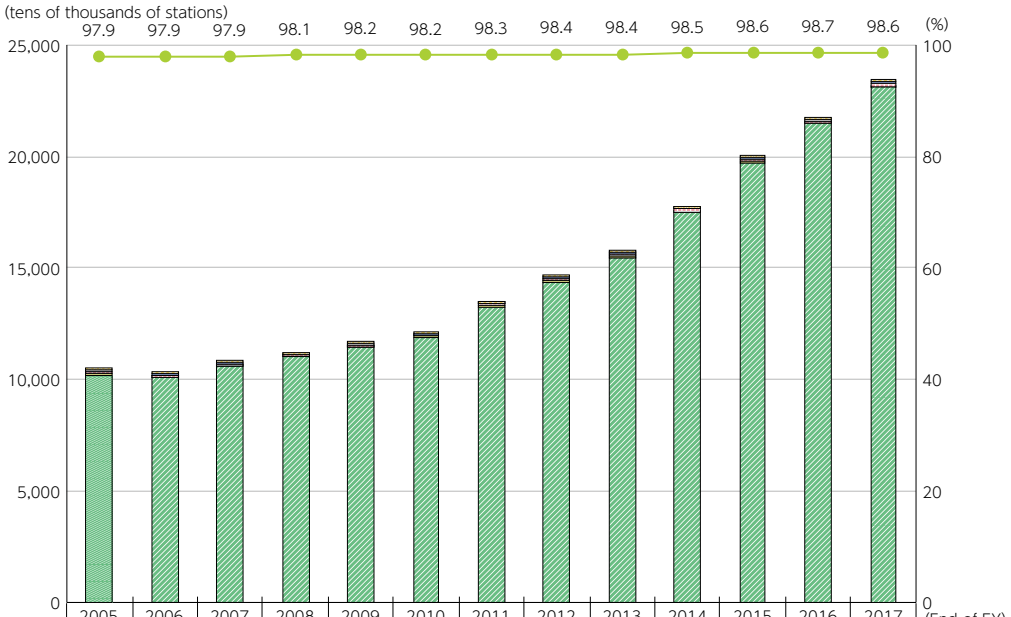
1. State of usage and number of radio stations

(1) Radio stations

● The number of radio stations in Japan has increased steadily since 2006

The number of radio stations (excluding PHS and wireless LAN handsets and other radio stations for which no license is required) at the end of FY 2017 increased by 7.9 percent from a year earlier to 234.45 million, including 231.09 million mobile phones and other land mobile stations, a jump of 7.7 percent increase. Mobile phones and other mobile land stations accounted for a huge 98.6 percent of all radio stations. The number of convenience stations climbed by 6.0 percent to 1.18 million (Figure 5-3-1-1).

Figure 5-3-1-1 Transitions in the number of radio stations



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
other	36	41	49	49	48	46	43	46	50	50	55	49	49
Base stations	62	62	63	41	41	54	58	63	68	71	70	73	125
Convenience stations※2	65	66	68	70	72	74	77	84	90	97	105	112	118
Amateur stations	56	53	51	49	47	45	44	44	44	44	44	43	43
Land mobile stations※1	10,212	10,059	10,573	10,993	11,448	11,879	13,266	14,388	15,472	17,493	19,711	21,457	23,109
Percentage of land mobile stations	97.9	97.9	97.9	98.1	98.2	98.2	98.3	98.4	98.4	98.5	98.6	98.7	98.6

(※1) "Land mobile station" refers to a radio station that is operated either while in motion on land or while stationary in an unspecified location (such as mobile phones).

(※2) "Convenience station" refers to a radio station used for simple radio communications.

2. Radio surveillance to eliminate interference with key radio communications

● There were 522 reports of interference with key radio communications in FY 2017, and 1,468 actions were taken against illegal radio stations

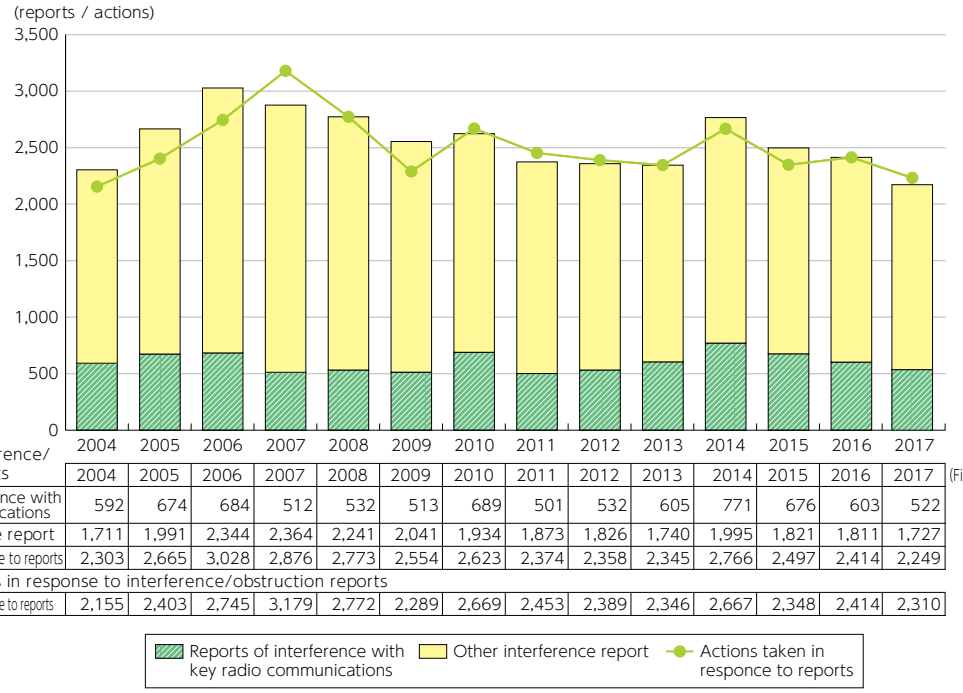
In the interests of eliminating radio interference and obstructions and maintaining a favorable radio spectrum usage environment, officials at the 11 Regional Bureaus of Telecommunications and elsewhere use illegal radio station search vehicles and sensor stations installed in towers and on building rooftops in major urban areas nationwide to investigate the sources of radio signals that interfere with fire and emergency services radio, aeronautical and maritime radio, mobile phones, and other key radio communications. Officials also crack down on illegal radio stations and undertake public awareness activities to ensure more people use the radio spectrum properly.

Since FY 2010, radio authorities have been working to promptly eliminate interference with key radiocommunications with a system that accepts interference reports around the clock. Radio authorities also monitor shortwave radio and cosmic radio waves at international radio surveillance facilities registered with the International Telecommunication Union (ITU).

In FY 2017, there were 2,249 reports of radio interference or obstructions of all kinds, 165 fewer (down 6.8 percent) than the previous year. Among these, there were 522 reports of interference with key radio communications, 81 fewer (down13.4 percent) than the previous year. In response to these reports, 2,310 actions[35] were taken in FY 2017 (Figure 5-3-2-1).

In FY 2017, 4,770 illegal radio stations were detected, 329 more (up 7.4 percent) than the previous year. In response, 1,468 actions[35] were taken in FY 2017, an increase of 104 actions (up 7.6 percent) from the previous year. These actions included 168 indictments (11.4 percent of all actions) and 1,300 directives (88.6 percent of all actions).

Figure 5-3-2-1 Transitions in the number of radio station interference / obstruction reports and the number of actions taken in response



Number of interference/obstruction reports	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	(Fiscal Year)
Reports of interference with key radio communications	592	674	684	512	532	513	689	501	532	605	771	676	603	522	
Other interference report	1,711	1,991	2,344	2,364	2,241	2,041	1,934	1,873	1,826	1,740	1,995	1,821	1,811	1,727	
Actions taken in responce to reports	2,303	2,665	3,028	2,876	2,773	2,554	2,623	2,374	2,358	2,345	2,766	2,497	2,414	2,249	
Number of actions in response to interference/obstruction reports															
Number of actions in response to reports	2,155	2,403	2,745	3,179	2,772	2,289	2,669	2,453	2,389	2,346	2,667	2,348	2,414	2,310	

[35] The number of actions includes incomplete actions remaining from the previous fiscal year.