

Chapter 7

Basic Data on the ICT Field

Part 3

Section 1 ICT Industry Trends

1. Economic size of the ICT industry

(1) Market size (domestic production)

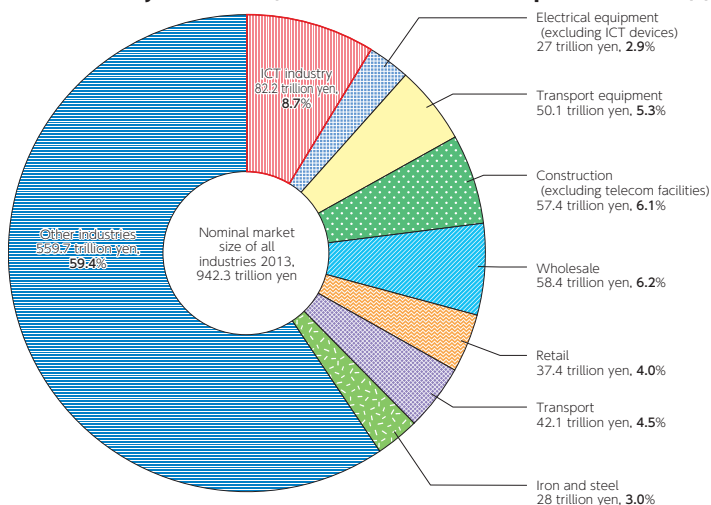
- ICT industry market accounted for about 8.7 percent of all industries, making it the largest industry

The ICT industry's market size in 2013 was 82.2 trillion yen (based on nominal domestic production value), accounting for 8.7 percent of all industries and making it the largest industry in the country (Figure 7-1-1-1). The market's growth leveled off between 2000 and 2005 before declining along with markets in most other industries from 2008. The market suffered a particularly sharp plunge in 2009 due to the financial crisis. In 2013,

the ICT industry market rebounded slightly (Figure 7-1-1-2).

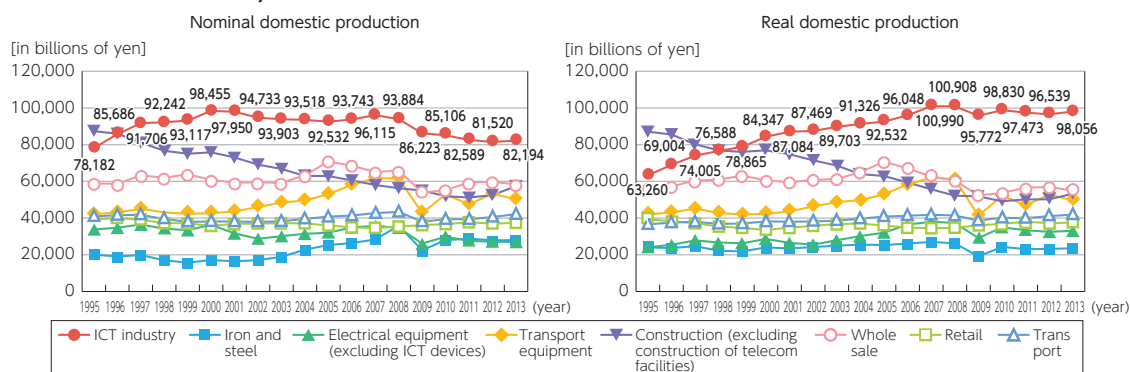
Looking at the transitions in market size (based on real domestic production value) of the main industries in constant 2005 values reveals that the ICT industry grew in 2010 along with most other industries but remained flat thereafter (Figure 7-1-1-2). The ICT industry's market size (based on real domestic production value) in 2013 saw a slight uptick of 1.6 percent from the previous year to 98.1 trillion yen. The industry's average annual growth rate from 1995 to 2013 was 2.5 percent.

Figure 7-1-1-1 Market sizes of major industries (based on nominal domestic production value) (breakdown) (2013)



(Source) "Study on Economic Analysis of ICT," MIC (2015)

Figure 7-1-1-2 Trends in market sizes of major industries (based on nominal domestic production value and real domestic production value)



(Source) "Study on Economic Analysis of ICT," MIC (2015)

(2) Gross domestic product (GDP)

- The real GDP of the ICT industry in 2013 accounted for 10.8 percent of all industries

The nominal GDP of the ICT industry has declined for six consecutive years and fell slightly in 2013 by 0.1 percent year-on-year to 37.0 trillion yen. Conversely, the real GDP of the ICT industry in constant 2005 values rose 2.5 percent year-on-year in 2013 to 51.5 trillion yen. The nominal GDP has trended downward since the 2009 financial crisis, but the real GDP has increased for two years in a row in 2012 and 2013.

Looking at the size of nominal GDP of the main industries finds that the ICT industry's nominal GDP accounts for 8.0 percent of the combined nominal GDPs of all industries and is the second largest after the wholesale industry. Furthermore, examining the real GDPs of the main industries in 2013 finds that the ICT industry's real GDP accounts for 10.8 percent of all industries, making it the largest of all the main industry (Figure 7-1-1-3).

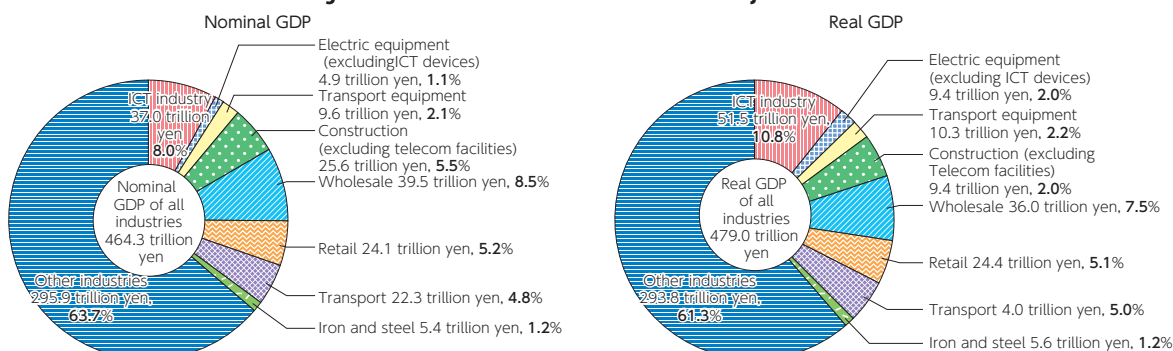
The transitions in real GDP among the main industries shows that the ICT industry had the highest annual growth rate, at 3.6 percent, of all industries between 1995 and 2013.

(3) Employment

- ICT industry employment totaled 4,040 million in 2013 accounting for 7.1 percent of total employment in all industries

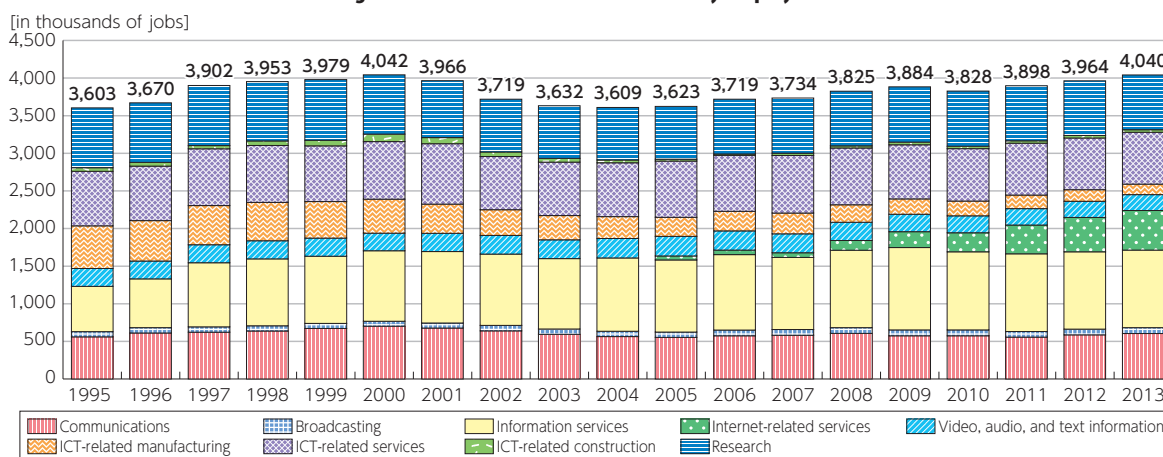
The ICT industry employed 4,040 million people in 2013 (up 1.9 percent from the previous year), accounting for 7.1 percent of total employment in all industries. Employment declined by 8.5 percent from 2012 in the ICT-related manufacturing sector, by 2.4 percent in the ICT-related construction sector, and by 2.0 percent in the video, audio, and text information production sector. But employment in the Internet-related services sector and the broadcasting sector increased, by 15.5 percent and 3.3 percent respectively (Figure 7-1-1-4).

Figure 7-1-1-3 Nominal GDP and real GDP of major industries



(Source) "Study on Economic Analysis of ICT," MIC (2015)

Figure 7-1-1-4 Transitions in ICT industry employment



(Source) "Study on Economic Analysis of ICT," MIC (2015)

2. Research and development in the ICT field

(1) Research and development spending

- The ICT industry¹ spent 3,8078 trillion yen on research in FY 2013, accounting for 30.0 percent of all corporate research spending

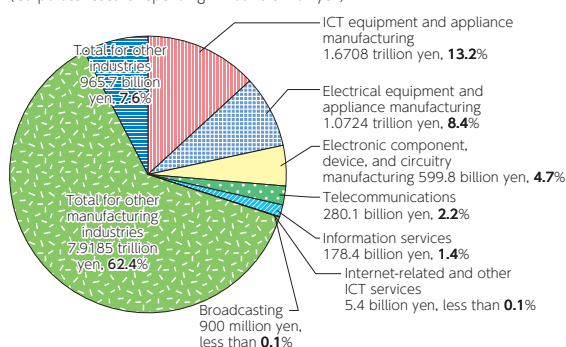
According to MIC's "2014 Research Investigation Report on Science and Technology," Japan's total scientific and technological research spending (i.e., research spending) in FY 2013 stood at 18,1336 trillion yen (the

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 12,6920 trillion yen. Of this amount, 3,8078 trillion yen (30.0 percent) was spent on research by the ICT industry. The ICT equipment and appliance manufacturing segment

Figure 7-1-2-1 Corporate research spending by industry (FY 2013)

(Corporate research spending: 12.6920 trillion yen)



(Source) Prepared from the "2014 Research Investigation Report on Science and Technology," MIC

was largest research spender in the ICT industry (Figure 7-1-2-1).

Looking at research spending in the four priorities promotion fields (ICT, life sciences, environment, and nanotechnology/materials) in the Third Science and Technology Basic Plan (decided by the Cabinet in March 2006), the ICT field, with spending of 2.3771 trillion yen, is the second biggest spender after the life sciences field.

(2) Industry and university R&D partnerships in the ICT field

- Joint research projects increased in number in FY 2013 over the previous year

Private enterprises conducted 1,861 joint research

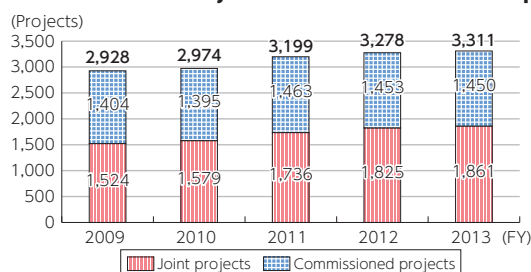
projects² in the ICT field with national/private universities or other academic institutions in FY 2013, an increase of 36 projects from FY 2012's 1,825 projects. There were 1,450 commissioned research projects³ in FY 2013, a decrease of three projects from FY 2012's 1,453 projects (Figure 7-1-2-2).

In FY 2013, the ICT field had the second fewest combined joint research projects and commissioned research projects of the four priority promotion fields after the environment field (Figure 7-1-2-3).

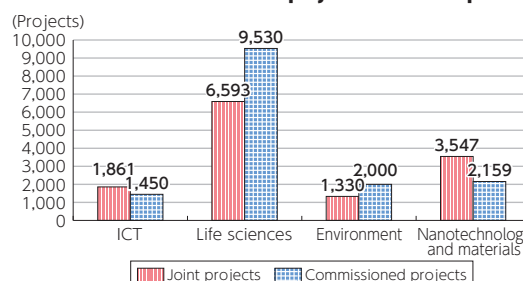
(3) Technology trading

- The ICT industry posted a surplus in technology exports in FY 2013

The value received from Japan's technology exports

Figure 7-1-2-2 Transitions in the number of joint and commissioned research projects in the ICT field

Prepared from "State of Industry-Academic Cooperation at Universities, FY 2013," Ministry of Education, Culture, Sports, Science and Technology

Figure 7-1-2-3 State of joint and commissioned research projects in the four priority promotion fields (FY 2013)

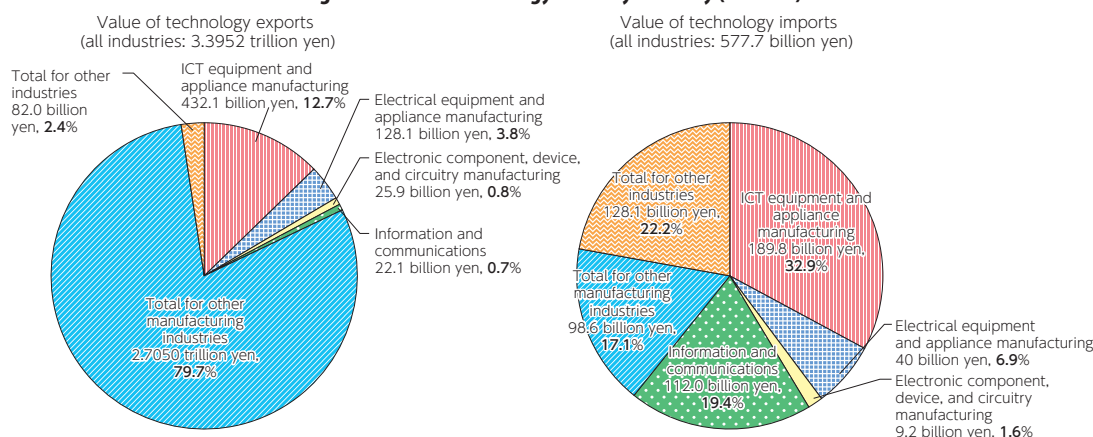
Prepared from "State of Industry-Academic Cooperation at Universities, FY 2013," Ministry of Education, Culture, Sports, Science and Technology

¹ ICT industry research spending refers to the total research spending by the ICT equipment and appliance manufacturing industry, the electrical equipment and appliance manufacturing industry, the electronic component, device, and circuitry manufacturing industry, and the information and communications industry (including the information services, telecommunications, broadcasting, Internet-related services, and other ICT sectors).

² "Joint research project" refers to a project in which a university or other academic institution and a private corporation jointly conduct R&D and the private corporation covers the R&D expenses incurred by the university or other academic institution.

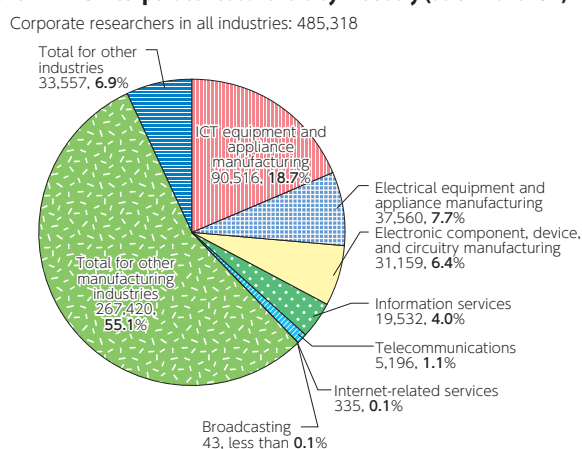
³ "Commissioned research project" refers to a project in which a private corporation commissions a university or other academic institution to conduct R&D primarily on its own and the private corporation pays for the R&D expenses.

Figure 7-1-2-4 Technology trade by industry (FY 2013)



Prepared from the "2013 Research Investigation Report on Science and Technology," MIC

Figure 7-1-2-5 Corporate researchers by industry (as of March 31, 2014)



Prepared from the "2013 Research Investigation Report on Science and Technology," MIC

in FY 2013 totaled 3,395.2 trillion yen, to which the ICT industry contributed 608.2 billion yen, or 17.9 percent. On the other side of technology trades,⁴ the costs of technology imports were 577.7 billion yen, of which the ICT industry paid out 351.0 billion yen, or 60.8 percent. Both Japan and the ICT industry posted export surpluses in technology.

The ICT equipment and appliance manufacturing industry accounted for the largest share of the ICT industry's technology imports and exports (Figure 7-1-2-4).

(4) Number of researchers

● The ICT industry employed 184,341 researchers, or 38.0 percent of all corporate researchers in Japan

There were 841,550 researchers in Japan on March 31, 2014 (the total of all researchers at enterprises, non-profit organizations, public agencies, universities, etc.). Enterprises employed 485,318 researchers, or about 60 percent of the total. The ICT industry employed 184,341 researchers, or 38.0 percent of all corporate researchers in Japan. The ICT equipment and appliance manufacturing industry had the most researchers of any ICT industry sector (Figure 7-1-2-5).

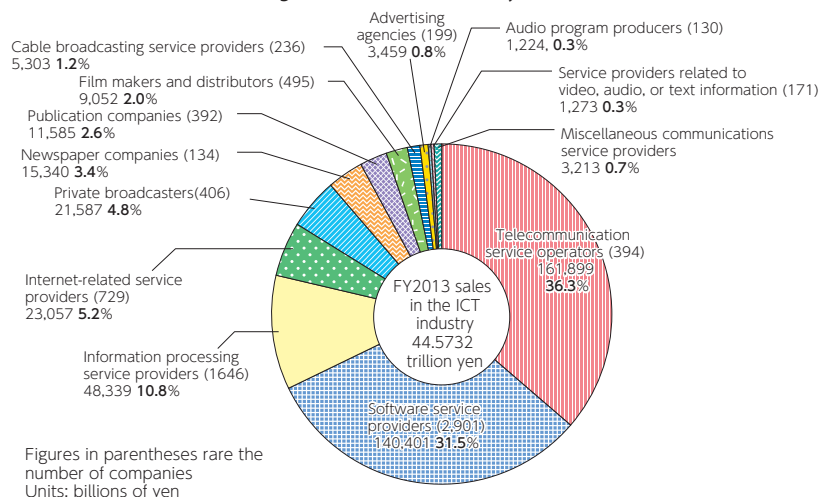
3. State of ICT enterprise operations

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 2014 survey that pertains to ICT enterprises.

⁴ 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 to receive (import) the same forms of technology transfers from other countries.

Figure 7-1-3-1 ICT industry sales



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

(Source) "2014 Basic Survey on the Information and Communications Industry," MIC/METI

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

a. General summary of the survey results

- 5,639 enterprises were engaged in ICT business operations with sales in excess of 44 trillion yen

Sales attributed to ICT business operations in FY 2013 totaled 44.5732 trillion yen (total sales by the enterprises were 72.3726 trillion). By sector, the telecommunications sector accounted for 36.3 percent of all sales (down 0.7 percentage points from the previous year), the software sector 31.5 percent (up 4.2 points), and the information processing services sector 10.8 percent (down 3.4 points) (Figure 7-1-3-1).

The number of enterprises engaging in ICT business operations (irrespective of whether ICT business operations are the enterprise's mainstay operations) stood at

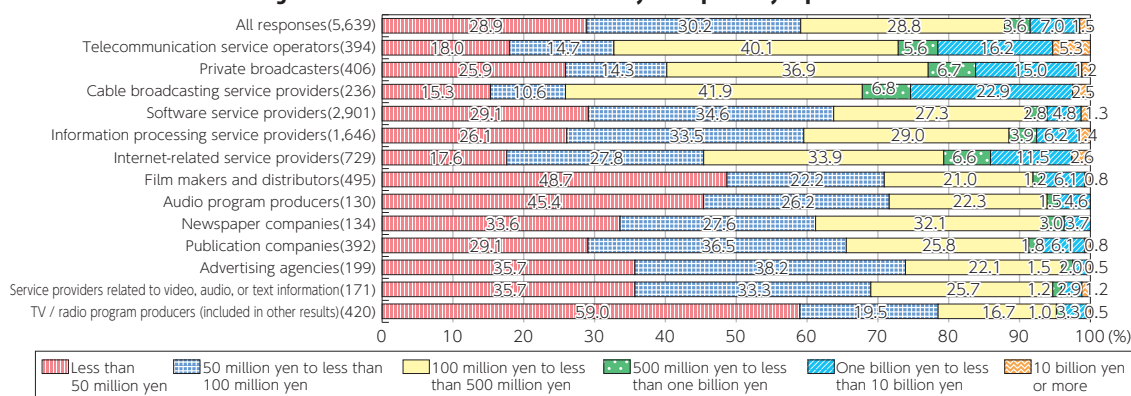
5,639. Operating profits were 5.2743 trillion yen, ordinary income was 5.6941 trillion yen, and the enterprises held 9,896 subsidiaries and associated companies.

b. Breakdown of sales

- Enterprises capitalized at less than 100 million yen accounted for more than 50 percent of all enterprises in eight 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 eight of the 12 ICT industry sectors. Of particular note is the advertising production sector, where enterprises capitalized at less than 100 million yen accounted for more than 70 percent of all enterprises in the sector (Figure 7-1-3-2).

Figure 7-1-3-2 Breakdown of ICT industry enterprises by capital size



(Source) "2014 Basic Survey on the Information and Communications Industry," MIC/METI

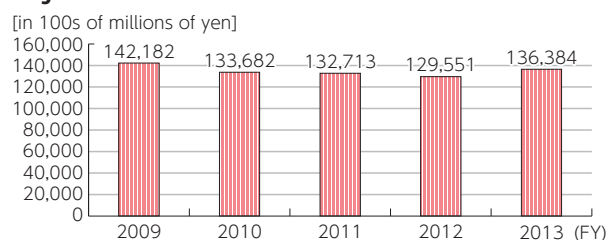
4. Telecommunications market trends

(1) Market size

- Mobile communications accounted for about 60 percent of sales in the telecommunications sector, while, by service category, the data transmission services' share has been rising year by year

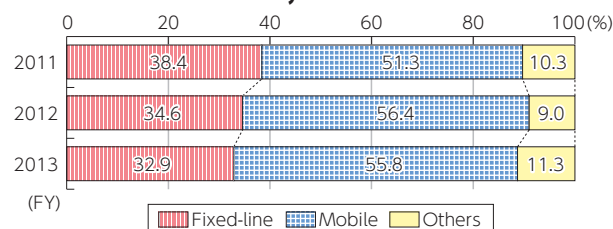
Sales in the telecommunications sector in FY 2012

were 13.6384 trillion yen (an increase of 5.3 percent from the previous year) (Figure 7-1-4-1). Fixed-line communications accounted for 32.9 percent of all sales, and mobile communications (mobile phones and PHS handsets) for 55.8 percent (Figure 7-1-4-2). Looking at sales

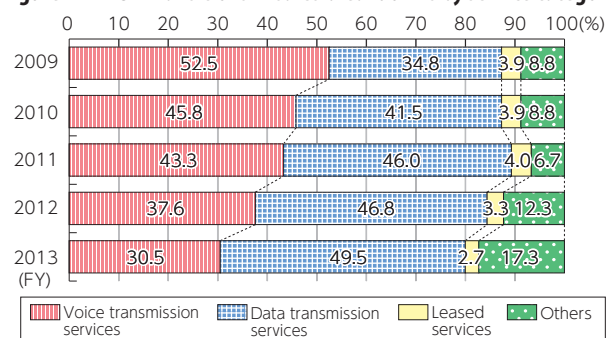
Figure 7-1-4-1 Transitions in telecommunications sector sales

(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.

Prepared from "2014 Basic Survey on the Information and Communications Industry," MIC/METI

Figure 7-1-4-2 Telecom carriers' sales breakdown by fixed-line communications and mobile communications

(Source) "2014 Basic Survey on the Information and Communications Industry," MIC/METI

Figure 7-1-4-3 Transitions in sales breakdowns by service category

Prepared from "2014 Basic Survey on the Information and Communications Industry," MIC/METI

by service category finds voice transmission services accounted for 30.5 percent and data transmission services for 49.5 percent (Figure 7-1-4-3). The average rev-

enue per user (ARPU) for mobile phones, which has been trending downward yearly, in FY 2014 was 4,383 yen.

5. Broadcasting market trends

(1) Size of the broadcasting market

a. Broadcaster sales

- Broadcaster sales totaled 3.9307 trillion yen in FY 2013; the share of sales by terrestrial-based broadcasters has continued to expand in recent years

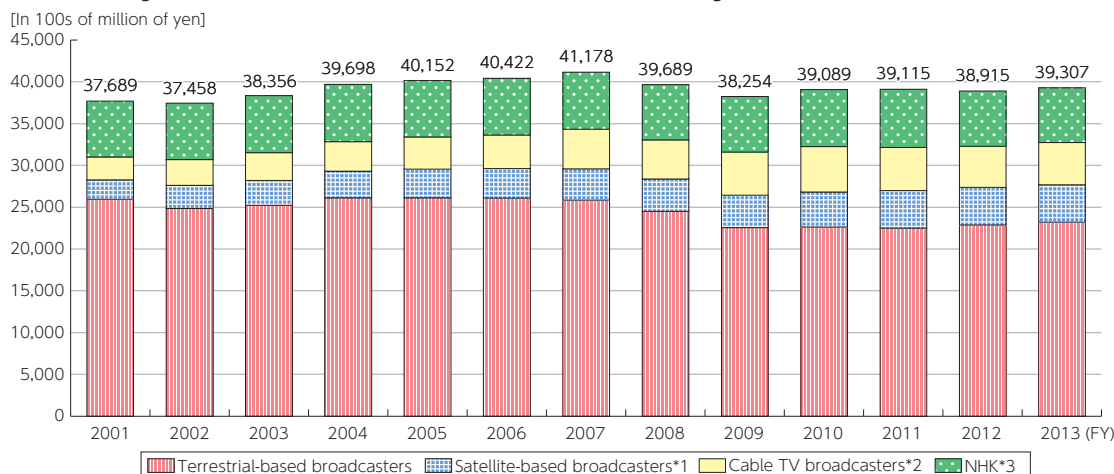
Japanese broadcasters are divided into two categories: Japan Broadcasting Corp., a public broadcaster known as NHK, which depends on reception fee revenues, and private broadcasters that depend on advertisements or paid programming. Apart from these categories, the Open University of Japan provides broadcasting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

The entire broadcasting sector's sales, including revenues from broadcasting and non-broadcasting operations, increased in FY 2013 (by 1.0 percent) from the previous year to 3.9307 trillion yen. By category, terrestrial-based private broadcasters' sales were 2.3216 trillion yen (up 1.5 percent from the previous year), satel-

lite-based private broadcasters' sales were 449.1 billion yen (down 0.4 percent), cable TV broadcasters' sales were 503.0 billion yen (up 2.0 percent), and NHK's ordinary operating income was 657.0 billion yen (down 0.5 percent).

In terms of market share, terrestrial-based private broadcasters accounted for 70.9 percent (up 0.1 percentage points from the previous year) of private broadcasters' sales. The market share of terrestrial-based broadcasters continued to grow from the previous year (Figure 7-1-5-1). Looking at sales by service category of cable TV broadcasters finds basic service sales totaled 358.2 billion yen and paid services 38.7 billion yen. The majority of revenue received by terrestrial-based private broadcasters came from advertising revenue, which reached 1.9619 trillion yen in FY 2014. This total breaks down into 1.8347 trillion yen from advertising on TV broadcasts and 127.2 billion yen from advertising on radio broadcasts.

Figure 7-1-5-1 Transitions in and breakdown of the broadcasting sector market size (total sales)



Fiscal year		13	14	15	16	22	18	19	20	21	22	23	24	25
Private broadcasters	Terrestrial-based broadcasters	25,960	24,863	25,229	26,153	26,138	26,091	25,847	24,493	22,574	22,655	22,502	22,870	23,216
	(Community broadcasters ^{※5} included in total above)	137	139	141	140	140	144 ※5	148 ※5	150 ※5	123 ※5	116	120	115	124
	Satellite-based broadcasters ^{※1}	2,335	2,769	2,995	3,158	3,414	3,525	3,737	3,905	3,887	4,185	4,490	4,510	4,491
	Cable TV broadcasters ^{※2}	2,718	3,076	3,330	3,533	3,850	4,050	4,746	4,667	5,134	5,437	5,177	4,931	5,030
NHK [※]		6,676	6,750	6,803	6,855	6,749	6,756	6,848	6,624	6,659	6,812	6,946	6,604	6,570
Total		37,689	37,458	38,356	39,698	40,152	40,422	41,178	39,689	38,254	39,089	39,115	38,915	39,307

Note 1: Figures for satellite-based broadcasters represent operating revenues from satellite-based broadcasting services.

Note 2: Cable TV broadcasters are business enterprises engaging mainly in cable TV broadcasting services and registered only as general broadcasters (general cable broadcasters) providing independent broadcasting services (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: Figures for NHK represent ordinary operating income.

Note 4: Breakdowns for terrestrial-based broadcasters from 1997 to 1999 are not available.

Note 5: Community broadcasting operators that also provide cable TV broadcasting services are excluded.

Prepared from MIC materials and the "NHK Yearbook" for each fiscal year

6. Content market trends

(1) Size of Japan's content market

● The Japanese content market was valued at 11.2951 trillion yen, over 50 percent of which was attributable to video content, about 40 percent to text-based content, and less than 10 percent to audio-based content

The Japanese content market was valued at 11.2951 trillion yen in 2013. By content segment, video content accounted for over 50 percent of the market, text-based content, about 40 percent, and audio-based content, under 10 percent.⁵

The primary components of the video content segment, worth 5.9784 trillion yen (52.9 percent of the entire market), were terrestrial TV programs, worth 2.7976 trillion yen, game software, 940.1 billion yen, satellite and cable TV broadcast programs, 926.0 billion yen, movies, 702.9 billion yen, videos, 427.4 billion yen, and original Internet videos, 184.5 billion yen. The primary components of the audio-based content segment, worth 790.1 billion yen (7.0 percent of the entire market), were music, worth 588.4 billion yen, and radio programs, 196.8 billion yen. And the primary components of the

text-based content segment, worth 4.5266 trillion yen (40.1 percent of the entire market), were newspaper articles, worth 1.6874 trillion yen, magazines,⁶ 1.1318 trillion yen, books, 788.7 billion yen, comics, 509.2 billion yen, database information, 225.6 billion yen, and original Internet text-based content,⁷ 183.9 billion yen, and (Figure 7-1-6-1).

Japan's content market in 2013 totaled about 11.3 trillion yen, which was almost unchanged from 2009 levels. The respective video, audio, and text segments, too, had been relatively constant, but in 2013 the video content segment expanded while the text-based content segment shrank (Figure 7-1-6-2).

(2) Trends in the digital content market

● The market for digital content, which is downloaded or streamed via the Internet to computers or mobile phones, grew to 2.3440 trillion yen, accounting for 20.8 percent of the entire content market

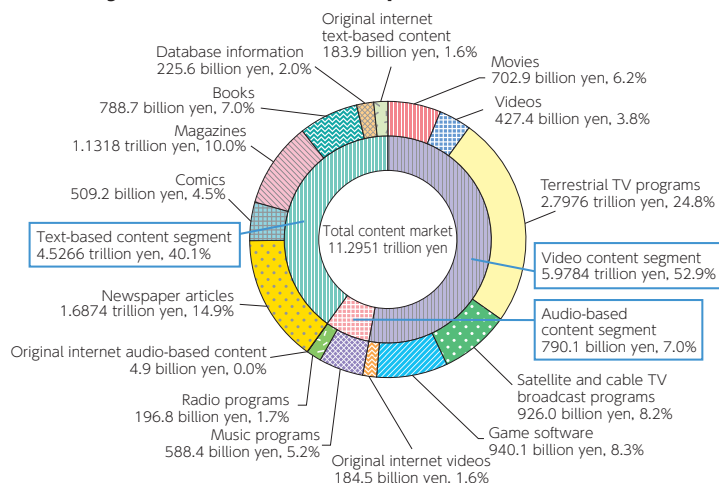
As part of the overall content market, the market for digital content, which is downloaded or streamed via the Internet to computers or mobile phones, reached 2.3440

⁵ The market size was measured and analyzed by assessing the primary nature of the content works and calculating the value by distribution level, such as primary distribution or multiuse. The value of content was not calculated by media channel.

⁶ The magazine category includes free newspapers.

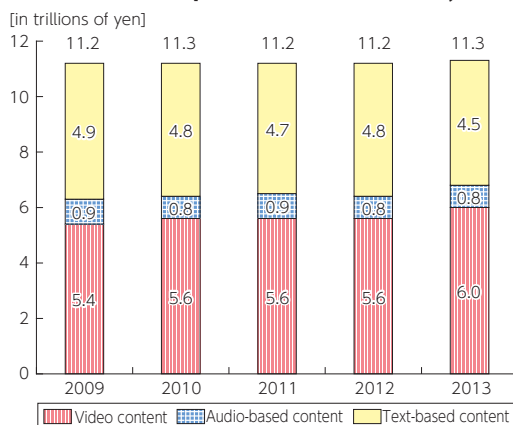
⁷ Original Internet text-based content includes blogs, social media, email newsletters, and similar text-based content.

Figure 7-1-6-1 Breakdown of Japan's content market (2013)



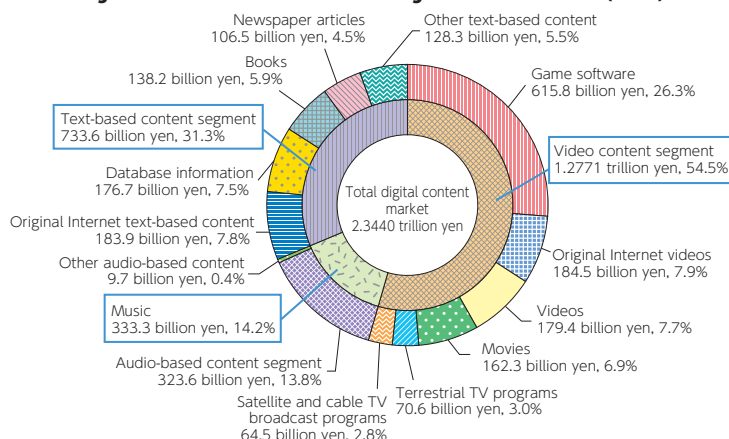
(Source) "Survey on the Production and Distribution of Media Content," Institute for Information and Communications Policy, MIC

Figure 7-1-6-2 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 7-1-6-3 Breakdown of the digital content market (2013)



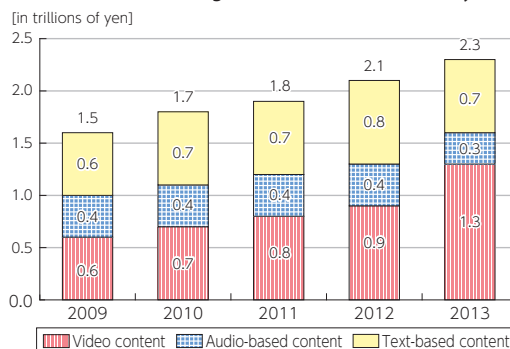
(Source) "Survey on the Production and Distribution of Media Content," Institute for Information and Communications Policy, MIC

trillion yen. By content segment, the video content segment accounted for 54.5 percent of the digital content market, the text-based content segment, 31.3 percent, and the audio-based content segment, 14.2 percent.

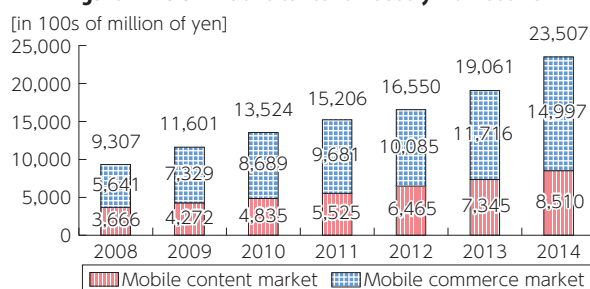
The video content segment of the 2013 digital content market was worth 1.2771 trillion yen, which consisted of 615.8 billion yen for game software, 184.5 billion yen for original Internet videos, 179.4 billion yen for videos, 162.3 billion yen for movies, 70.6 billion yen for terres-

trial TV programs, and 64.5 billion yen for satellite and cable TV broadcast programs. Music accounted for 333.3 billion yen of the 333.3 billion yen audio-based digital content market. The 733.6 billion yen text-based digital content market consisted of 183.9 billion yen for original Internet text-based content, 176.7 billion yen for database information, 138.2 billion yen for books, and 106.5 billion yen for newspaper articles (Figure 7-1-6-3).

The digital content market has been growing steadily

Figure 7-1-6-4 Transitions in the digital content market size (by content segment)

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

Figure 7-1-6-5 mobile content industry market size

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

since 2009. Looking at the market by content segment shows that the video content segment—which more than doubled from 2009 to 2013, reaching about 1.3 trillion yen—has been driving the digital content's market expansion. (Figure 7-1-6-4).

- The 2012 mobile content industry's market jumped 23.3 percent from the previous year to 2.3507 trillion yen

The Japanese mobile content industry's market,⁸ which is made up of the mobile content market⁹ and the mobile commerce market, continued to expand in 2012, reaching 2.3507 trillion yen (a 23.3 percent increase year-on-year), due to the growth and proliferation of smartphones and tablets (Figure 7-1-6-5). By individual segments, the mobile content market reached 851.0 billion yen (up 15.9 percent) and the mobile commerce market reached 1.4997 trillion yen (up 28.0 percent).

(3) Trends in the broadcast content market

- Information programs (including publicity programs) account for 69.9 percent of all broadcast programs produced, commanding the largest share among program categories

Information programs (including publicity programs) account for 69.9 percent (up 2.0 percentage points from the previous year) of all broadcast programs produced, the largest share among program categories, followed, in order, by 63.8 percent (up 4.9 points) for commercial advertisements and 43.3 percent (up 4.3 points) for news (Figure 7-1-6-6).

- Export value of Japanese broadcast content was 13.8 billion yen in FY 2013

The export value of Japanese broadcast content in FY 2013 was 13.78 billion yen. Note that from FY 2010 onward, Internet distribution rights, video and DVD rights, format and restaging rights, merchandising rights, and similar rights, in addition to program broadcast rights, has been included in the export value of broadcast content (Figure 7-1-6-7).

The traditional method of exporting broadcast content was to sell the program broadcast rights. But today, selling format or restaging rights, which have been the subject of cutting-edge and experimental efforts, is becoming entrenched as a means of advancing overseas. In addition, Internet distribution rights, DVD rights to sell packages, and merchandising rights to sell characters from programs and video have driven the increase in the export value of broadcast content. NHK and key private stations in Tokyo account for nearly 59.0 percent of the export value of broadcast content, production houses, 35.0 percent, key private stations in Osaka, 5.1 percent, local stations, 0.5 percent, and satellite stations, 0.4 percent.

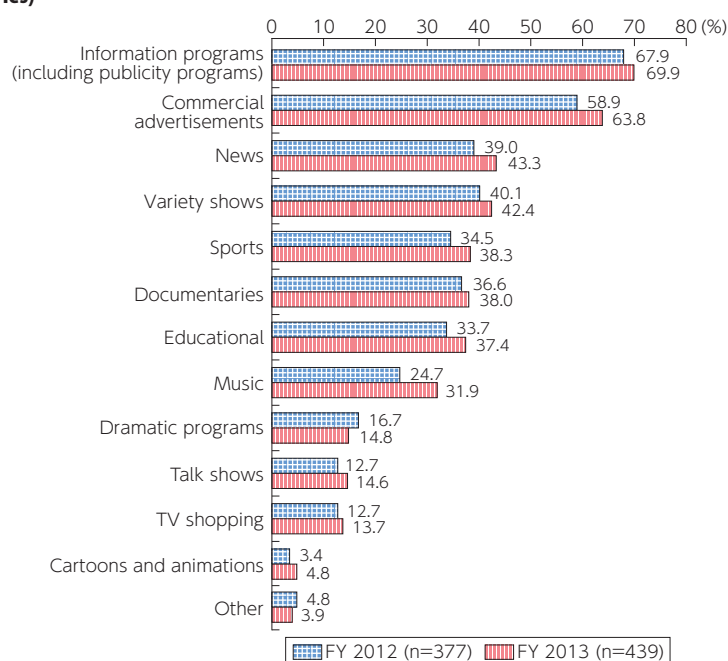
- Cartoons and animations account for over 60 percent of export value by program category, followed by dramatic programs and variety shows, and Asia accounts for about 50 percent of the export market, followed by North America and Europe

Looking at the broadcast content export value by pro-

⁸ The mobile content market refers to digital content provided over the mobile Internet (including ringtones, music, videos, games, and fortune-telling). The mobile commerce market refers to the sales of physical goods (mail-order sales, etc.), sales of services (ticket sales), and transaction fees (including stock brokerage commissions, auction fees, and other payments) conducted over the mobile Internet.

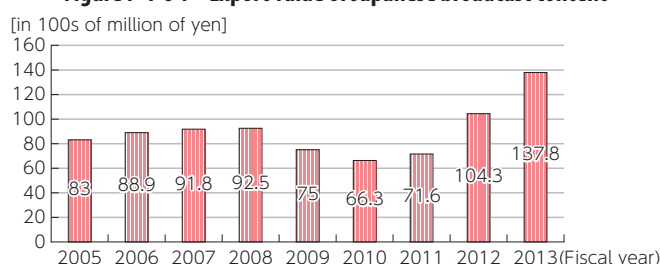
⁹ In 2011, the scope of the mobile content market was expanded to encompass the open platform market (such as smartphones).

Figure 7-1-6-6 Percentage of broadcast programs being produced by program category (programs can belong to multiple categories)



(Source) "2014 Basic Survey on the Information and Communications Industry," MIC/METI

Figure 7-1-6-7 Export value of Japanese broadcast content

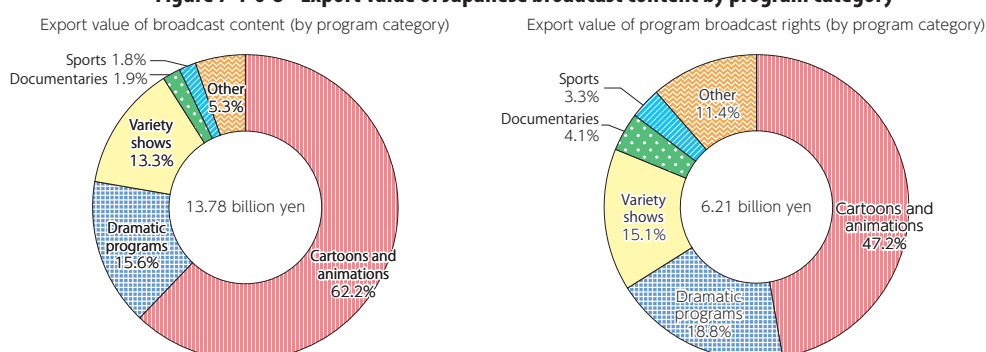


(Note) Export value of broadcast content: total export value of program broadcast rights, Internet distribution rights, video and DVD rights, format and restaging rights, merchandising rights, and similar rights.

(Note) From FY 2010 onward, the export value from other revenue streams has been included along with program broadcast rights in the export value of broadcast content. Figures prior to FY 2010 are the export value for program broadcast rights only.

(Source) "Survey on the State of Overseas Exports of Broadcast Content (FY 2013)," Institute for Information and Communications Policy, MIC

Figure 7-1-6-8 Export value of Japanese broadcast content by program category



(Source) "Survey on the State of Overseas Exports of Broadcast Content (FY 2013)," Institute for Information and Communications Policy, MIC

gram category finds cartoons and animations account for 62.2 percent of total, dramatic programs, 15.6 percent, and variety shows, 13.3 percent, followed by documentaries and sports programs (Figure 7-1-6-8). The largest export market for broadcast content was Asia, at 52.0 percent of the total, followed by North America at

25.1 percent, Europe at 18.6 percent, and South and Central America.

Section 2 ICT Service Usage Trends

1. Internet usage trends

(1) State of Internet proliferation

a. State of major ICT device proliferation (households)

- ICT device proliferation has matured overall, but smartphone ownership has increased rapidly, now topping 60 percent

The household penetration rate at the end of 2014 was 94.6 percent for mobile phones and PHS handsets¹⁰ and 78.0 percent for computers. The penetration rate for smartphones,¹¹ which are included in the mobile phone

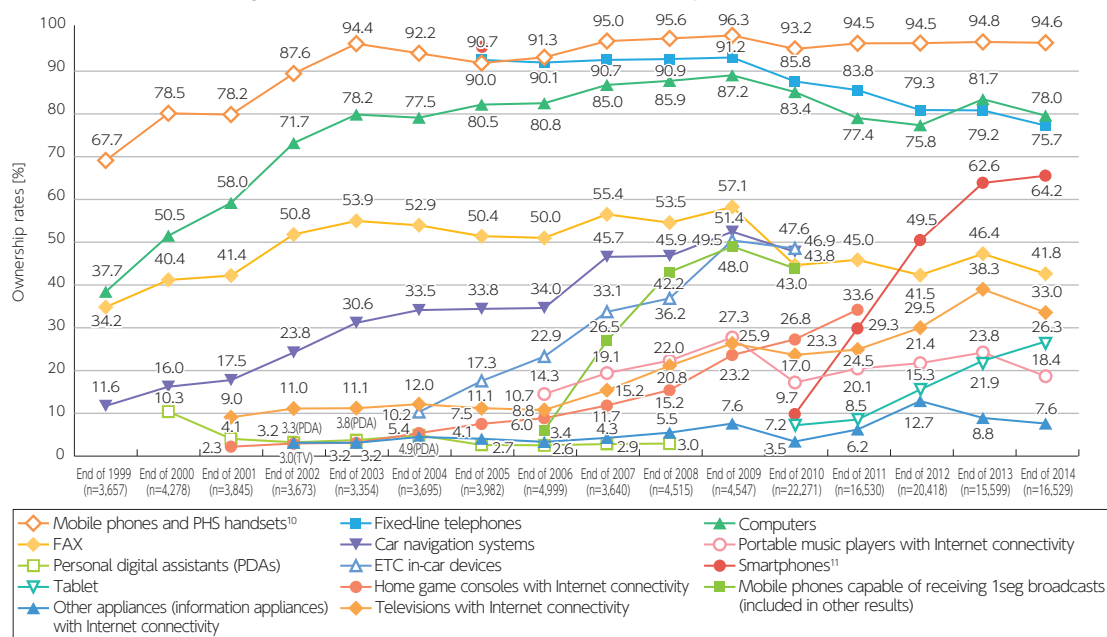
and PHS handset category, has shot up to 64.2 percent (up 1.6 percentage points from a year earlier) (Figure 7-2-1-1).

b. State of Internet usage

- Both the number of Internet users and the Internet population penetration rate fell marginally

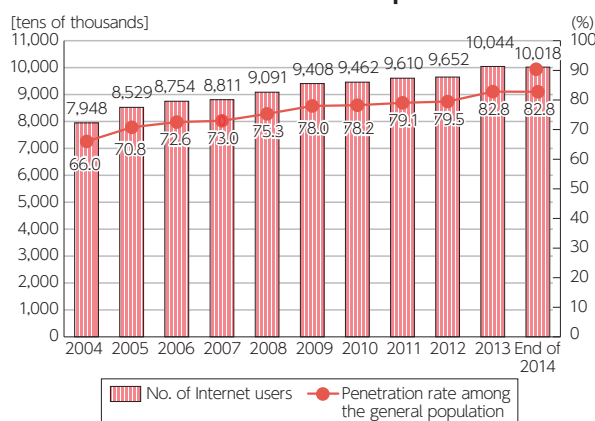
The number of Internet users¹² at the end of 2014 was

Figure 7-2-1-1 Transitions in household ownership rates for ICT devices



(Source) "2014 Communications Usage Trend Survey," MIC

Figure 7-2-1-2 Transitions in the number of Internet users and the penetration rate among the general population



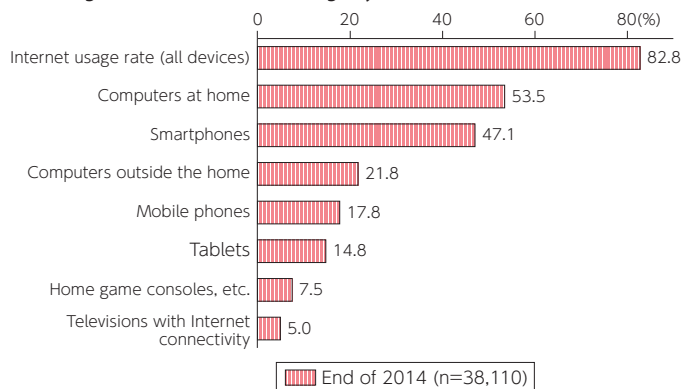
(Source) "2014 Communications Usage Trend Survey," MIC

¹⁰ The figures for mobile phones and PHS handsets have included personal digital assistants, or PDAs, since the end of 2009 to the end of 2012 and smartphones since the end of 2010. The penetration rate for mobile phones and PHS handsets excluding smartphones came to 68.6 percent.

¹¹ Figures for smartphones are included in the mobile phones and PHS handsets total.

¹² (1) The survey covers an age range of 6 and up. (2) The estimated number of Internet users is based on the results to a question on whether the respondents, aged 6 or older, had used the Internet in the year covered by the survey. Internet access devices include computers, mobile phones/PHS handsets, smartphones, tablets, game consoles, and all other devices (irrespective of device ownership). The purposes of using the Internet cover all possible purposes including personal, work, and school. (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 usage rate obtained in the survey for people aged 6 or older. (4) The Communications Usage Trend Survey does not include the number of "no" responses in the calculations (except for Figure 7-2-1-1).

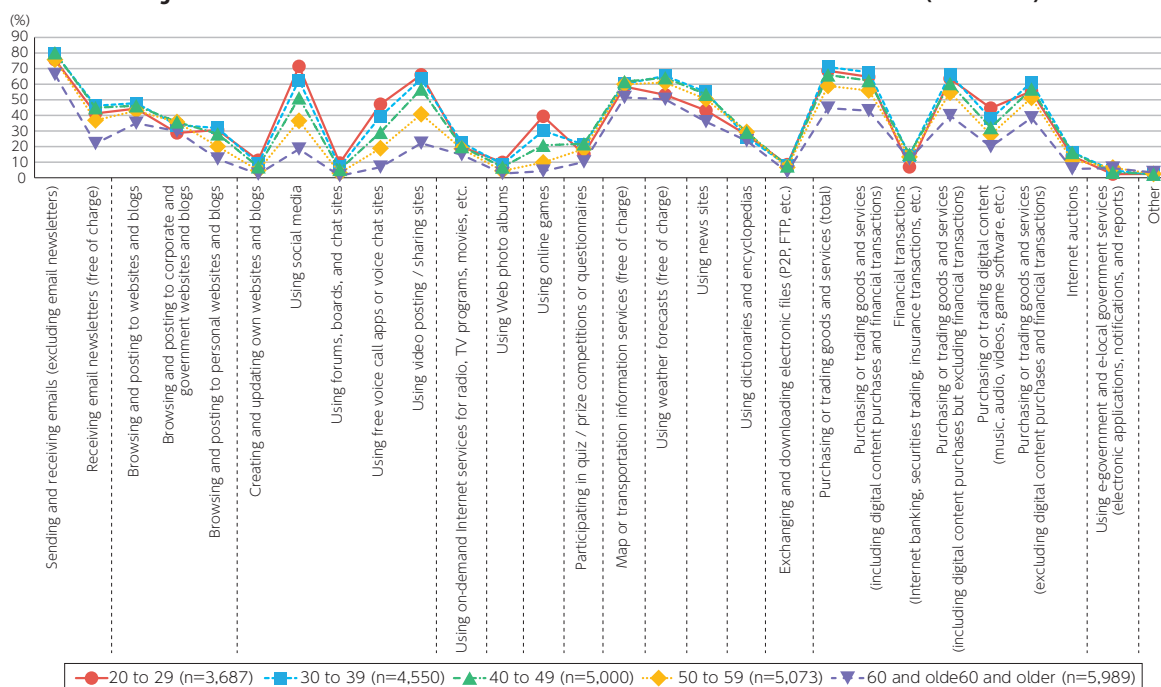
Figure 7-2-1-3 Internet usage by device (at the end of 2014)



(Note) Figures indicate the percentage of people who accessed the Internet using the corresponding device during 2014.

(Source) "2014 Communications Usage Trend Survey," MIC

Figure 7-2-1-4 Internet functions and services accessed inside and outside the home (individuals)



(Source) "2014 Communications Usage Trend Survey," MIC

100.18 million, a decrease of 260,000 (0.3 percent) from the end of 2013. The Internet penetration rate as a percent of the general population was 82.8 percent, unchanged from the previous year-end (Figure 7-2-1-2). Those using computers at home to access the Internet accounted for 53.5 percent of all Internet users, the largest portion, followed by 47.1 percent for smartphones and 21.8 percent for other computers outside of the home (Figure 7-2-1-3).

c. Purposes of using the Internet

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

Among all age groups, the most common purpose of using the Internet was "sending and receiving emails." Viewing the results by age group finds that more than half of users aged 20 to 59 use the Internet for "sending and receiving emails," "purchasing or trading goods and

services," and "map or transportation information services" (Figure 7-2-1-4).

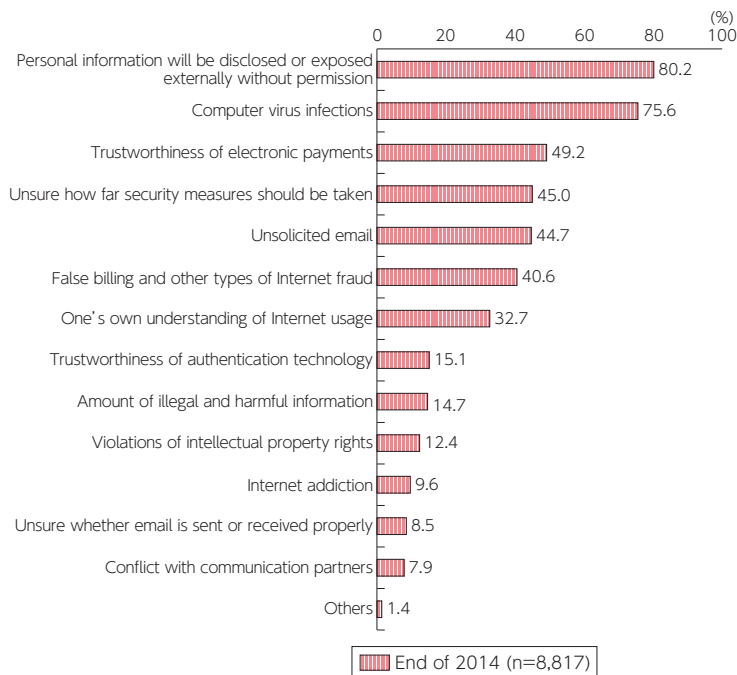
(2) Challenges for safe, secure Internet usage

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

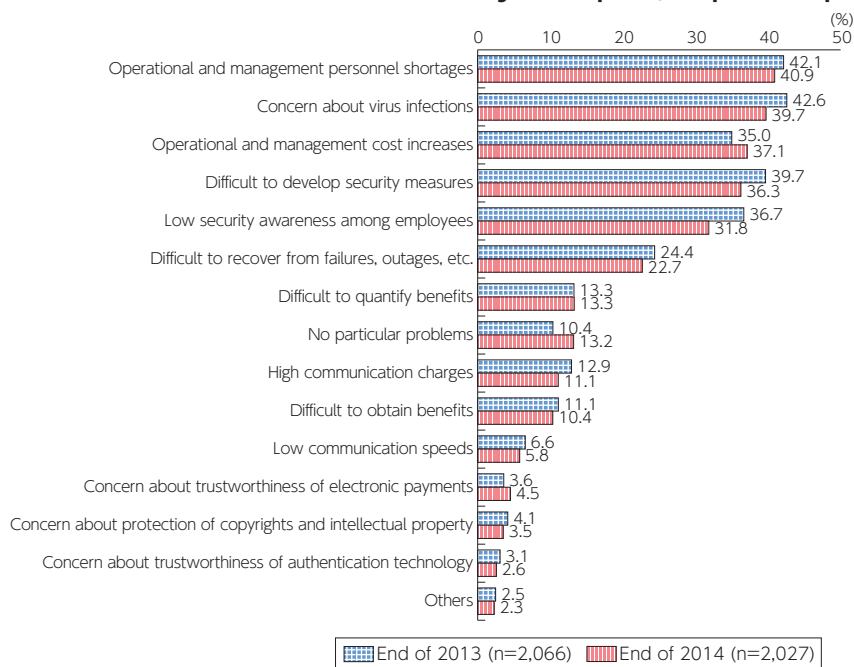
- Households are concerned about personal information and enterprises are concerned about personnel shortages

Among households where at least one person has used the Internet, 80.2 percent cited "personal information will be disclosed or exposed externally without permission" as a concern felt when using the Internet. This was followed, in order, by "computer virus infections" (75.6 percent) and "trustworthiness of electronic payments" (49.2 percent) (Figure 7-2-1-5).

Among enterprises, 40.9 percent, the highest response rate, mentioned "operational and management personnel shortages" as a problem when using the Internet, internal LANs, or other networks. This was fol-

Figure 7-2-1-5 Matters of concern with Internet usage at households (multiple answers permitted)

(Source) "2014 Communications Usage Trend Survey," MIC

Figure 7-2-1-6 Problems with Internet and Intranet LAN usage at enterprises (multiple answers permitted)

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

lowed, in order, by "concern about virus infections" (39.7 percent) and "operational and management cost increases" (37.1 percent) (Figure 7-2-1-6).

b. Information security measures

- **Violations (number of arrests) of the Unauthorized Computer Access Act have fallen considerably, and almost 80 percent of households and more than 90 percent of enterprises have implemented some form of information security measures**

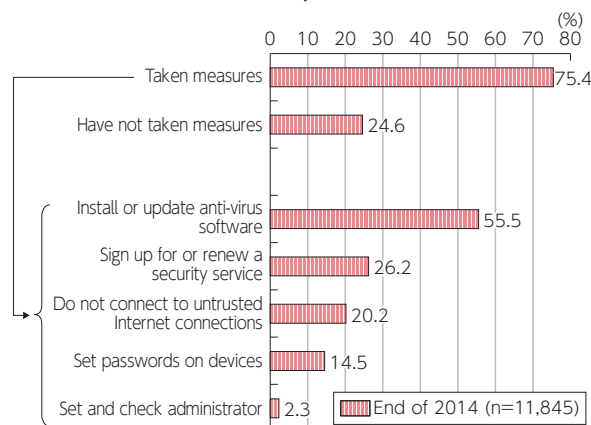
The number of arrests for violations of the Act on the Prohibition of Unauthorized Computer Access (Unau-

thorized Computer Access Act) in 2014 fell sharply from 980 in the previous year to 364.

Looking at the state of information security measures taken by households that use the Internet finds that 75.4 percent of households have taken some form of information security measures. The leading security measures were "install or update anti-virus software" (55.5 percent) and "sign up for or renew a security service" (26.2 percent) (Figure 7-2-1-7).

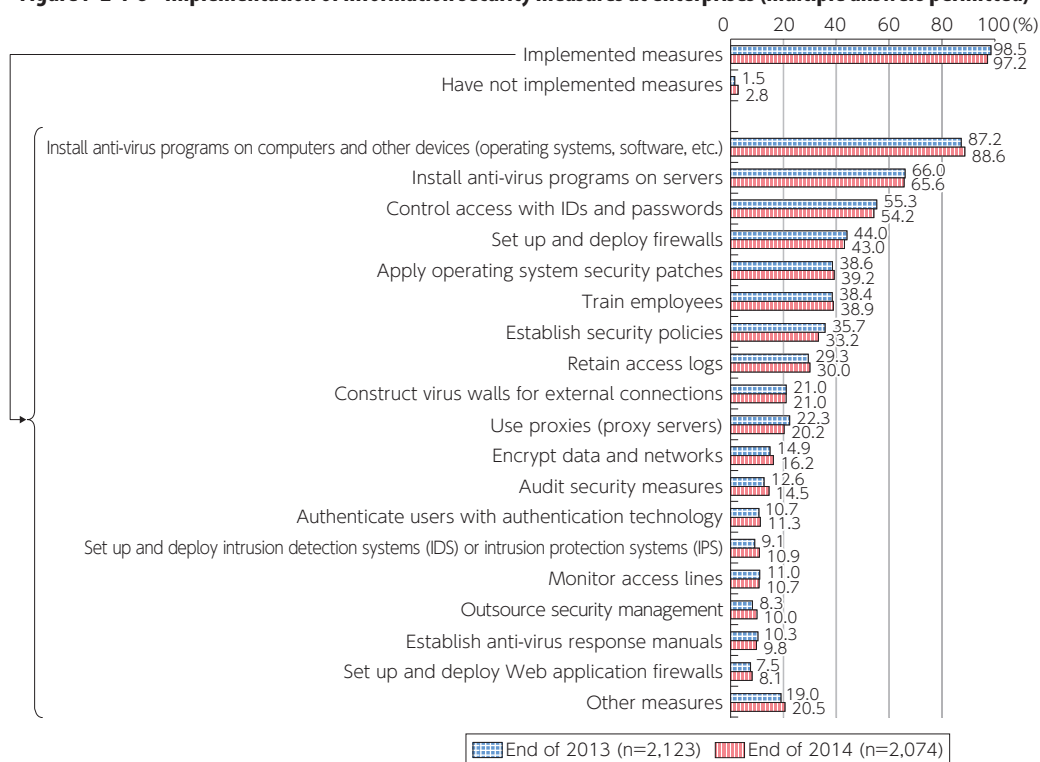
Looking at the state of information security measures implemented by enterprises that use ICT networks finds

Figure 7-2-1-7 Implementation of information security measures at households (multiple answers permitted)



(Source) "2014 Communications Usage Trend Survey," MIC

Figure 7-2-1-8 Implementation of information security measures at enterprises (multiple answers permitted)



(Source) "2014 Communications Usage Trend Survey," MIC

that 97.2 percent of enterprises have implemented some form of information security measures. The leading security measure was "install anti-virus programs on computers and other devices (operating systems, software, etc.)," which is done by 88.6 percent of enterprises. This was followed, in order, by "install anti-virus programs on servers" (65.6 percent) and "control access with IDs and passwords" (54.2 percent) (Figure 7-2-1-8).

c. Personal information protection measures

- Almost 80 percent of all enterprises have implemented personal information protection measures

The percentage of enterprises that have implemented some form of personal information protection measures was 78.4 percent, up 0.9 percentage points from the end of 2013. The most cited protection measure, given by

48.7 percent of enterprises, was "enhance internal training," followed, in order, by "appoint a personal information protection and management officer" (33.7 percent) and "establish a privacy policy" (24.9 percent) (Figure 7-2-1-9).

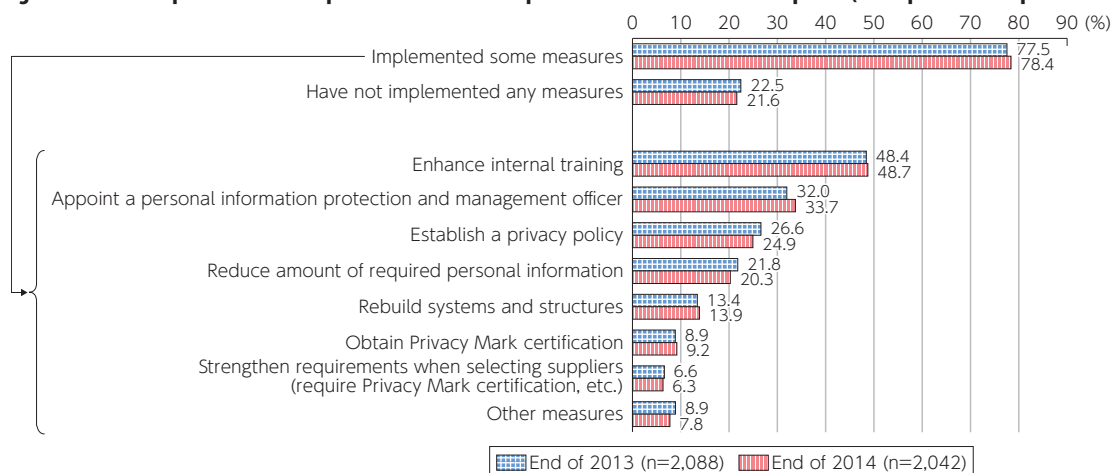
(3) Cloud service usage trends

a. State of cloud service usage in Japan

- The percentage of enterprises using cloud services rose from the end of 2013

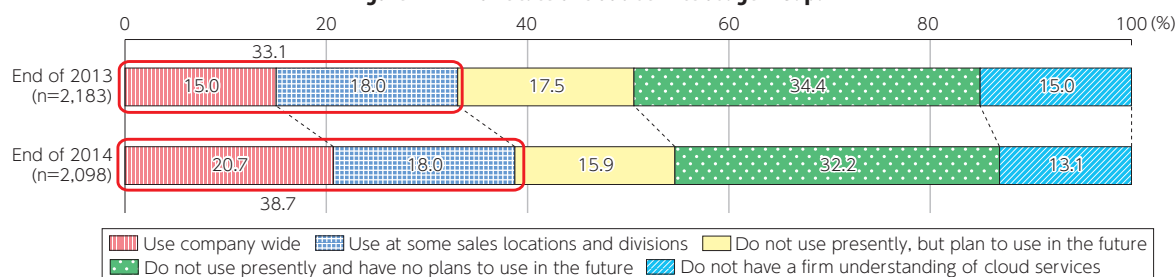
Of enterprise respondents to the survey, 38.7 percent said they had used cloud services either partially or extensively, up 5.7 percentage points from 33.1 percent at the end of 2013 (Figure 7-2-1-10).

Figure 7-2-1-9 Implementation of personal information protection measures at enterprises (multiple answers permitted)



(Source) Prepared from "2014 Communications Usage Trend Survey," MIC

Figure 7-2-1-10 State of cloud service usage in Japan



(Source) "2014 Communications Usage Trend Survey," MIC

b. Breakdown of cloud service usage

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

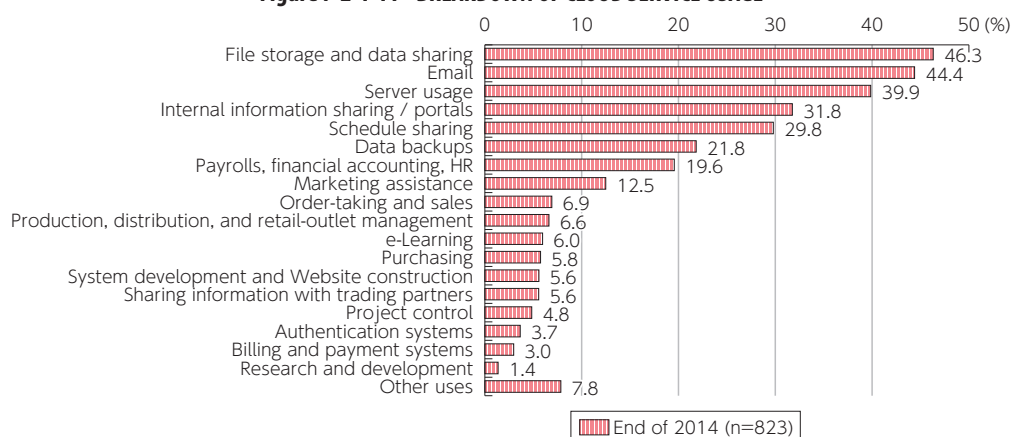
The most frequently used cloud service is "file storage and data sharing," cited by 46.3 percent of respondents, followed, in order, by 44.4 percent for "email" and 39.9 percent for "server usage" (Figure 7-2-1-11).

c. Reasons for introducing cloud services

- "No need for in-house assets or maintenance arrangements" was the most frequently cited reason for introducing cloud services, chosen by about 40 percent

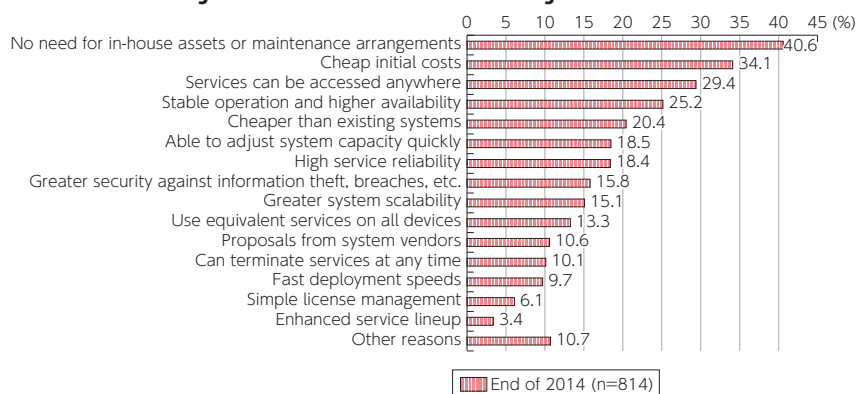
"No need for in-house assets or maintenance arrangements" was the most frequently cited reason for introducing cloud services, chosen by 40.6 percent of respondents, followed, in order, by "cheap initial costs" (34.1 percent) and "services can be accessed anywhere" (29.4 percent). Overall, functional and cost reasons were mentioned most frequently (Figure 7-2-1-12).

Figure 7-2-1-11 BREAKDOWN OF CLOUD SERVICE USAGE



(Source) "2014 Communications Usage Trend Survey," MIC

Figure 7-2-1-12 Reasons for introducing cloud services



(Source) Prepared from "2014 Communications Usage Trend Survey," MIC

2. State of telecommunications service provision and usage

(1) State of telecommunications service provision

a. Overview

(a) Subscriptions to telecommunications services

- Subscriptions to fixed-line communications are trending downward while subscriptions to mobile communications and OABJ-IP phone services have increased steadily

Subscriptions to fixed-line communications services (including NTT East and West subscriber telephone services (including ISDN), non-NTT telephone services,¹³ and cable TV-based telephone services but excluding OABJ-IP phone services) have been declining, while those to mobile communications services (mobile phone and PHS handset services) and OABJ-IP phone services have been growing steadily. Subscriptions to 050-IP phone services have been flat in recent years.

There were about 5.6 times more mobile communications subscriptions than fixed-line communications subscriptions (Figure 7-2-2-1).

(b) State of broadband development and usage

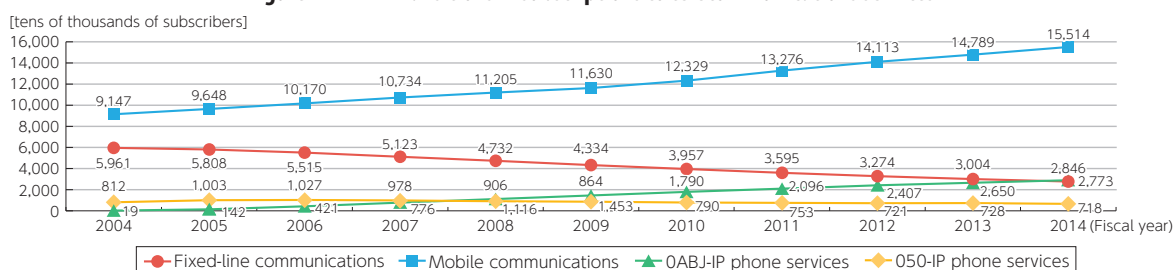
- Ultra-high-speed broadband services¹⁴ were available at 99.9 percent of Japanese households at the end of March 2014

At the end of March 2014, ultra-high-speed broadband services were available at 55.53 million households, or 99.9 percent of all Japanese households. Broadband services¹⁵ were available at 100 percent of Japan's 55.57 million households (Figure 7-2-2-2).

- Subscriptions to mobile ultra-high-speed broadband services have climbed dramatically year by year, with subscriptions to BWA services doubling from the previous year

The number of subscriptions to fixed-line broadband services¹⁶ at the end of FY 2014 stood at 36.80 million (up 2.7 percent from the previous year). Subscriptions to mobile ultra-high-speed broadband services broke down into 67.78 million for 3.9G (LTE) services (up 46.0 percent) and 19.47 million for BWA services (up 160.9

Figure 7-2-2-1 Transitions in subscriptions to telecommunications services



(Note) Subscriptions to mobile communications services cover mobile phone and PHS services.

(Note) Figures for mobile communications 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 one mobile phone device as one contract and not two contracts so as not to diverge from the actual state of affairs, 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 to one mobile phone device.

(Note) Past figures have been revised based on detailed data analyses.

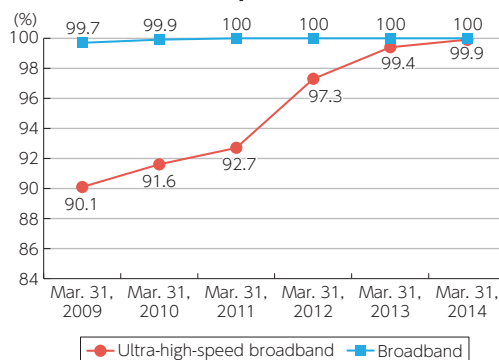
(Source) Prepared from "Announcement of Quarterly Data on Telecommunications Service Contracts and Market Shares (4Q of FY 2014 (March 31, 2015))," MIC

¹³ Non-NTT services are 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.

¹⁴ Households with ultra-high-speed broadband service availability are the total of households with FTTH, cable TV Internet, FWA, BWA, or LTE service availability. (Besides FTTH and LTE services, this definition includes only those services with download speeds of 30 Mbps or more).

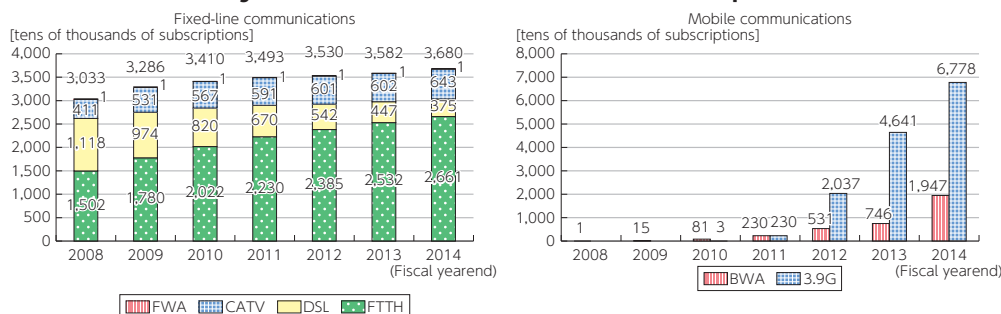
¹⁵ Households with broadband service availability are the total of households with FTTH, DSL, cable TV Internet, FWA, satellite, BWA, LTE, and 3.5G mobile phone service availability.

¹⁶ Figures for subscriptions to fixed-line broadband services cover FTTH, DSL, cable TV, and FWA services.

Figure 7-2-2-2 Transitions in the provision of broadband infrastructure

percent) (Figure 7-2-2-3). As for FTTH and DSL services, DSL services continued to experience a net decrease while FTTH services have seen consistent net increases.

The number of subscriptions to BWA services has also increased in recent years.

Figure 7-2-2-3 Transitions in broadband service subscriptions

(Source) Prepared from "from "Announcement of Quarterly Data on Telecommunications Service Contracts and Market Shares (4Q of FY 2014 (March 31, 2015))," MIC

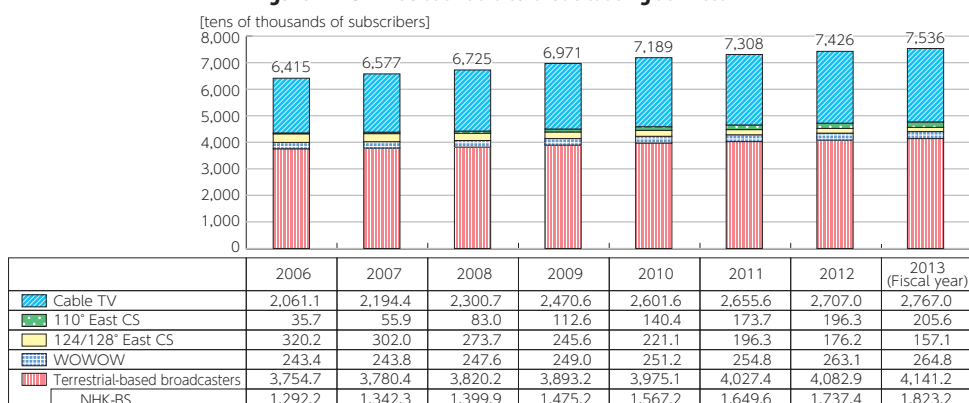
3. State of broadcasting service provision and usage

- Subscriptions to NHK terrestrial, NHK-BS, WOWOW, 110° East CS, and cable TV services in FY 2013 increased from the previous year

124/128° East CS (communications satellite) broadcasts, increased in FY 2013 (Figure 7-2-3-1).

a. General remarks

Subscriptions to all broadcasting services, except

Figure 7-2-3-1 Subscribers to broadcasting services

(Note) NHK terrestrial subscribers are the number of all NHK subscription contracts.

(Note) NHK BS subscribers are the number of NHK satellite contracts.

(Note) WOWOW subscribers are the number of WOWOW contracts.

(Note) 124/ 128° East CS subscribers are the number of Sky PerfecTV premium service contracts.

(Note) 110° East CS subscribers are the number of Sky PerfecTV contracts.

(Source) Prepared from "State of Satellite Broadcasting," "State of Cable Television," and "Transitions in NHK broadcast subscriptions," MIC

4. Promoting ICT applications in government services

(1) Promoting e-government

● The online usage rate increased for procedures handled by national administrative bodies

The usage rate of applications, notifications, and other national administrative procedures filed online versus all applications, notifications, and procedures¹⁷ filed was 44.1 percent (209,558,511 procedures were filed online, an increase of 2.9 percentage points from the previous fiscal year). The online usage rate of the priority procedures¹⁸ most frequently used by citizens and enterprises was 46.2 percent (199,656,173 procedures were filed online, an increase of 3.1 percentage points from the previous fiscal year) (Figure 7-2-4-1).

(2) Promoting ICT applications 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 procedures¹⁹ was 45.2 percent in FY 2013 (Figure

7-2-4-2).

b. Raising the efficiency of operational systems

The most common shared online system among prefectures was electronic bidding systems for public works projects, which were shared by 26 prefectural governments (55.3 percent). The most common shared online system among municipal governments was browsing library holdings and reserving books, which were shared by 595 municipal governments (34.2 percent). Among prefectures, the next most common shared online system was browsing library holdings and reserving books (11 prefectures, 23.4 percent), and among municipalities, electronic bidding systems for public works projects (444 municipalities, 25.5 percent) (Figure 7-2-4-3).

Figure 7-2-4-1 Transitions in the online usage of applications, notifications, and procedures handled by national administrative bodies

Fiscal year	All application, notification, and other procedure filings		Filings done online		Online usage rate [%]	
		Priority procedures		Priority procedures		Priority procedures
FY 2013	475,409,156	432,579,446	209,558,511	199,656,173	44.1	46.2
FY 2012	458,496,901	421,297,165	188,960,305	181,479,301	41.2	43.1
FY 2011	442,868,928	405,824,947	170,504,798	163,807,924	38.5	40.4
FY 2010	490,303,745	403,819,006	155,943,915	149,920,227	31.8	37.1

(Source) Prepared from "State of Online Administrative Procedures in FY 2013," MIC press release

Figure 7-2-4-2 Transitions in the usage of local government procedures selected for online-usage promotion



(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.

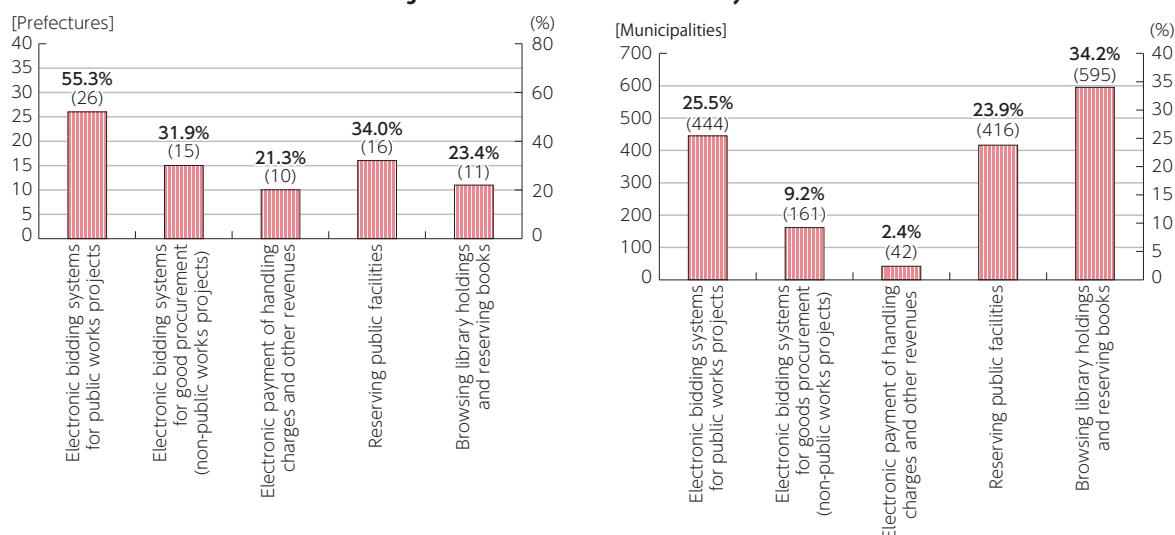
(Source) Prepared from "State of Online Administrative Procedures in FY 2013," MIC press release

¹⁷ The total number of applications, notifications, and procedures filed is for those procedures placed online.

¹⁸ Priority procedures are 71 frequently used procedures selected in the New Online Usage Plan (decided by the Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society on August 3, 2011) 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. In FY 2013, the priority procedures accounted for 91.0 percent of all filings made for applications, notifications, and procedures available online.

¹⁹ The targeted procedures were those selected for online-usage promotion under the E-Local Government Online Usage Advancement Policy.

Figure 7-2-4-3 Use of shared online systems



(Source) Prepared from "Overview of Information Management by Local Governments: State of E-Local Government Progress (as of April 1, 2014)," MIC

Section 3 Radio Spectrum Usage Trends

1. State of radio spectrum usage and number of radio stations

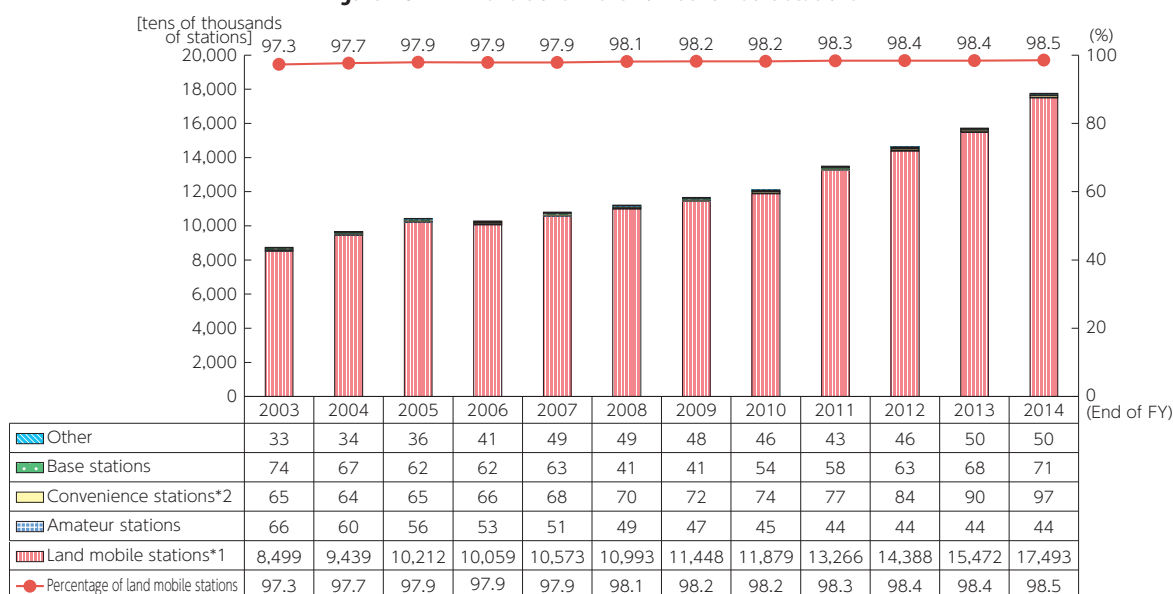
(1) Radio stations

- 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 2014 increased by 12.9 percent from a year earlier to 177.55 mil-

lion, including 174.93 million mobile phones and other land mobile stations, a jump of 13.1 percent. Mobile phones and other mobile land stations accounted for a huge 98.5 percent of all radio stations. The number of convenience stations climbed by 7.5 percent to 97,000 (Figure 7-3-1-1).

Figure 7-3-1-1 Transitions in the number of radio stations



Note 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).

Note 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 771 reports of interference with key radio communications in FY 2014, and 1,680 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.

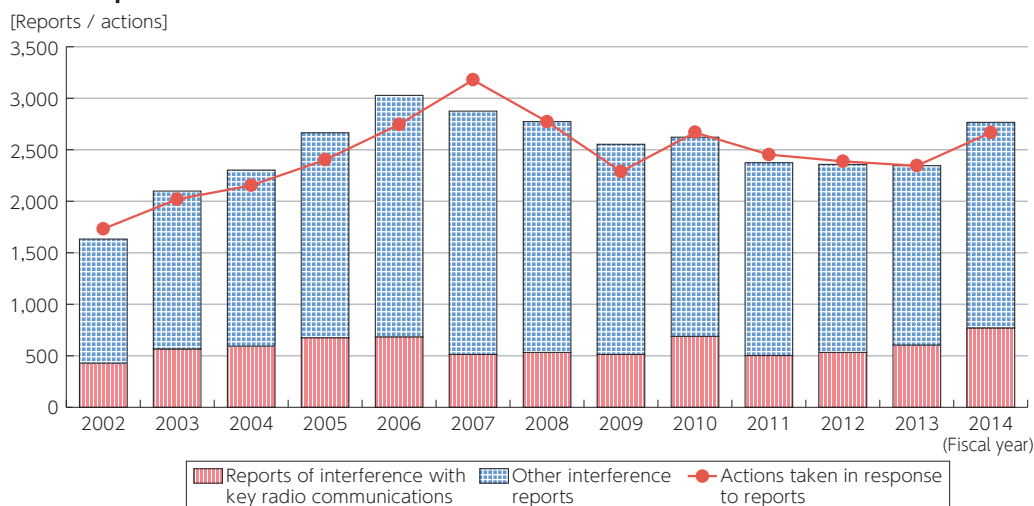
Since FY 2010, radio authorities have been working to promptly eliminate interference with key radio communications with a system that accepts interference reports

around the clock. Radio authorities also monitor short-wave radio and cosmic radio waves at international radio surveillance facilities registered with the International Telecommunication Union (ITU).

In FY 2014, there were 2,766 reports of radio interference or obstructions of all kinds, 421 more (18.0 percent) than the previous year. Among these, there were 771 reports of interference with key radio communications, 166 more (27.4 percent) than the previous year. In response to these reports, 2,667 actions²⁰ were taken in FY 2014 (Figure 7-3-2-1).

In FY 2014, 7,321 illegal radio stations were detected, 220 less (3.0 percent) than the previous year. In response, 1,680 actions were taken in FY 2014, a decrease of 312 actions (15.7 percent) from the previous year. These actions included 215 indictments (12.8 percent of all actions) and 1,465 directives (87.2 percent of all actions).

Figure 7-3-2-1 Transitions in the number of radio station interference/obstruction reports and the number of actions taken in response



Number of interference / obstruction reports

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 (FY)
Reports of interference with key radio communications	429	566	592	674	684	512	532	513	689	501	532	605	771
Other interference reports	1,205	1,533	1,711	1,991	2,344	2,364	2,241	2,041	1,934	1,873	1,826	1,740	1,995

Number of actions in response to interference / obstruction reports

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 (FY)
Actions taken in response to interference reports	1,732	2,021	2,155	2,403	2,745	3,179	2,772	2,289	2,669	2,453	2,389	2,346	2,667

²⁰ The number of actions includes incomplete actions remaining from the previous fiscal year.