# Chapter 1

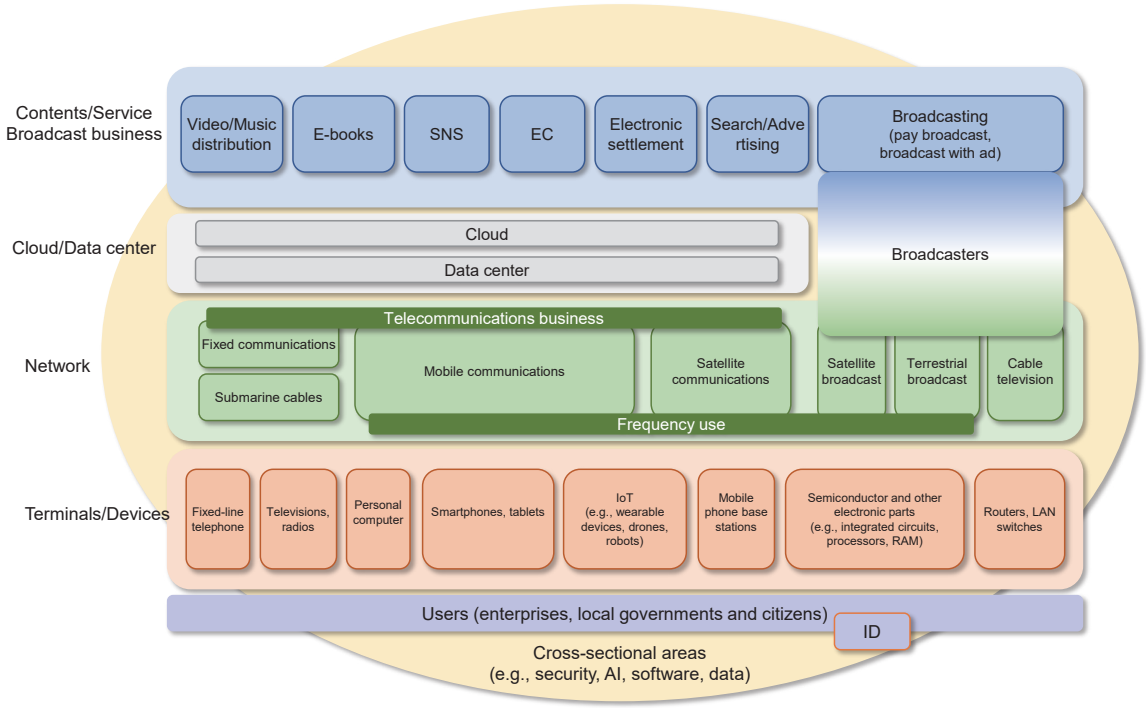
# Trends in the ICT Market

## Section 1 Trends in the ICT Industry

### 1. Size of the ICT Market

ICT includes devices and terminals that serve as user interfaces, networks provided by telecommunications and broadcasting companies, cloud and data centers, content services such as video and music streaming, and security and AI (**Figure 2-1-1-1**).

**Figure 2-1-1-1 Structure of the ICT market by layer**

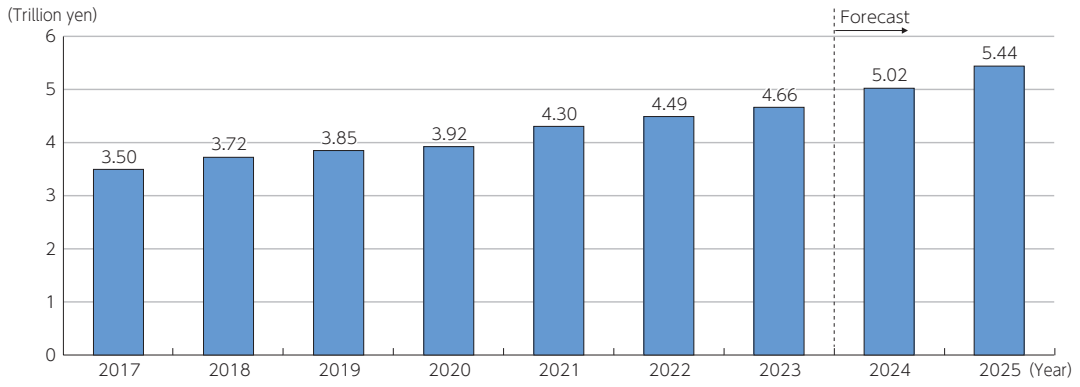



(Source) Prepared by MIC

The global ICT market (expenditure)[1] has been on an upward trend in recent years. It is expected to reach 5.02 trillion dollars in 2024 (a 7.7% increase from the previous year), and 5.44 trillion dollars in 2025 (an 8.3% increase from the previous year) **(Figure 2-1-1-2)**.

[1] It includes IT services, communications services, software, infrastructures, devices, peripheral equipment, and cybersecurity, etc.

**Figure 2-1-1-2 Changes and forecasts of the size of the global ICT market (expenditure)**

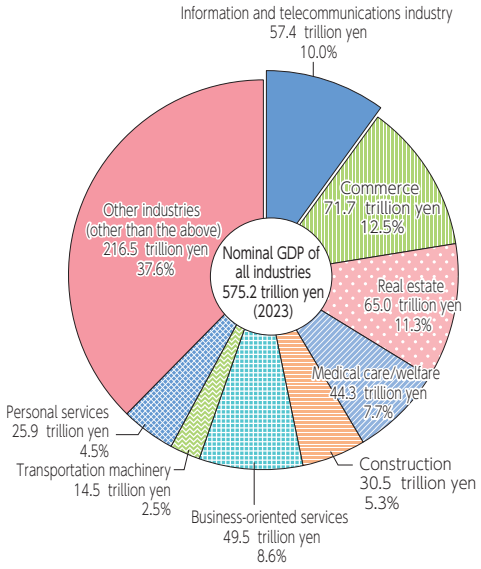



(Source) Prepared based on data from Canalys[2]

## 2. Gross Domestic Product (GDP) of the ICT industry[3]

The nominal GDP of the information and communications industry in 2023 was 57.4 trillion yen, a 3.5% increase compared to the previous year (55.5 trillion yen) (**Figure 2-1-1-3**, **Figure 2-1-1-4**). When examining the nominal GDP trends by sector within the information and communications industry, most sectors have remained relatively stable, while the information services and Internet-related services sectors have shown an increasing trend (**Figure 2-1-1-5**).

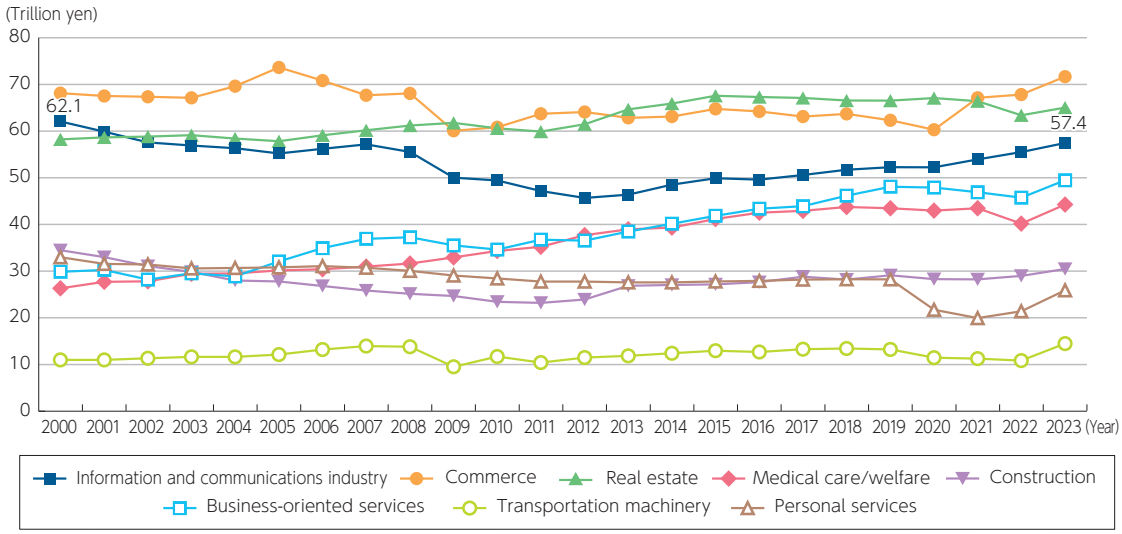
**Figure 2-1-1-3 GDP of major industries (nominal)**




(Source) MIC(2025) "Survey on Economic Analysis of ICT in FY2024"

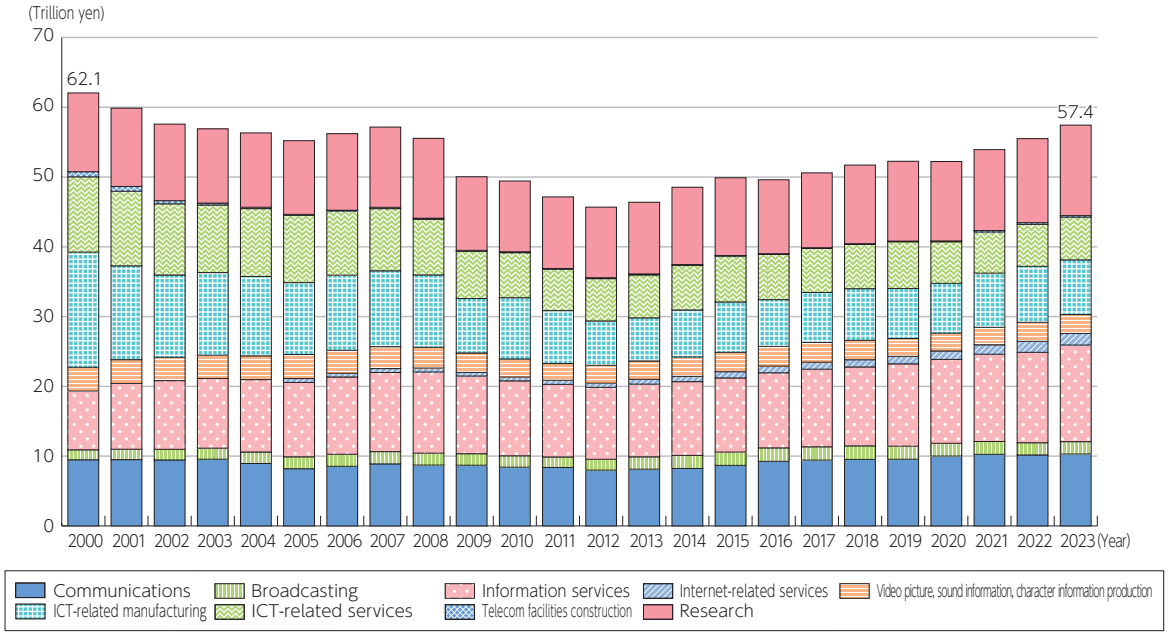
[2] https://www.canalys.com/insights/it-spending-forecasts-2025
[3] The ICT industry consists of nine sectors: telecommunications, broadcasting, information services, services incidental to the Internet, video/sound/text information production, manufacturing related to information and communications, services related to information and communications, construction related to information and communications, and research.

**Figure 2-1-1-4 Changes in nominal GDP of major industries**




(Source) MIC(2025) "Survey on Economic Analysis of ICT in FY2024"

**Figure 2-1-1-5 Changes in nominal GDP of the ICT industry**




(Source) MIC(2025) "Survey on Economic Analysis of ICT in FY2024"

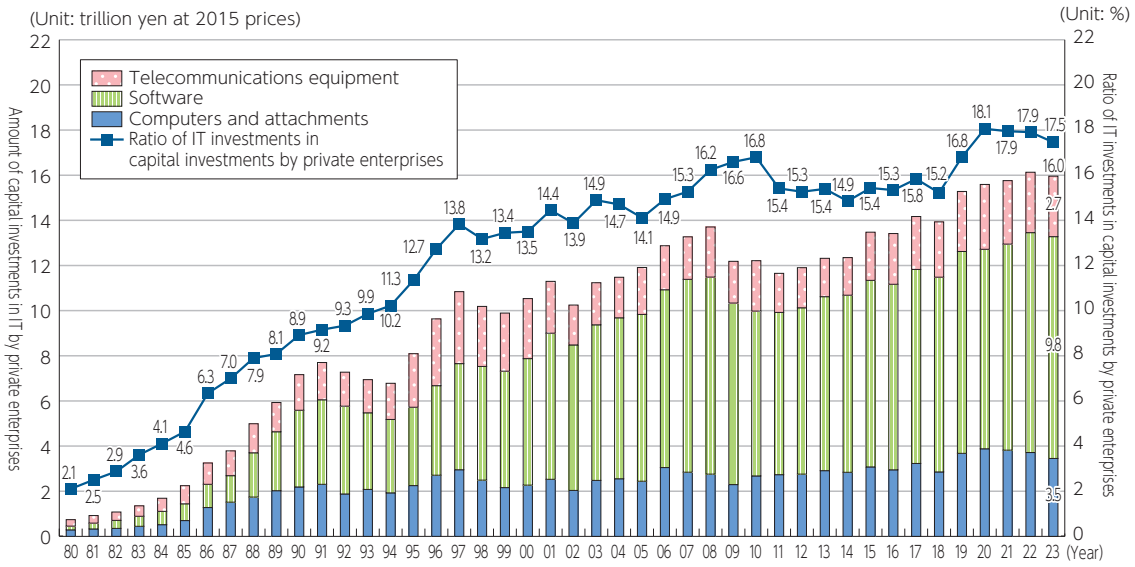
## 3. ICT investment[4]

In 2023, private sector ICT investment in Japan amounted to 16.0 trillion yen (2015 year prices), a 1.1% decrease from the previous year. Software (custom development and packaged software) accounted for 9.8 trillion yen, nearly 60% of the total. The ratio of information investment to total private sector capital investment was 17.5% (a 0.4 percentage point decrease from the previous year) in 2023, indicating that ICT investment holds a significant position within capital investment (**Figure 2-1-1-6**).

Comparing the trends in ICT investment between Japan and the U.S., ICT investment in the U.S. showed a steady increase despite temporary setbacks, while Japan's ICT investment continues to show a gradual increase or flat trend (**Figure 2-1-1-7**).

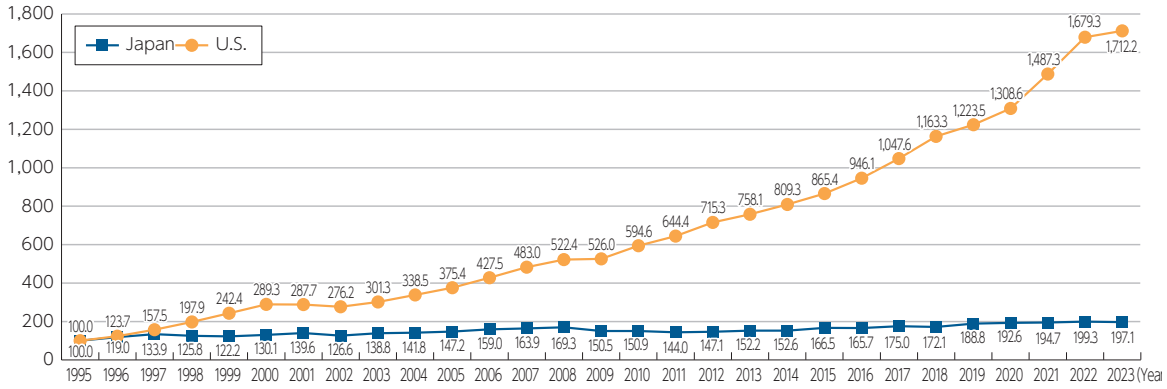
[4] Here the term refers to investment in information and communications capital goods (computers and peripheral equipment, telecommunications equipment, software). The use of cloud services that have spread drastically in recent years is the purchasing of a service rather than the purchasing of capital goods and therefore is not included in IT investment here.

**Figure 2-1-1-6 Changes in ICT investment in Japan**




(Source) MIC(2025) "Survey on Economic Analysis of ICT in FY2024"

**Figure 2-1-1-7 Comparison of ICT investment in the private sector in Japan and the U.S.**




* Indexing year 1995=100 (Japan: price in 2015, the U.S.: price in 2012)

(Source) MIC(2025) "Survey on Economic Analysis of ICT in FY2024"

## 4. Exports and imports in the ICT field

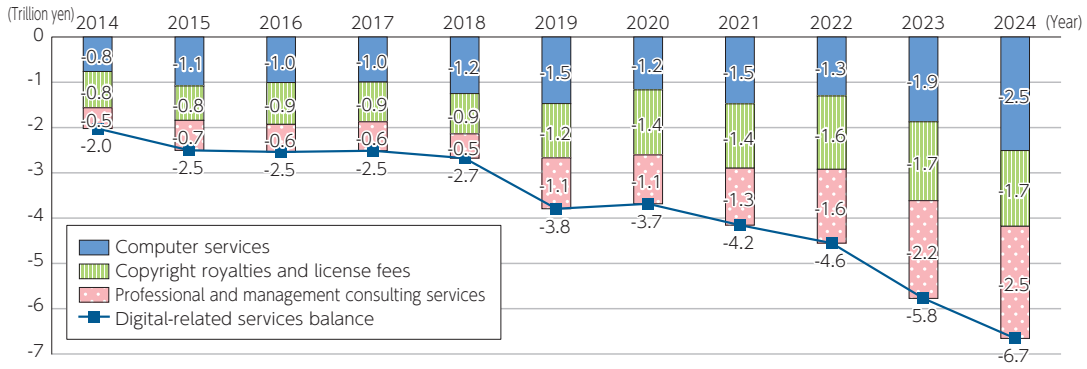
Regarding the services balance in the balance of payments statistics, the Bank of Japan Review "Globalization of Services Trade as Seen in Balance of Payments Statistics[5]" classifies digital-related items as follows: (1) computer services, (2) copyright royalties and license fees, (3) professional and management consulting services, in addition, (4) communications services, and (5) information services. In recent years, the total deficit amount for items (1) through (3) in particular, has increased rapidly, gaining attention as the so-called "digital deficit." It should be noted that this includes balance of payments related to services other than the digital field.

For example, the total balance of (1) computer services, (2) copyright royalties and license fees, and (3) professional and management consulting services was in deficit in 2024, with a deficit of approximately 6.7 trillion yen (an increase of approximately 0.9 trillion yen from the previous year) (if (4) communications services and (5) information services are added to this, the deficit would have been approximately 6.8 trillion yen (an increase of approximately 0.9 trillion yen from the previous year)) **(Figure 2-1-1-9)**.

Regarding "Communications, computer, and information services," which are largely composed of computer services such as fees for cloud services and online meeting systems, the balance of payments by country and region shows that in 2024, the largest deficits were with the U.S, Singapore, the Netherlands, China, and Sweden, in the respective order. In terms of the payment amounts, the amounts were the largest for the U.S., Singapore, and the Netherlands in 2024, in the respective order.

[5] https://www.boj.or.jp/research/wps_rev/rev_2023/data/rev23j09.pdf

**Figure 2-1-1-9 Changes in the digital-related services balance**




* Here the figures indicate the total balance of payments of computer services, copyright royalties and license fees, and professional and management consulting services

(Source) Prepared based on "Balance of Payments Statistics" by the Ministry of Finance

**Figure (related data) Changes in the digital-related services balance (computer services, copyright royalties and license fees, professional and management consulting services, communications services, information services)**
Source: Prepared based on the Ministry of Finance's "Balance of Payments Statistics"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00094
(Data collection)

**Figure (related data) Changes in amounts received and paid for the digital-related services (computer services, copyright royalties and license fees, professional and management consulting services, communications services, information services)**
Source: Prepared based on the Ministry of Finance's "Balance of Payments Statistics"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00095
(Data collection)

**Figure (related data) Changes in communications, computer and information services balance (by recipient, payment destination country and region)**
Source: Prepared based on the Ministry of Finance's "Balance of Payments Statistics"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00096
(Data collection)

Based on trade statistics from the Ministry of Finance[6], the difference between the amount of ICT goods[7] exported from Japan and the amount of ICT goods imported into Japan shows that the deficit has been increasing in recent years, reaching a deficit of 3,416.8 billion yen in 2024. It should be noted that these statistics only show the amount of exports from Japan to overseas and the amount of imports from overseas to Japan, and do not reflect exports from overseas production bases of Japanese companies to countries other than Japan, and that when products produced at overseas bases of Japanese companies are import into Japan, it is counted as an "import."

Looking at each item, "other electronic components" had the largest surplus in 2024, and the surplus in "integrated circuits" was also large. On the other hand, the largest deficit was in "mobile phones," and the deficit has been increasing in recent years. The second largest deficit was in "personal computers," followed by "computer units (excluding personal computers)," and "wired telecommunications equipment." Parts and components, etc. tend to generate larger surpluses, while final products tend to have larger deficits.

Looking at the top countries and regions that account for large shares of Japan's imports and exports of major ICT goods with large trade amounts, China was the largest source of imports of mobile phones and personal computers in 2024. As for exports, Taiwan was the largest destination for integrated circuits, China for other parts, and the U.S. for computer peripheral equipment.

[6] The import value in trade statistics is based on CIF (Cost, Insurance and Freight, which includes the price of the cargo as well as insurance and freight costs to the destination), and the export value is based on FOB (Free on Board, which is the shipping price in the exporting country. It does not include after-shipment insurance and freight costs to the destination). Here, the difference between the export value and the import value is calculated mechanically.

[7] The following goods are included in the scope of ICT goods in the Ministry of Internal Affairs and Communications "Information and Communications Industry Input-Output Table. " Personal computers, computer units (excluding personal computers), computer peripheral equipment, wired telecommunications equipment, mobile phones, wireless telecommunications equipment (excluding mobile phones), telecommunication cables and optical fiber cables, office machines, semiconductor devices, integrated circuits, liquid crystal panels, flat panels and electron tubes, and other electronic components.

**Figure (related data) Changes in the value of Japan's imports and exports of ICT goods based on the Ministry of Finance's trade statistics**
Source: Prepared based on the Ministry of Finance's "Trade Statistics"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00098
(Data collection)

**Figure (related data) Countries and regions where major ICT goods are imported from or exported to (top 3 countries)**
Source: Prepared based on the Ministry of Finance's "Trade Statistics"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00099
(Data collection)

## 5. Trend of R&D in the ICT field

### (1) Situation of research and development expenditure

#### A Trends in research and development expenditure in major countries and regions

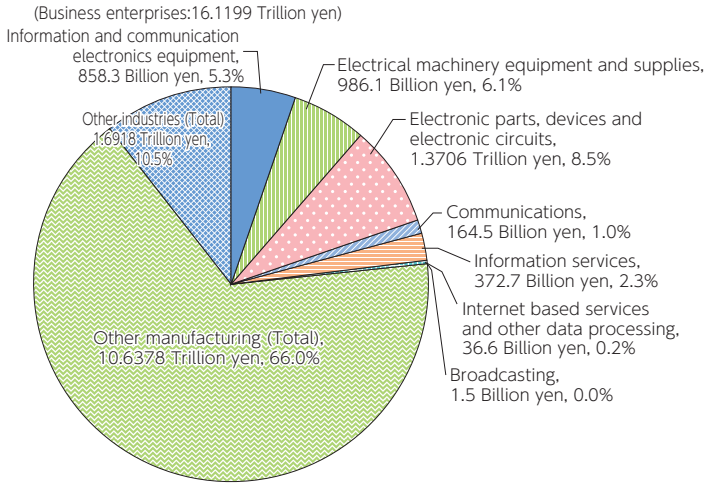
In 2021, the U.S. maintained the top position in research and development expenditure at 806 billion dollars. Following the U.S. were China, the EU, and Japan, with Japan's research and development expenditure showing a flat trend, and the gap with the top countries widening.

**Figure (related data) Trend of total expenditure on research and development in major countries and regions**
Source: Japan Science and Technology Agency, Research and Development Strategy Center "Overview of Research and Development Report (2024)"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00102
(Data collection)

#### B Situation of research and development expenditure in our country

In FY2023, the total amount of research and development expenditure in Japan (the sum of research expenditure by business enterprises, non-profit institutions and public organizations, universities and colleges) (hereinafter in this section referred to as the "R&D expenditures") was 22.497 trillion yen, with the R&D expenditures of business enterprises amounting to 16.1199 trillion yen. Among the R&D expenditures of business enterprises, the R&D expenditures in the information and communications industry[8] were 3.7902 trillion yen (23.5%) **(Figure 2-1-1-11)**, and it has shown a trend of stagnation in recent years **(Figure 2-1-1-12)**.

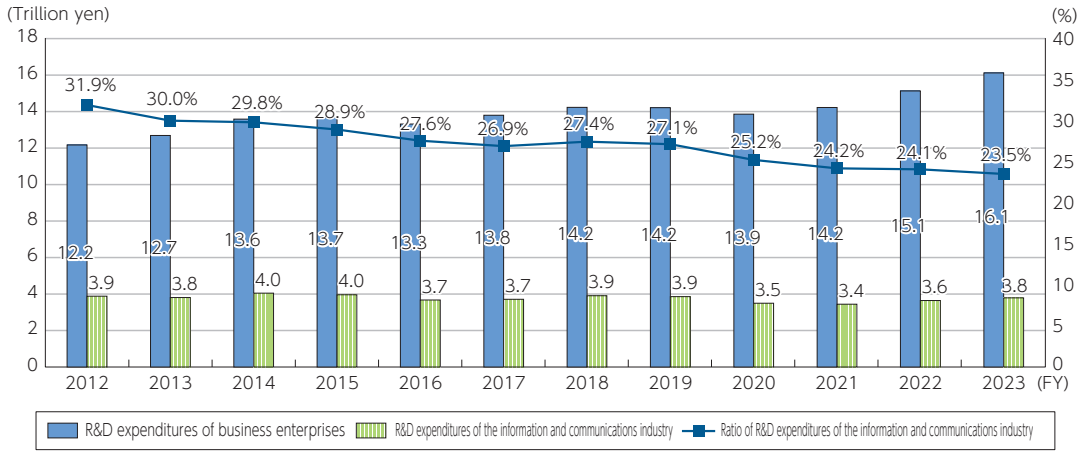
**Figure 2-1-1-11 Percentage of R&D expenditures of business enterprises (FY2023)**




(Source) Prepared based on MIC "2024 Survey of Research and Development"[9]

[8] Here, the term refers to information and communication electronics equipment, electrical machinery equipment and supplies, electronic parts, devices and electronic circuits, information and communications (information services, communications, broadcasting, and Internet based services and other data processing
[9] https://www.stat.go.jp/data/kagaku/index.html

**Figure 2-1-1-12 Trend of R&D expenditures of business enterprises**




(Source) Prepared based on MIC "Survey of Research and Development"[10] for each FY

### (2) Situation of persons employed in research and development

#### A Trends in the number of researchers in major countries and regions

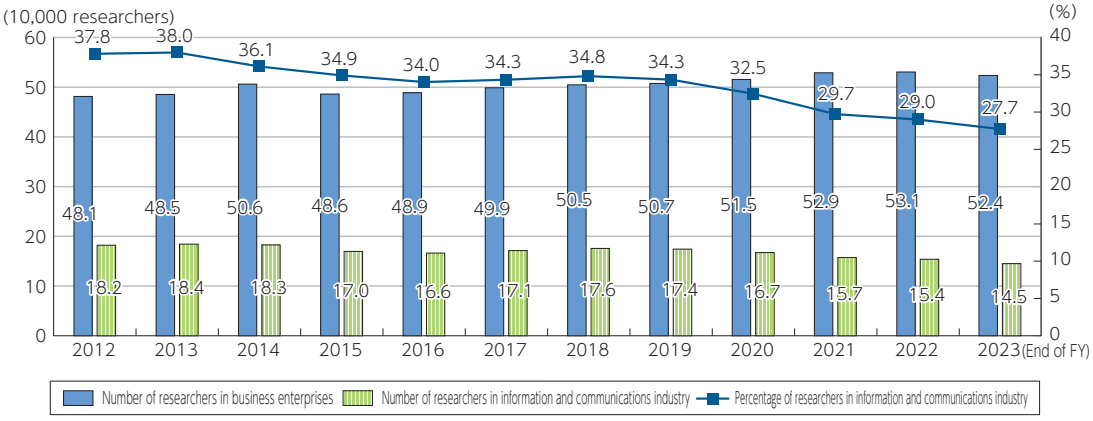
The number of researchers in major countries[11] is increasing. In 2023, the number of researchers in Japan was 0.706 million, ranking third in size after China (2.406 million in 2021) and the U.S. (1.639 million in 2021). Looking at the latest values for other countries in descending order: the Republic of Korea (0.489 million in 2022), Germany (0.485 million in 2022), France (0.346 million in 2022), and the UK (0.296 million in 2017).

**Figure (related data) Changes in the number of researchers in major countries and regions**
Source: National Institute of Science and Technology Policy in the MEXT "Science and Technology Indicators 2024"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00113
(Data collection)

#### B Number of researchers in our country

At the end of FY2023, the number of researchers in Japan (the total number of researchers in business enterprises, non-profit institutions and public organizations, universities and colleges) was 907,363 with the number of researchers in business enterprises being 523,548. Among the researchers in business enterprises, the number of researchers in the information and communications industry was 145,122 (27.7%), showing a decreasing trend in recent years **(Figure 2-1-1-13)**.

**Figure 2-1-1-13 Trend in the number of researchers in business enterprises**




(Source) Prepared based on MIC "Survey of Research and Development" for each FY[12]

[10] https://www.stat.go.jp/data/kagaku/index.html
[11] Measured by converting research work into fulltime employment.
[12] https://www.stat.go.jp/data/kagaku/index.html

**Figure (related data) Percentage of the number of researchers at business enterprises by industry (as of March 31, 2024)**
Source: Prepared based on MIC "2024 Survey of Research and Development"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00115
(Data collection)

### (3) Patent situation

The number of patent applications to the U.S. was 0.594 million in 2022. The proportion of applications from non-residents has been increasing in recent years, suggesting that the U.S. market is attractive to overseas entities. The number of applications to Japan was 0.290 million in 2022, ranking third in size after China and the U.S. However, the number of patent applications has been decreasing since the mid-2000s, leading to a growing gap.

Looking at the proportion of patent families[13] across technology fields in Japan, the U.S., and China, it is evident that the proportion of "Information and Communication Technology" is increasing in the U.S. and China, while it is stagnant in Japan.

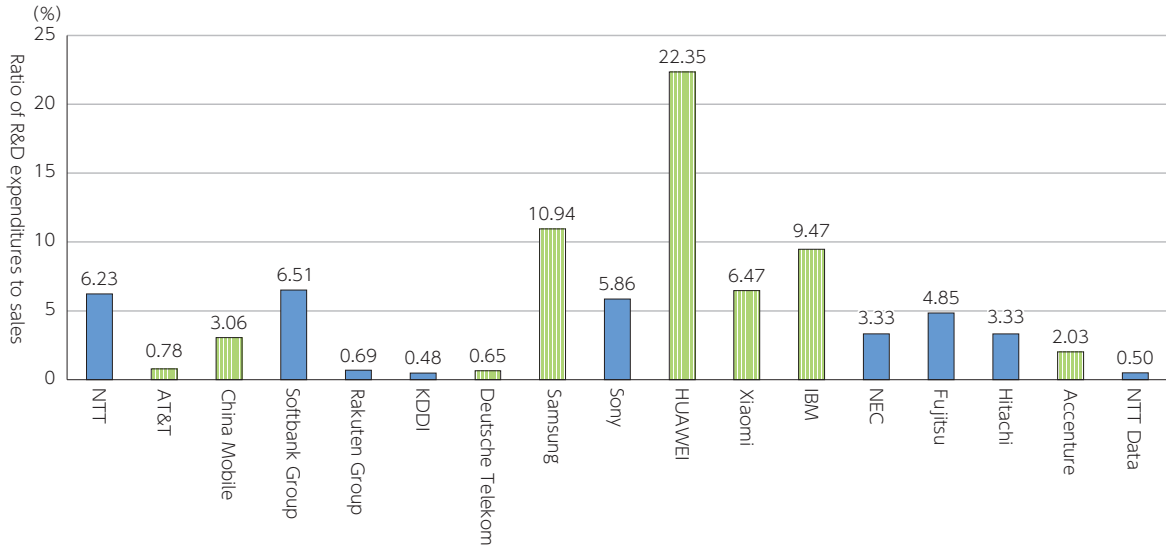
**Figure (related data) Changes in the patent application in major countries and from major countries**
Source: National Institute of Science and Technology Policy in the MEXT "Science and Technology Indicators 2024"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00115
(Data collection)

### (4) Trends in research and development of major domestic and international companies in the ICT field

The ratio of research and development expenditures to sales in 2023 for major domestic and international information and communication-related companies remained below 10%, with the exception of some companies **(Figure 2-1-1-15)**.

For major Japanese telecommunications companies, the ratio of research and development expenditures to sales in 2023 was approximately 6 to 7% for NTT and Softbank Group, and less than 1% for KDDI and Rakuten Group, while GAFAM14 and BAT15, excluding Apple and Alibaba, had a ratio of approximately 10% to 30%, indicating their active commitment to research and development **(Figure 2-1-1-16) (Figure 2-1-1-17)**.

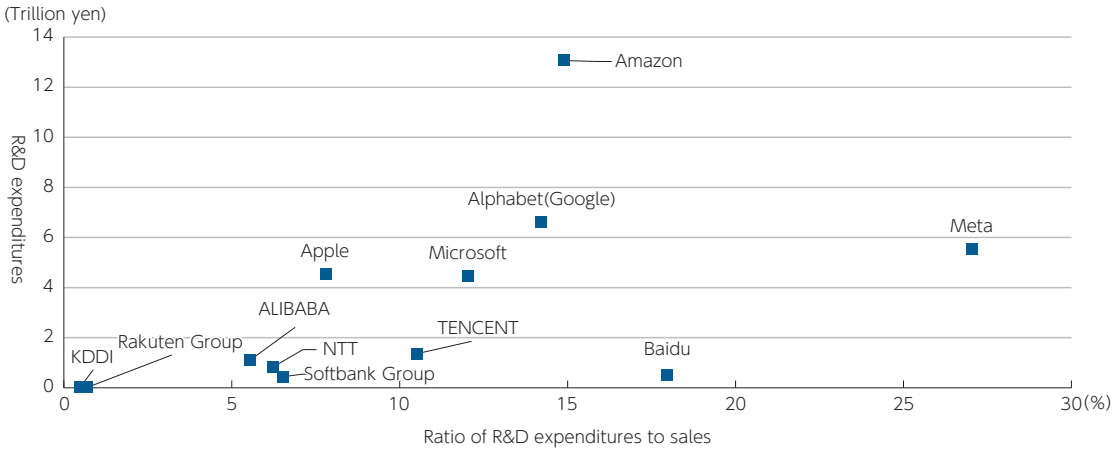
**Figure 2-1-1-15 Comparison of research and development expenditure by telecommunications carriers, communications devices and IT service providers (2023)**




(Source) Prepared based on the "EU Industrial R&D Investment Scoreboard" and annual reports etc. by each company[16]

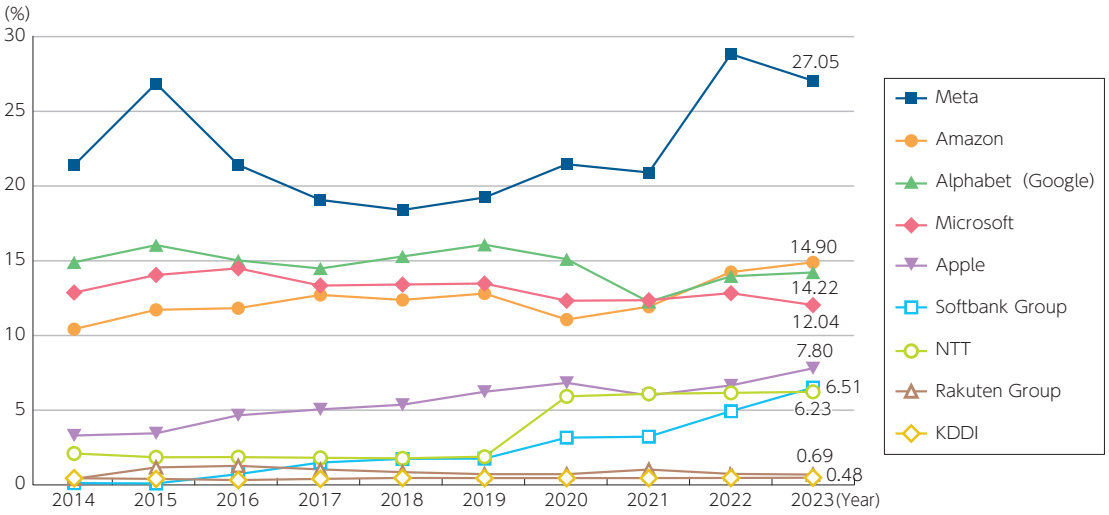
[13] A patent family is a bundle of patent applications in two or more countries that are linked directly or indirectly by priority rights. Generally, patents with the same content that are filed in more than one country belong to the same patent family. Thus, counting patent families prevents the same application from being counted twice. In other words, the number of patent families is considered to be approximately the same as the number of inventions.
https://www.nistep.go.jp/sti_indicator/2024/RM341_46.html
[14] Alphabet (Google), Amazon, Meta (facebook), Apple, Microsoft
[15] Baidu, Alibaba, Tencent
[16] Note that a simple comparison cannot be made with the corresponding data contained in previous White Papers on Information and Communications in Japan because different data sources are used.

**Figure 2-1-1-16 Comparison of research and development expenditure between major Japanese telecommunications carriers and GAFAM & BAT (2023)**




(Source) Prepared based on the "EU Industrial R&D Investment Scoreboard" and annual reports etc. by each company[17]

**Figure 2-1-1-17 Changes in the ratio of research and development expenditure to sales among major Japanese telecommunications carriers and GAFAM**




(Source) Prepared based on the "EU Industrial R&D Investment Scoreboard"

[17] Note that a simple comparison cannot be made with the corresponding data contained in previous White Papers on Information and Communications in Japan because different data sources are used.

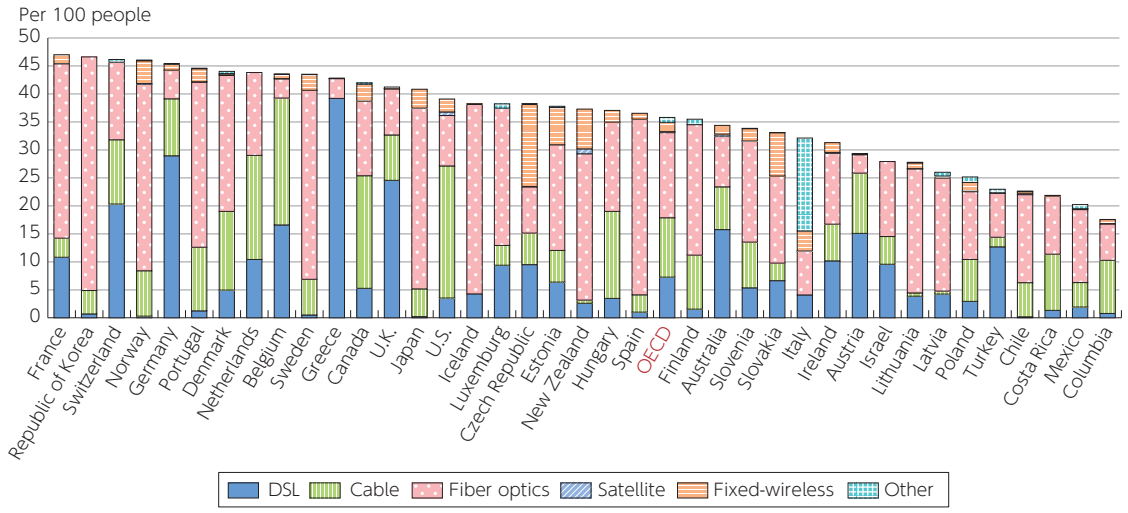
# Section 2 Trends in the telecommunications field

## 1. Trends in the domestic and overseas telecommunications market

According to OECD, France had the highest number of broadband service subscribers per 100 people (as of December 2023) with 47.0 contracts, followed by the Republic of Korea with 46.6 contracts and Switzerland with 46.2 contracts. Broadband services include DSL, cables, fiber optics (FTTH), satellites, fixed wireless, and others. Japan ranked in the 14th place with 40.8 contracts, exceeding the OECD average of 35.8 contracts **(Figure 2-1-2-1)**.

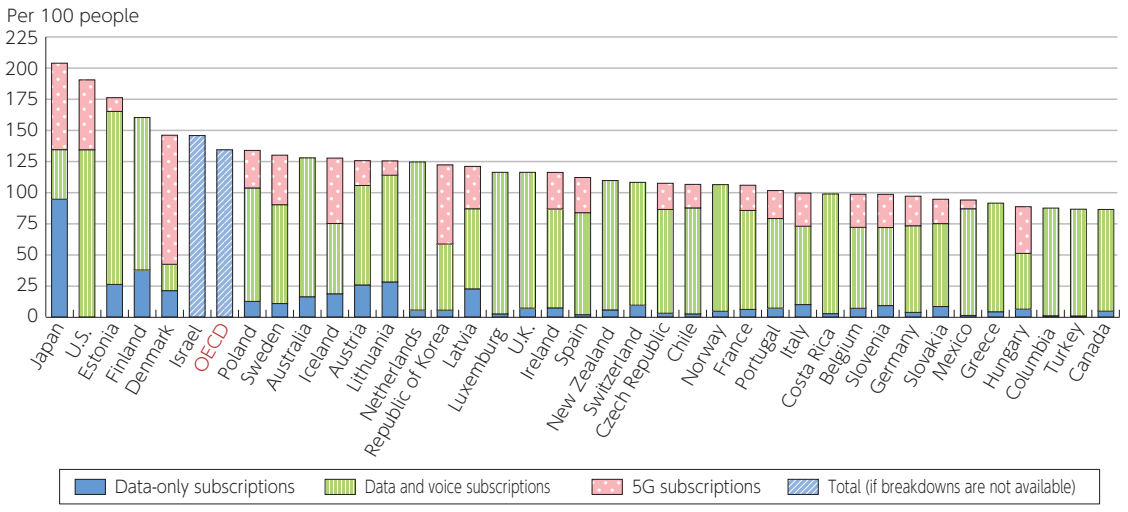
In terms of mobile broadband service subscriptions per 100 people, the largest number of subscriptions was in Japan (203.5 contracts). This was followed by the U.S. (190.1 contracts), Estonia (175.9 contracts), Finland (159.9 contracts), and Denmark (145.8 contracts). Among mobile broadband services, the number of 5G service subscriptions was the highest in Denmark with 103.6 contracts, followed by Japan with 69.4 contracts, and the Republic of Korea with 63.5 contracts **(Figure 2-1-2-2)**.

**Figure 2-1-2-1 Number of broadband service subscribers per 100 people**




(Source) OECD[1]

**Figure 2-1-2-2 Number of mobile broadband service subscriptions per 100 people**




(Source) OECD[2]

[1] OECD statistics. From OECD Broadband statistics <https://www.oecd.org/en/topics/sub-issues/broadband-statistics.html>, 1.2.1. OECD Fixed broadband subscriptions per 100 inhabitants, by technology, December 2023.
Fiber optics include FTTH, FTTP and FTTB, but do not include FTTC and FTTN.

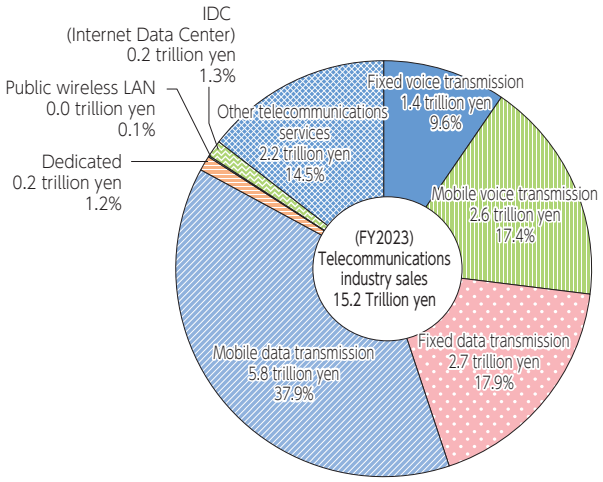
[2] OECD statistics. From OECD Broadband statistics <https://www.oecd.org/en/topics/sub-issues/broadband-statistics.html>, 1.2.2. OECD Mobile broadband subscriptions per 100 inhabitants, by technology, December 2023.

# 2. Current status of the telecommunications field in Japan

### (1) Market size

The total revenue of the telecommunications industry for FY2023 is estimated to be approximately 15 trillion yen. Breaking it down, data transmission (both fixed and mobile) accounts for about 8.5 trillion yen (55.9%), and voice transmission (both fixed and mobile) accounts for about 4.1 trillion yen (26.9%)(**Figure 2-1-2-3**).

**Figure 2-1-2-3 Composition of sales in the telecommunications industry**




*1 "Fixed voice transmission" is the sum of domestic and international services.

*2 "Fixed data transmission" includes sales through Internet access (ISP, FTTH etc.), IP-VPN and wide area Ethernet.

*3 The sales in the telecommunications industry does not match the sum of sales by service because some companies did not provide the figures for the sales by service.

*4 Due to rounding, the simple sum of the numbers in this graph does not match the numbers in the main text ("data transmission (both fixed and mobile)" and voice transmission (both fixed and mobile)) of this white paper.

(Source) Prepared based on MIC "Basic Survey on the Information and Communications Industry"[3]

### (2) Number of carriers

As of the end of FY2024, the number of telecommunications carriers is 26,642 (339 registered carriers and 26,303 notified carriers), continuing the increasing trend from the previous year (**Figure 2-1-2-4**).

**Figure 2-1-2-4 Changes in the number of telecommunications carriers**

| End of FY | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|
| Number of telecommunications carriers | 18,177 | 19,079 | 19,818 | 20,947 | 21,913 | 23,111 | 24,272 | 25,534 | 26,642 |

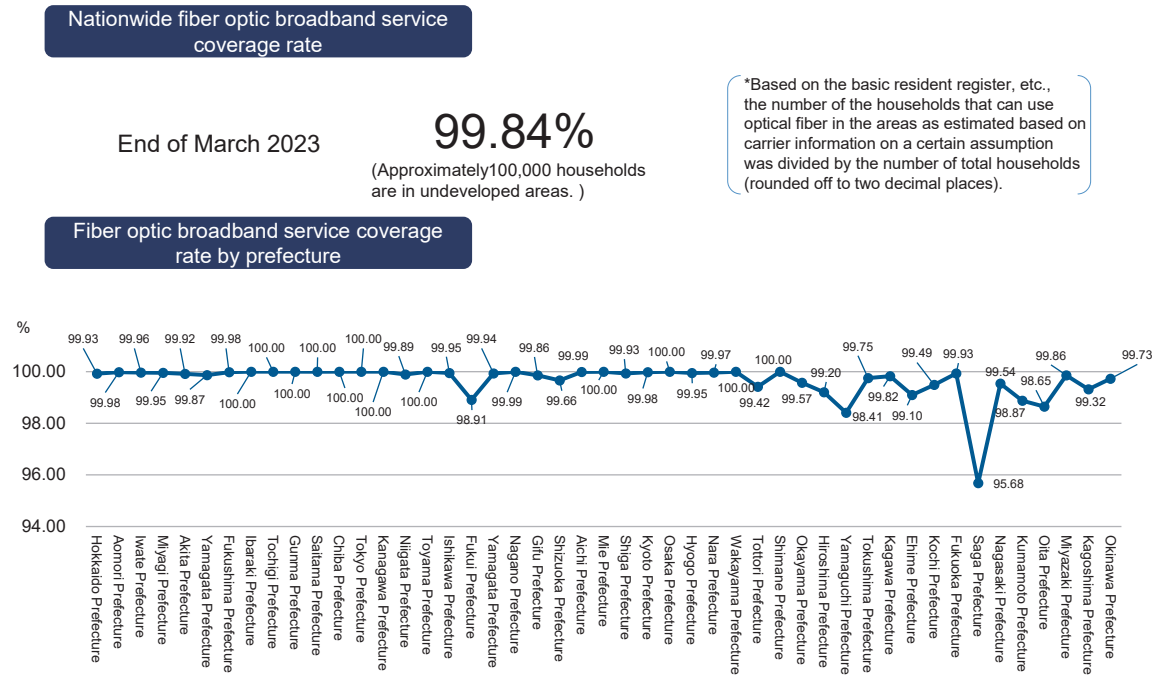
(Source) Information and Communications Statistics Database[4]

[3] https://www.soumu.go.jp/johotsusintokei/statistics/statistics07.html
[4] https://www.soumu.go.jp/johotsusintokei/field/tsuushin04.html

### (3) Infrastructure development status

As of the end of FY2022, the national coverage rate for fiber optic broadband services (household coverage rate) is 99.84% (**Figure 2-1-2-5**).

**Figure 2-1-2-5 Fiber optic broadband service coverage rate in Japan (as of end of FY2022)**



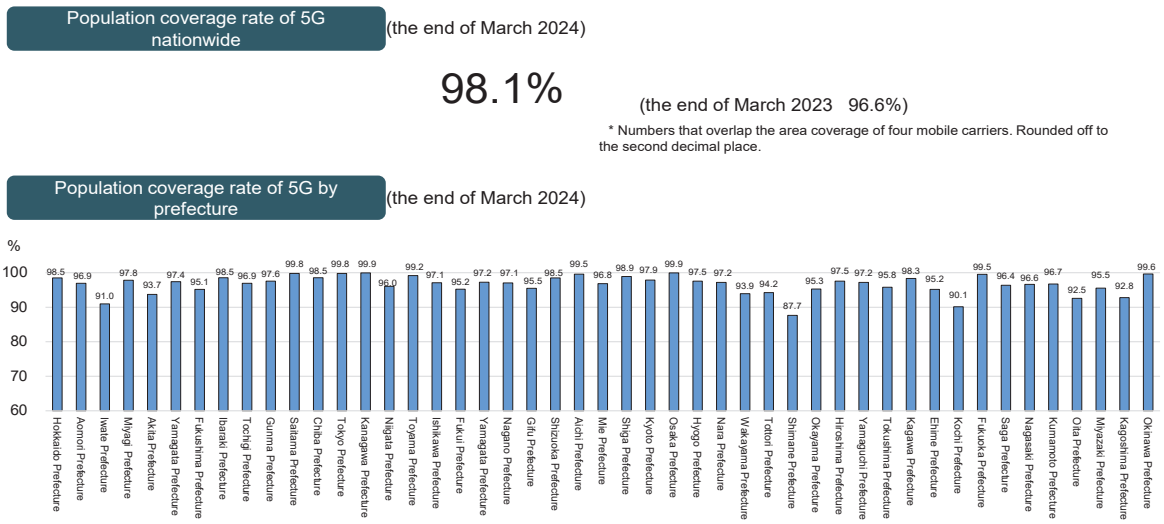

(Source) MIC "Survey on Broadband Infrastructure Coverage Rate at End of FY2022"[5]

According to the OECD, as of December 2023, the proportion of fiber optics in Japan's fixed broadband is the fifth highest among the member countries.

**Figure (related data) Percentage of optical fiber in fixed broadband in the OECD member countries**
Source: OECD Broadband statistics. Percentage of fibre connections in total fixed broadband, December 2023
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00129
(Data collection)

Additionally, as of the end of FY2023, the nationwide 5G population coverage rate in Japan is 98.1%, and all prefectures have exceeded 85% (**Figure 2-1-2-6**).

**Figure 2-1-2-6 Japan's 5G coverage as percentage of population (as of end of FY2023)**

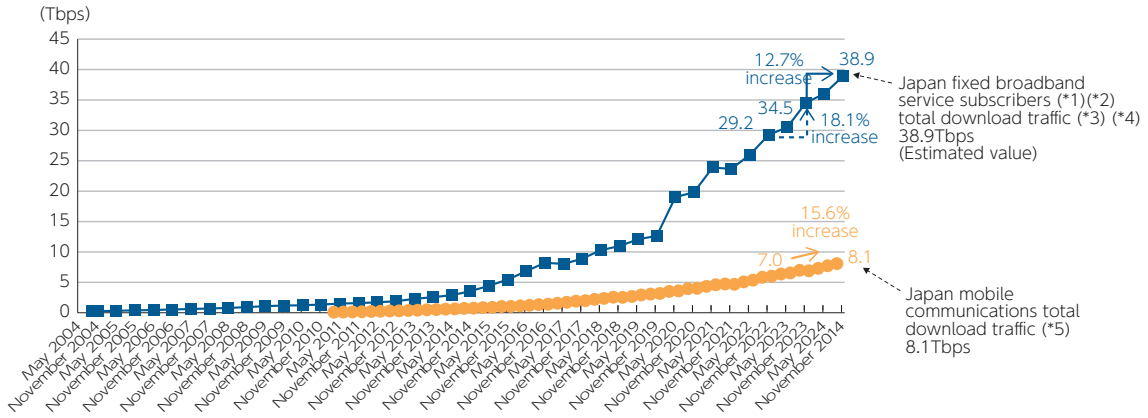



[5] https://www.soumu.go.jp/menu_news/s-news/01kiban07_02000026.html

### (4) The status of traffic

The total download traffic of fixed broadband service subscribers in Japan experienced a sharp increase after the outbreak of the COVID-19 pandemic. Subsequently, despite fluctuations in growth rates, it has generally continued to increase, reaching a 12.7% increase compared with the same month of the previous year as of November 2024. The total download traffic for mobile communication also continues to increase, with a 15.6% increase compared with the same month of the previous year as of November 2024 (**Figure 2-1-2-7**).

**Figure 2-1-2-7 Change in Internet traffic (fixed/mobile systems, download traffic)**




*1 Services for individuals (FTTH, DSL, CATV, FWA)

*2 Including some corporations

*3 Up to May 2011, this also includes some mobile communications traffic to and from mobile phone networks

*4 Since May 2017, the number of cooperating ISPs increased from five to nine, resulting in discontinuities due to aggregated and estimated values based on information from the nine ISPs

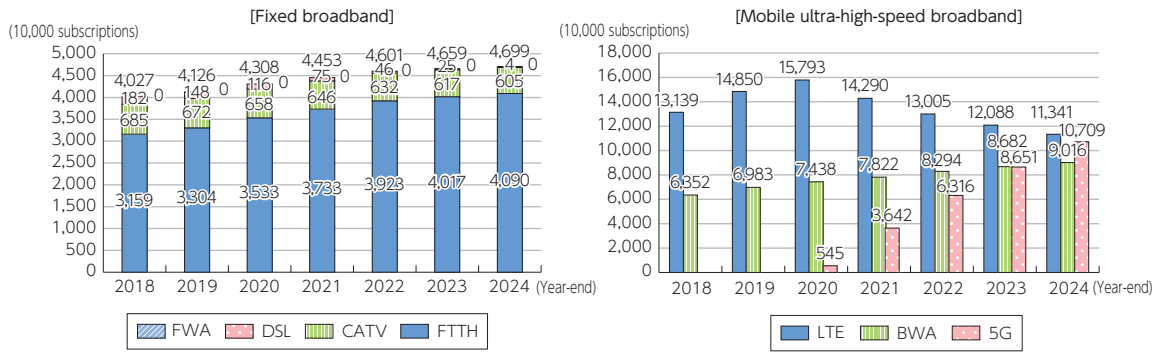
*5 From "MIC Current State of Mobile Communications Traffic in Japan (Sept 2024)" (measured in March, June, Sept, and Dec)

(Source) MIC (2025) "Results of Aggregating Internet Traffic in Japan (for November 2024)"[6]

### (5) The status of use of broadband

As of the end of December 2024, the number of fixed broadband subscriptions[7] was 46.99 million (a 0.9% increase from the same period of the previous year). Among the subscriptions for mobile ultra-high-speed broadband[8], the number of 3.9-4th generation mobile phones (LTE) was 113.41 million (a 6.2% decrease from the same period of the previous year), 5th generation mobile phones was 107.09 million (a 23.8 % increase from the same period of the previous year), and BWA was 90.16 million (a 3.8% increase from the same period of the previous year) (**Figure 2-1-2-8**).

**Figure 2-1-2-8 Changes in the number of broadband subscriptions**




*The figures of the past differ from those published last year due to revisions in business operator reports.

(Source) Prepared based on MIC "Publication of Quarterly Data on the Number of Subscriptions and Share of Telecommunications Services (Q3 of FY2024 (End of December))"[9]

[6] https://www.soumu.go.jp/main_content/000992366.pdf
[7] The number of fixed-line broadband subscription is the sum of the FTTH, CATV (limited to coaxial, HFC), DSL and FWA subscriptions.
[8] This is the number of LTE, BWA and 5G subscriptions, and does not include 3G or PHS subscriptions.
[9] https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000255.html

### (6) Satellite communications

Satellite communications utilize both geostationary satellites[10] and non-geostationary satellites[11] to provide communication infrastructure in remote islands, mountainous areas, and for communication with ships and aircraft, and during emergencies such as natural disasters, making use of advantages such as wide area coverage, simultaneous communications and disaster resistance.

**Figure (related data) Major geostationary satellites used as communication services in Japan (as of end of FY2024)**
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00137
(Data collection)

**Figure (related data) Major non-geostationary satellites used as communication services in Japan (as of end of FY2024)**
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00138
(Data collection)

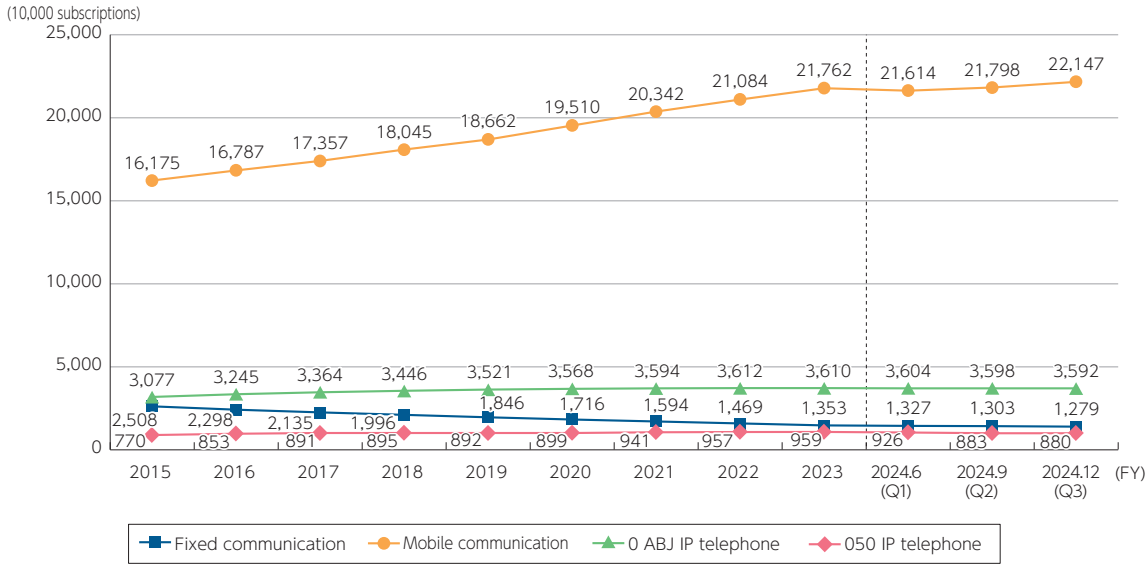
### (7) Status of voice communication service subscription contracts

As for the status of voice communication service subscription contracts, the number of fixed communication contracts (including NTT East/West subscribed telephone services (including ISDN), non-NTT telephone services[12], and CATV telephone services, excluding 0ABJ type IP phone services) has been declining in recent years, while the number of mobile communications contracts (mobile phones, PHS, and BWA) has been showing steady growth. As of the end of December 2024, the number of mobile communication contracts is approximately 17.3 times that of fixed communication contracts (**Figure 2-1-2-9**).

Furthermore, as of the end of December 2024, the market share of mobile communication contracts by operator is as follows: NTT DOCOMO at 34.2% (a decrease of 0.9 percentage points from the same period of the previous year; 40.4% when including those provided to MVNO), KDDI Group at 27.1% (a decrease of 0.2 percentage points; 31.6% when including those provided to MVNO), SoftBank at 19.1% (a decrease of 0.3 percentage points; 24.2% when including those provided to MVNO), Rakuten Mobile at 3.2% (an increase of 0.5 percentage points; 3.8% when including those provided to MVNO), and MVNO at 16.3% (an increase of 0.9 percentage points) (**Figure 2-1-2-10**).

[10] An artificial satellite that orbits the Earth at an altitude of approximately 36,000 kilometers above the equator, synchronized with the Earth's rotation. With three satellites, it is possible to cover the entire Earth except for the polar regions.
[11] These satellites orbit at lower altitudes than geostationary satellites. Due to their lower orbit, they have lower transmission delays compared with geostationary satellites, enabling high-speed, high-capacity communication, and also allowing communication in polar regions. However, because the satellites move across the sky in a short period of time, simultaneous operation of a large number of satellites is required.
[12] Non-NTT telephone services are subscribed telephone services by telecommunications carriers other than NTT East/West and includes direct subscriber telephone, ISDN services, new-type non-NTT telephone and ISDN services.

**Figure 2-1-2-9 Changes in the number of subscriptions to voice communications services**




*1 For FY2024, data up to the end of December was used, so care must be taken when making year-on-year comparisons.

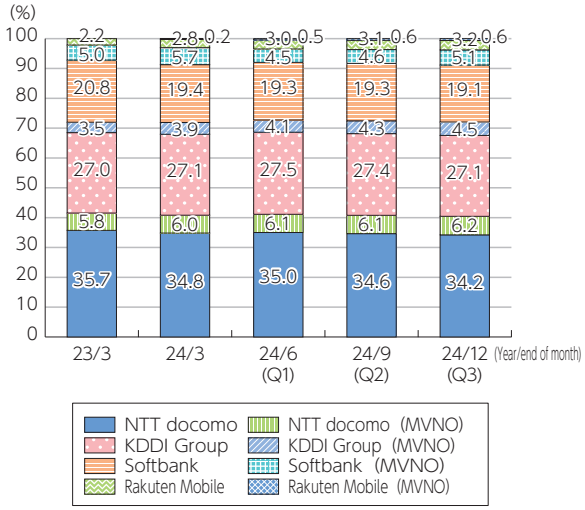
*2 The number of mobile communications subscriptions is the sum of mobile phones, PHS and BWA subscriptions.

*3 The number of mobile communication subscriptions, unless otherwise specified, refers to the figures "after intra-group transaction adjustments." "After intra-group transaction adjustments" means that when an MNO provides mobile phone or BWA services received from another MNO within the same group in the capacity of an MVNO, along with its own services, it is counted as one subscription instead of two.

*4 The reporting of MVNO service-specific subscription numbers was added from the fourth quarter of the FY2015, resulting in differences in the calculation methods for the adjusted subscription numbers before the fourth quarter of the FY2014 and after the fourth quarter of the FY2015.

(Source) MIC "Publication of Quarterly Data on the Number of Subscriptions and Share of Telecommunications Services (Q3 of FY2024 (End of December))"[13], "Publication of Quarterly Data on the Number of Subscriptions and Share of Telecommunications Services (Q4 of FY2021 (End of March))"[14], and "Information and Communications Statistics Database-Number of Subscriptions"[15]

**Figure 2-1-2-10 Changes in share of mobile communications subscriptions (adjusted for intra-group transactions) by operator**




*1 The number of mobile communication subscriptions, unless otherwise specified, refers to the figures "after intra-group transaction adjustments," and does not include subscriptions for wireless fixed broadband services provided via mobile phones or BWA or subscriptions for mobile network fixed telephone and wireless fixed telephone services. "After intra-group transaction adjustments" means that when an MNO provides mobile phone or BWA services received from another MNO within the same group in the capacity of an MVNO, along with its own services, it is counted as one subscription instead of two.

*2 Up to the fourth quarter of FY2022 (23/3), the number of mobile communications subscriptions includes subscriptions for wireless fixed broadband services provided via mobile phones or BWA.

*3 The share of the KDDI Group includes KDDI Okinawa Cellular and UQ Communications.

*4 The share of MVNO is calculated by MNO group that provides services and is indicated by the supplementary note (MVNO) after the name of the MNO group.

*5 Rakuten Mobile's share as an MNO. MVNO services provided by Rakuten Mobile are included in NTT docomo (MVNO) and KDDI Group (MVNO).

(Source) Prepared from MIC "Publication of Quarterly Data on the Number of Subscriptions and Share of Telecommunications Services (Q3 of FY2024 (End of December))"

[13] https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000255.html
[14] https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000206.html
[15] https://www.soumu.go.jp/johotsusintokei/field/tsuushin02.html

### (8) International comparison of communication charges

When comparing communication charges in Tokyo (Japan), New York (the U.S.), London (the UK), Paris (France), Dusseldorf (Germany), and Seoul (the Republic of Korea) as of March 2025, the smartphone (4G, for the leading MNO, for new contracts) fees in Tokyo were at a median level.

The fees for fixed-line telephones, including basic fees and the cost of a 3-minute local call at 12:00 on weekdays, were also at a median level.

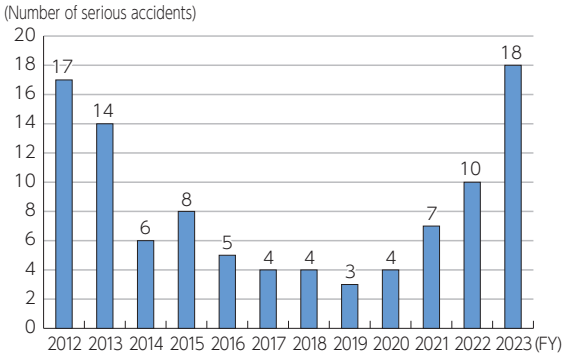
**Figure (related data) International comparison of mobile phone charges by model (FY2024)**
Source: MIC "FY2024 Survey on Domestic-Overseas Price Difference of Telecommunications Service"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00149
(Data collection)

**Figure (related data) International comparison of fixed telephone charges based on individual charges (FY2024)**
Source: MIC "FY2024 Survey on Domestic-Overseas Price Difference of Telecommunications Service"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00150
(Data collection)

### (9) Status of occurrence of telecommunications service accidents

In FY2023, there were 7,261 reported accidents requiring quarterly reports, of which 18 were classified as serious accidents[16]. This represents an increasing trend since FY2019 (**Figure 2-1-2-11**).

**Figure 2-1-2-11 Changes in the number of serious accidents**




(Source) MIC "Verification Report on Telecommunications Accidents in FY2023"[17]

### (10) Complaints and consultations regarding telecommunications services and consultations on illegal and harmful information

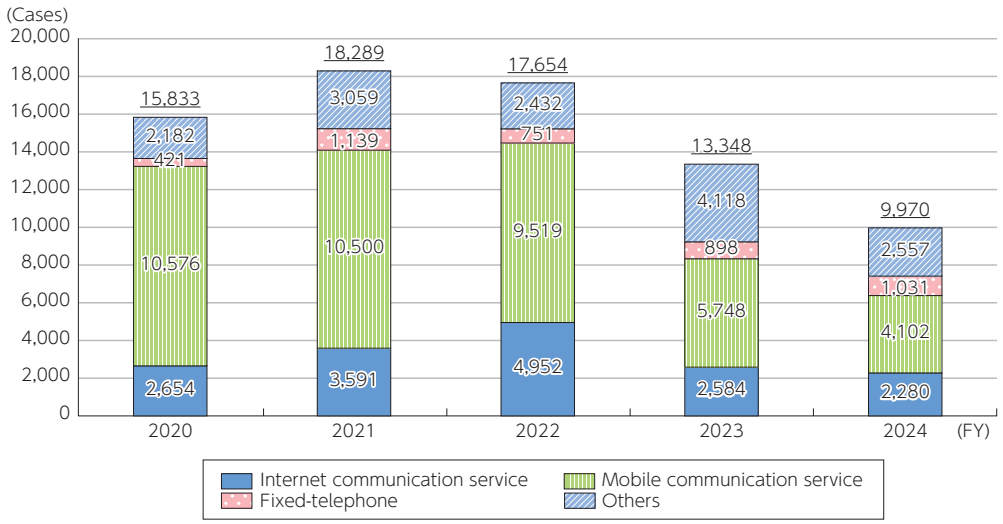
#### A Complaints and Consultations Regarding Telecommunications Services

In FY2024, the number of complaints and consultations regarding telecommunications services received by the MIC was 9,970, which represents a decrease from the previous fiscal year **(Figure 2-1-2-12)**. Additionally, when looking at the details of complaints and consultations received by consumer centers nationwide and the MIC by service type, those related to "MNO services" were the highest **(Figure 2-1-2-13)**.

[16] Accidents falling under the Article 28 of the Telecommunications Business Act "When a serious accident specified by an Ordinance of the Ministry of Internal Affairs and Communications has occurred with respect to telecommunications activities, (the telecommunications carrier) shall report without delay to the Minister for Internal Affairs and Communications to that effect including its reason or cause."

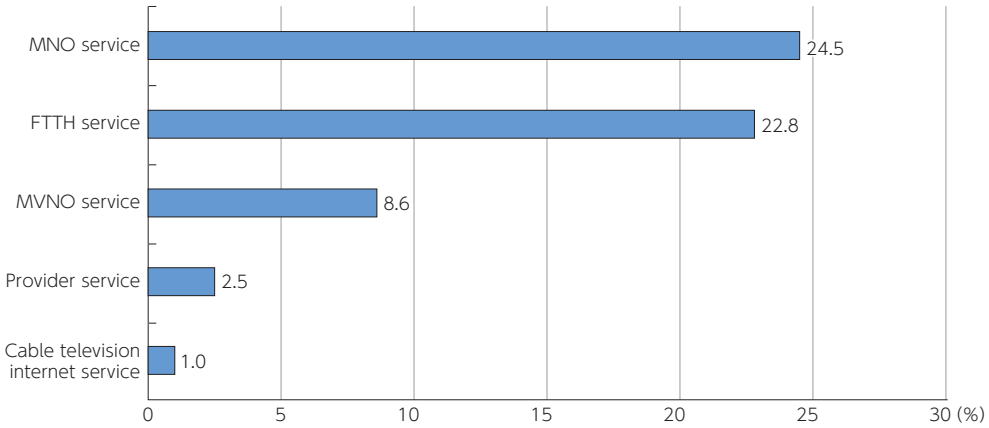
[17] https://www.soumu.go.jp/menu_news/s-news/01kiban05_02000340.html
* The number of reports from business operators. With regard to serious accidents, from FY2008, a decline in the quality of a telecommunications service is also classified as a serious accident, and from FY2015, reporting standards have been set for each category of telecommunications service, rather than uniformly for telecommunications services, so changes from year to year cannot be simply compared.

**Figure 2-1-2-12 Changes in the number of complaints and inquiries received by the MIC**




(Source) Prepared by MIC

**Figure 2-1-2-13 Breakdown of complaints and consultations received by consumer centers nationwide and the MIC (random sample of those received between April 2023 and March 2024)**



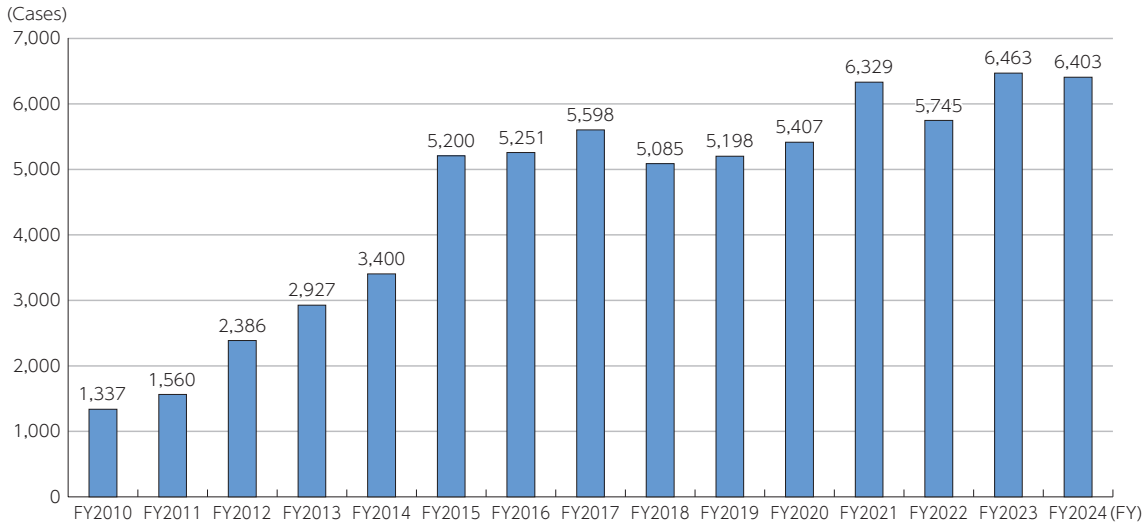

* There is a possibility that ISP services provided together with FTTH lines are only included in provider services.

(Source) MIC "Regular Meeting for Monitoring the Implementation Status of Consumer Protection Rules (17th meeting)"

### B Consultations on illegal and harmful information

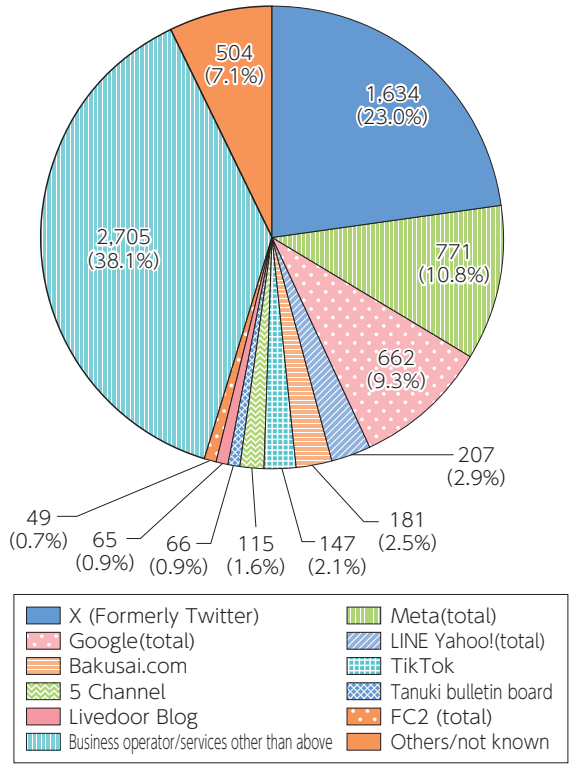
The number of consultations received by the Illegal and Harmful Information Consultation Center, which is operated under the commission of the MIC, has remained high, with 6,403 consultations in FY2024 (**Figure 2-1-2-14**). The top five companies for the number of consultations in FY2024 were X (formerly Twitter), Meta, Google, LINE Yahoo, and Bakusai (**Figure 2-1-2-15**).

**Figure 2-1-2-14 Changes in the number of consultations regarding illegal and harmful information**




(Source) MIC "Regular Monitoring Meetings on the Implementation Status of Consumer Protection Rules (17th meeting)"

**Figure 2-1-2-15 Breakdown of the number of consultations provided at the Illegal Harmful Hotline by business operator**




| Business operator, service, etc. | | | Number of requests | Percentage |
|---|---|---|---|---|
| X (Formerly Twitter) | | | 1,634 | 23.0% |
| Meta (total) | | | 771 | 10.8% |
| | Instagram | | 587 | |
| | Facebook | | 114 | |
| | Threads | | 69 | |
| | Whatsapp | | 1 | |
| Google (total) | | | 662 | 9.3% |
| | Google search | | 253 | |
| | Google map | | 220 | |
| | YouTube | | 168 | |
| | Others | | | |
| LINE Yahoo! (total) | | | 207 | 2.9% |
| | LINE (total) | | 148 | 2.1% |
| | Yahoo! (total) | | | 0.8% |
| | | Yahoo! search | 12 | |
| | | Yahoo (others) | 47 | |
| Bakusai.com | | | 181 | 2.5% |
| TikTok | | | 147 | 2.1% |
| 5 Channel | | | 115 | 1.6% |
| Tanuki bulletin board | | | 66 | 0.9% |
| Livedoor Blog | | | 65 | 0.9% |
| FC2 (total) | | | 49 | 0.7% |
| Business operator/services other than above | | | 2,705 | 38.1% |
| Others/not known | | | | 7.1% |

*1 The number of consultations is based on the collected cases; the consultation center did not determine if each case constitutes an infringement of rights.

*2 The number of consultations (6,430) may not match the total number of consultations in the chart above (7,106), because respondents may have chosen multiple services.

*3 The data provided in the above chart cannot precisely be considered statistical information, because, depending on consultations, respondents may have chosen the same service for multiple times.

*4 Unique domains are used in some cases, which makes it difficult to identify the actual domain.

(Source) MIC "Regular Monitoring Meetings on the Implementation Status of Consumer Protection Rules (17th meeting)"

## 3. New trends in the communications field

### (1) All photonics network

All photonics network technology is a core technology for next-generation information and communication infrastructure. By utilizing photonics-electronics convergence technology in wired networks and information and communications equipment and devices, and minimizing electrical-to-optical signal conversion, it enables low pow-

er consumption, low latency, and large capacity, making it a potential game changer. Its primary use case is high-speed, low-latency interconnection between data centers. In line with recent trends, integration with generative AI technologies is also progressing. NTT Communications Corporation successfully achieved the world's first large language model (LLM) training demonstration experiment in an environment with distributed GPU servers located across three datacenters connected via photonics-electronics convergence[18]. The high-speed, low-latency connections enabled by photonics-electronics convergence allow rapid and efficient data transfer between GPU servers, delivering performance on par with that of a single datacenter for relatively light processing, such as pre-training and additional training of small-scale AI models. This will unlock the potential to flexibly build GPU clusters across multiple data center environments, thereby enabling more efficient resource utilization.

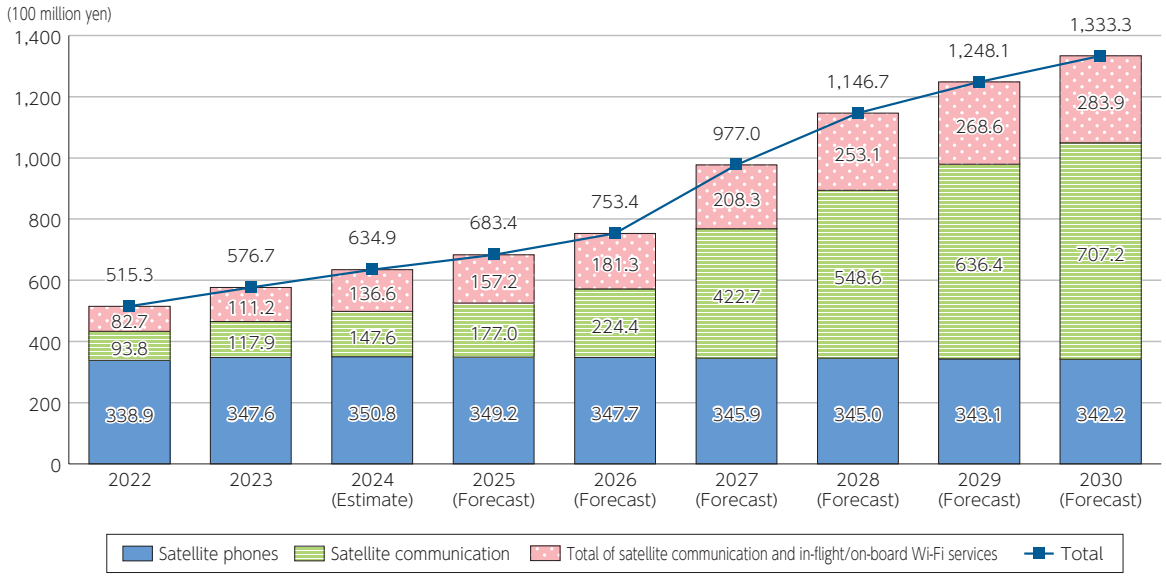
Furthermore, utilizing all photonics networks is expected to accelerate the decentralization of datacenter locations, which are currently concentrated in metropolitan areas, to areas where renewable energy is available. This, in turn, is expected to strengthen Japan's AI development capabilities, promote the use of AI, and provide safe, secure, and reliable AI with low environmental impact (green AI) across society.

#### (2) Non-Terrestrial Network (NTN)

Non-Terrestrial Network (NTN) refers to a multi-layered mobile communication network that connects not only terrestrial areas but also the sea, sky, and space. By using HAPS (High Altitude Platform Station) and satellite communications, it allows for seamless communication services even in areas where terrestrial communication infrastructure is not developed.

The domestic satellite communications service market is expected to reach 57.7 billion yen in 2023 and 63.5 billion yen in 2024 (a 10.1% increase from the previous year), and is expected to continue to grow thereafter **(Figure 2-1-2-17)**.

**Figure 2-1-2-17 Changes and forecasts of the size of the domestic satellite communications service market**




* The market size includes: 1) satellite phones and satellite data communication services provided by telecommunications carriers using GEO (geostationary satellites)/MEO (medium earth orbit satellites), LEO (low earth orbit satellite constellations), and HAPS; 2) in-flight and on-board Wi-Fi services provided by service providers (public transportation operators: airplanes, passenger ships, etc.); and 3) direct satellite communication services via smartphones. Broadcast network services such as BS/CS broadcasting and J-ALERT are not included.

(Source) Yano Research Institute Ltd., "Satellite Communication Service Market in Japan: Key Research Findings 2024" (published on March 24,2025)[19]

#### (3) Quantum cryptographic communication

Quantum cryptographic communication is a secure encryption key distribution technology that utilizes quantum properties to address the threat of cryptography being compromised by the realization of quantum computers, and is attracting growing interest both in Japan and overseas.

China has developed and begun using a nationwide quantum cryptographic communication network spanning over 10,000 kilometers. Similarly, Europe has also begun building a large-scale quantum cryptographic communication network spanning the entire continent, accelerating the efforts toward its social implementation.

In Japan, the MIC and the National Institute of Information and Communications Technology (NICT) have been promoting research and development on quantum cryptographic communication, and established a quantum cryptographic communication testbed called the "Tokyo QKD Network" in 2010 to demonstrate and verify quantum cryptographic communication, which has been in continuous operation since then.

[18] https://www.ntt.com/about-us/press-releases/news/article/2025/0319.html
[19] https://www.yanoresearch.com/en/press-release/show/press_id/3611

# Section 3 Trends in the broadcasting and content field

## 1. Broadcasting

### (1) Size of the broadcasting market

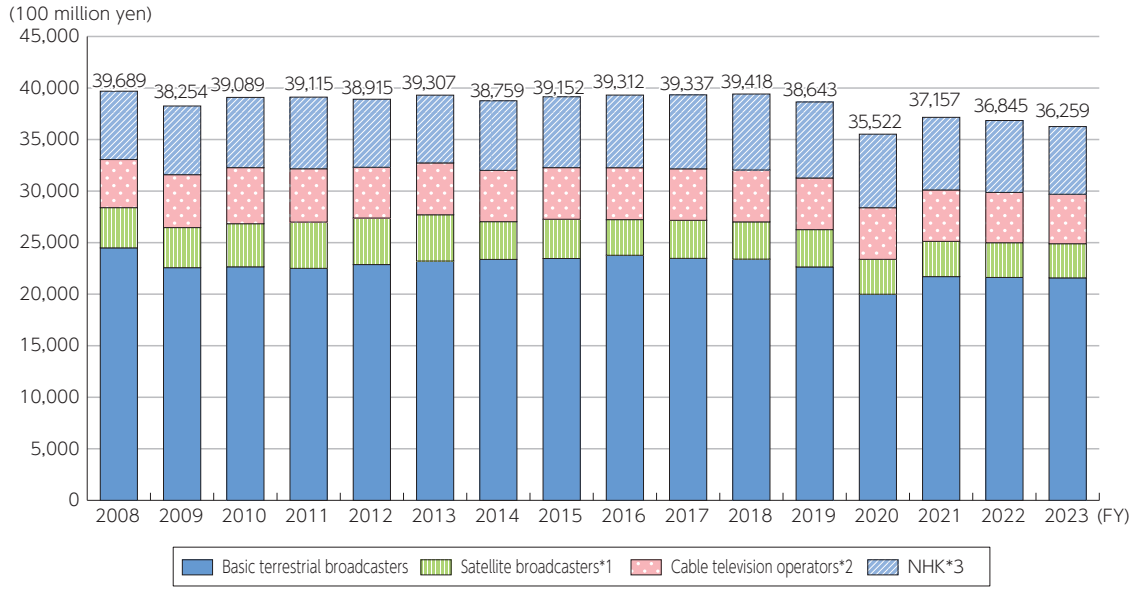
#### A Revenue of broadcasters

In Japan, broadcasting is conducted under a dual system consisting of NHK, which is funded by receiving fees, and private broadcasters, which are funded by advertising revenue or subscription fees for paid broadcasting. Additionally, the Open University of Japan Foundation broadcasts for educational purposes.

The total revenue of all broadcasters, including both broadcasting and non-broadcasting income, decreased from FY2022, amounting to 3.6259 trillion yen in FY2023, a 1.6% decrease from the previous fiscal year.

Breaking it down, the total revenue of private basic terrestrial broadcasters was 2.1582 trillion yen (a 0.2% decrease from the previous fiscal year), the total revenue of private satellite broadcasters was 331.5 billion yen (a 1.6% decrease from the previous fiscal year), the total revenue of cable television operators was 479.5 billion yen (a 1.7% decrease from the previous fiscal year), and NHK's operating revenue was 656.7 billion yen (a 5.8% decrease from the previous fiscal year) (**Figure 2-1-3-1**).

**Figure 2-1-3-1 Changes in the size of the broadcasting industry market (total sales) and market breakdown**




*1 Calculated based on operating revenues related to the satellite broadcasting business.

*2 Up to FY2010, cable TV operators were commercial corporations that conducted independent broadcasting using facilities approved under the former Cable Television Broadcasting Act (including facilities registered under the former Broadcasting Act for Use of Telecommunications Services that uses a broadcasting system equivalent to the facilities), and from FY2011, cable television operators are registered general broadcasters (limited to commercial corporations) that conduct independent broadcasting using cable telecommunications equipment (with both excluding operators using the IP multicast method).

*3 NHK's value is ordinary business income.

*4 Community broadcasters who are also engaged in cable television are excluded.

(Source) Prepared based on MIC "Income and Expenditures of Private Broadcasters" and NHK "Financial Statements" for each FY

Additionally, the advertising expenses for private basic terrestrial broadcasters in 2024 amounted to 1.7513 trillion yen, with 1.6351 trillion yen related to television broadcasting and 116.2 billion yen related to radio broadcasting[1].

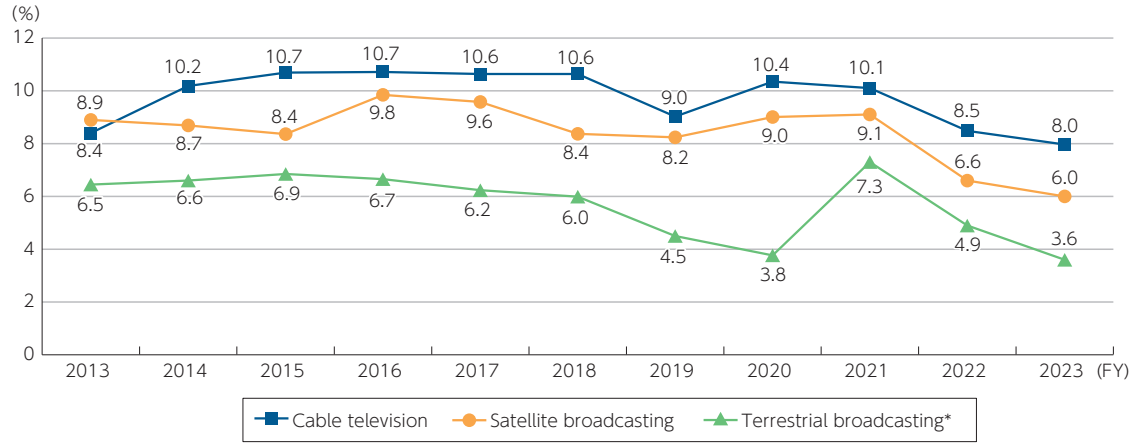
**Figure (related data) Changes in advertising expenditures of private basic terrestrial broadcasters**
Source: Prepared based on Dentsu "Advertising Costs in Japan"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00164
(Data collection)

[1] Regarding the entire advertising market, refer to "2 Advertising" in, Part 2, Chapter 1, Section 3, Item 2(2) "Advertising."

**B Financial status of private broadcasters**

Looking at each category as a whole, private basic terrestrial broadcasters (with an operating profit margin of 3.6% in FY2023), private satellite broadcasters (6.0% in the same period), and cable television operators (8.0% in the same period) all continued to secure profits in FY2023, following FY2022 (**Figure 2-1-3-2**).

**Figure 2-1-3-2 Changes in the operating profit margin of private broadcasters**




* Basic terrestrial broadcasting excluding community broadcasting

(Source) Prepared based on MIC "Income and Expenditures of Private Broadcasters" for each FY, etc.

**(2) Number of operators**

As of the end of FY2024, the breakdown of the number of private broadcasters is as follows: 540 companies for private basic terrestrial broadcasters (including 346 companies conducting community broadcasting) and 39 private satellite broadcasters (**Figure 2-1-3-3**).

**Figure 2-1-3-3 Changes in the number of private broadcasters**

| End of FY | | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Terrestrial | Television broadcasting (single operation) | VHF | 16 | 93 | 93 | 94 | 94 | 98 | 94 | 94 | 95 | 95 | 95 | 96 | 96 | 96 | 96 |
| | | UHF | 77 | | | | | | | | | | | | | | |
| | Radio broadcasting (single operation) | Medium-wave (AM) broadcasting | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 16 |
| | | Ultrashort wave (FM) broadcasting | 298 | 307 | 319 | 332 | 338 | 350 | 356 | 369 | 377 | 384 | 384 | 388 | 390 | 393 | 396 |
| | | Community broadcasting of the above | 246 | 255 | 268 | 281 | 287 | 299 | 304 | 317 | 325 | 332 | 334 | 338 | 339 | 342 | 346 |
| | | Short wave | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Television/radio broadcasting (combined operation) | | 34 | 34 | 34 | 33 | 33 | 33 | 33 | 33 | 32 | 32 | 32 | 31 | 31 | 31 | 31 |
| | Text broadcasting (single operation) | | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Multimedia broadcasting | | | | 1 | 1 | 1 | 4 | 4 | 4 | 6 | 6 | 2 | 2 | 0 | 0 | 0 |
| | Subtotal | | 440 | 449 | 461 | 475 | 481 | 500 | 502 | 515 | 526 | 533 | 529 | 534 | 534 | 537 | 540 |
| Satellite | Basic satellite broadcasting | BS broadcasting | 20 | 20 | 20 | 20 | 20 | 20 | 19 | 19 | 22 | 22 | 20 | 22 | 21 | 21 | 20 |
| | | 110 degrees east longitude CS broadcasting | 13 | 13 | 22 | 23 | 23 | 23 | 23 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| | General satellite broadcasting | | 91 | 82 | 65 | 45 | 7 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 2 |
| | Subtotal | | 113 | 108 | 92 | 72 | 46 | 44 | 41 | 39 | 41 | 41 | 39 | 42 | 42 | 41 | 39 |
| Cable television | General cable broadcasting pertaining to registration (limited to operators of independent broadcasting) | Broadcasting using former authorized facilities (limited to operators of independent broadcasting) | 502 | 556 | 545 | 539 | 520 | 510 | 508 | 504 | 492 | 471 | 464 | 464 | 456 | 452 | – |
| | | Broadcasting using former cable services under the former Act Concerning Broadcast on Telecommunications Services | 26 | | | | | | | | | | | | | | |
| | | IP multicast broadcasting of the above | 5 | 5 | 4 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | 5 | 4 | 3 | 3 | – |
| | Subtotal | | 528 | 556 | 545 | 539 | 520 | 510 | 508 | 504 | 492 | 471 | 464 | 464 | 456 | 452 | – |

*1 The number of television broadcasters (single operation) at the end of FY2015 includes five operators conducting basic terrestrial broadcasting for mobile reception (one of them concurrently operated basic terrestrial broadcasting).

*2 Regarding satellite broadcasters, BS broadcasting and 110 degrees east longitude CS broadcasting are counted as basic satellite broadcasting, while other satellite broadcasting is counted as general satellite broadcasting based on the Broadcast Act amended and enforced in June 2011.

*3 Because some of the satellite broadcasters concurrently operate more than one of "BS broadcasting, "110 degrees east longitude CS broadcasters" and "general satellite broadcasting," sum of the values of the columns does not agree with the value of subtotal. Only operating broadcasters are included in FY2011 and after.

*4 Regarding cable television operators, up to FY2010, former approved facilities operators under the former Cable Television Broadcast Act and registered operators under the former Act Concerning Broadcast on Telecommunications Services were included, and from FY2011, registered general broadcasters conducting independent broadcasting using cable telecommunications facilities under the Broadcast Act are included (regarding IP multicast broadcasting, up to FY2010, it was included in former broadcasting using cable services, and from FY2011 it has been included in registered general broadcasters conducting independent broadcasting using cable telecommunications facilities).

(Source) Prepared based on MIC "Current State of Cable Television"[2] (only the values for cable TV operators)

### (3) Status of the provision of broadcasting service

#### A Terrestrial television broadcasting

As of the end of FY2024, there are 127 companies nationwide (including 31 companies with dual operations) conducting terrestrial private television broadcasting.

**Figure (related data) Number of available private television broadcasting channels (as of end of FY2024)**
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00167
(Data collection)

#### B Terrestrial radio broadcasting

For AM broadcasting, 47 private basic terrestrial broadcasters (as of the end of FY2024) are conducting broadcasts.

For FM broadcasting, 396 private basic terrestrial broadcasters (as of the end of FY2024) are conducting broadcasts. Among these, there are 346 community broadcasters, which generally target specific areas within a single municipality.

For shortwave broadcasting, one private basic terrestrial broadcaster (as of the end of FY2024) is conducting broadcasts.

#### C Multimedia broadcasting

As of the end of FY2024, there are no operators conducting V-Low multimedia broadcasting, which utilizes the frequency band of 99MHz-108MHz made available by the digitalization of terrestrial television broadcasting.

[2] https://www.soumu.go.jp/main_content/000975399.pdf

#### D Satellite broadcasting

(A) Basic satellite broadcasting

For BS broadcasting, NHK, the Open University of Japan, and private broadcasters (20 companies as of the end of FY2024) are conducting broadcasts using artificial satellites operated by Broadcasting Satellite System Corporation, with 9 of these companies conducting 4K/8K satellite broadcasting. Additionally, for CS broadcasting at 110 degrees east longitude, private broadcasters (20 companies as of the end of FY2024) are conducting broadcasts using satellites operated by SKY Perfect JSAT Corporation.

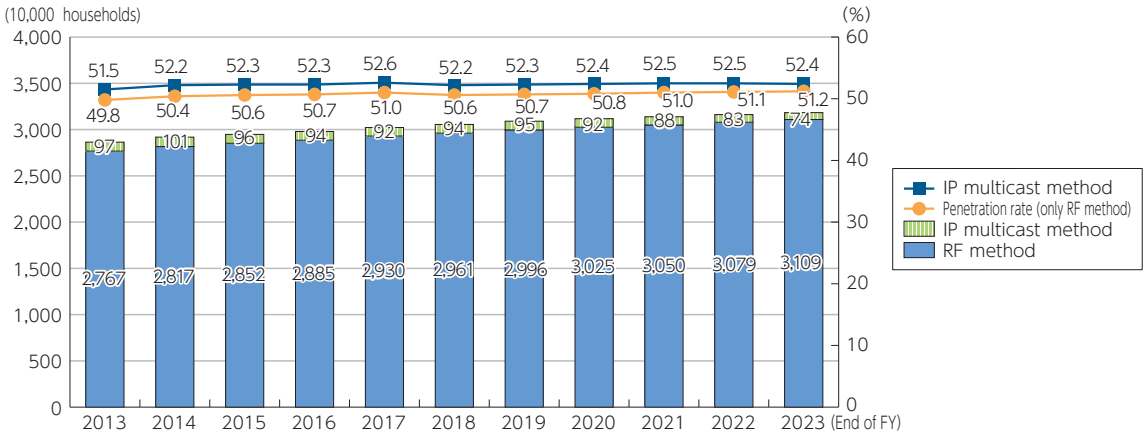
(B) General satellite broadcasting

For general satellite broadcasting, private broadcasters (2 companies as of the end of FY2024) are conducting broadcasts using satellites operated by SKY Perfect JSAT Corporation.

#### E Cable television

As of the end of FY2023, there were 452 cable television operators. Cable television provides multi-channel broadcasting, including retransmission of terrestrial and satellite broadcasting as well as independent broadcasting channels. The number of households receiving services through wired telecommunications facilities (with 501 or more terminals) for conducting independent broadcasting is approximately 31.84 million households, with a household penetration rate of approximately 52.4% (**Figure 2-1-3-4**).

**Figure 2-1-3-4 Changes in the number of subscribed households and penetration rate for receiving services from cable telecommunications equipment that provide independent broadcasting as per their registration**




*1 The penetration rate is calculated from the number of households in the Basic Resident Register.

*2 "The number of subscribed households" means the total number of households (including the number of households with radio interference) connected to the cable telecommunications equipment as per their registration.

(Source) Prepared based on MIC "Current State of Cable Television"[3]

### (4) Status of NHK

#### A Domestic broadcasting by NHK

As of the end of FY2024, NHK's domestic broadcasting channels include 2 terrestrial television channels, 3 radio channels, and 3 satellite television channels.

**Figure (related data) Domestic broadcasting of NHK (as of end of FY2024)**
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00170
(Data collection)

#### B International television and radio broadcasting by NHK

NHK's international television and radio broadcasts are aimed at Japanese expatriates and foreigners, covering almost the entire world.

**Figure (related data) Status of international television and radio broadcasting by NHK (plan as of April 2025)**
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00171
(Data collection)

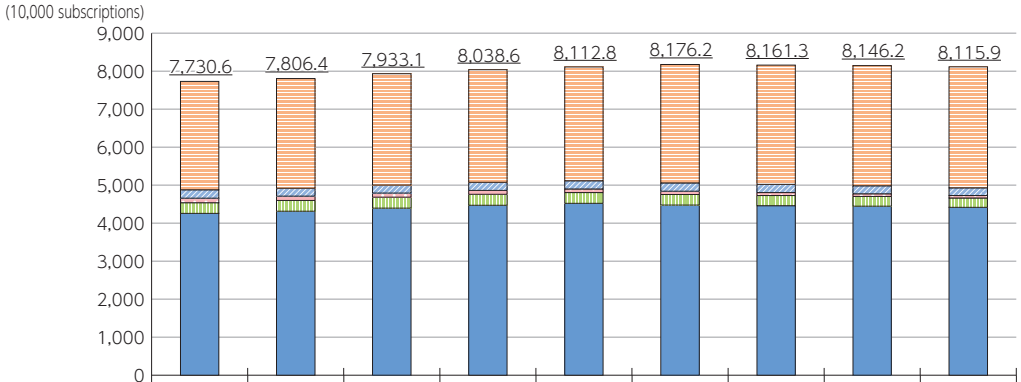
[3] https://www.soumu.go.jp/main_content/000975399.pdf

### (5) Utilization of broadcasting services

#### A Number of subscribers

In FY2023, the number of subscribers to broadcasting services increased for cable television, while it decreased for other broadcasting services (**Figure 2-1-3-5**).

**Figure 2-1-3-5 The number of subscribers to broadcasting services**




| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|
| Cable television | 2,852.0 | 2,885.0 | 2,930.3 | 2,960.7 | 2,995.9 | 3,117.1 | 3,138.5 | 3,161.7 | 3,183.9 |
| 110 degrees east longitude CS | 219.5 | 209.3 | 208.4 | 213.7 | 215.8 | 218.3 | 217.1 | 210.8 | 203.8 |
| 124/128 degrees east longitude CS | 120.3 | 114.4 | 109.4 | 102.7 | 93.1 | 84.4 | 76.6 | 70.0 | 63.9 |
| WOWOW | 280.5 | 282.3 | 287.6 | 290.1 | 285.5 | 279.1 | 268.0 | 256.0 | 246.7 |
| NHK | 4,258.3 | 4,315.4 | 4,397.4 | 4,471.4 | 4,522.5 | 4,477.3 | 4,461.1 | 4,447.7 | 4,417.6 |
| Satellite contract, etc. | 1,993.3 | 2,066.7 | 2,147.6 | 2,221.5 | 2,289.1 | 2,274.2 | 2,271.5 | 2,268.0 | 2,262.7 |

(FY)

*1 The number of subscribers to terrestrial broadcasting (NHK) is the number of NHK subscriptions of all subscription types.

*2 The number of subscribers to satellite contracts, etc. is the number of NHK satellite contracts and special contracts.

*3 The number of WOWOW subscribers is the number of WOWOW subscriptions.

*4 The number of subscribers of 124/128 degrees east longitude CS is the number of Sky Perfect! premium service subscriptions.

*5 The number of subscribers of 110 degrees east longitude CS is the number of Sky Perfect! subscriptions.

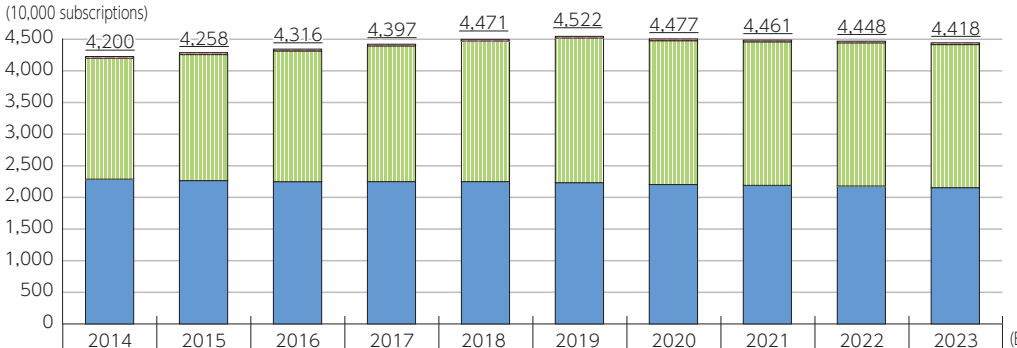
*6 The number of households subscribed to cable television is the number of households subscribed to cable telecommunications equipment that carry out independent broadcasting as per their registration.

(Source) Prepared based on material from the Japan Electronics and Information Technology Industries Association, Japan Cable Laboratories, and NHK, and the MIC "Current State of Satellite Broadcasting" and "Current State of Cable Television"

#### B The number of NHK receiving contracts

As of FY2023, the number of NHK receiving contracts was approximately 44.18 million. Of these, terrestrial contracts (including standard and color contracts) accounted for about 21.55 million, satellite contracts for about 22.61 million, and special contracts for about 0.02 million (**Figure 2-1-3-6**).

**Figure 2-1-3-6 Changes in the number of subscribers of NHK**




| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| Special contract | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| Satellite contract | 1,910 | 1,992 | 2,066 | 2,146 | 2,220 | 2,288 | 2,273 | 2,270 | 2,266 | 2,261 |
| Terrestrial contract | 2,289 | 2,265 | 2,249 | 2,250 | 2,250 | 2,233 | 2,203 | 2,190 | 2,180 | 2,155 |
| Total | 4,200 | 4,258 | 4,316 | 4,397 | 4,471 | 4,522 | 4,477 | 4,461 | 4,448 | 4,418 |

(End of FY)

(Source) Prepared based on NHK's materials.

### (6) Ensuring the safety and reliability of broadcasting equipment

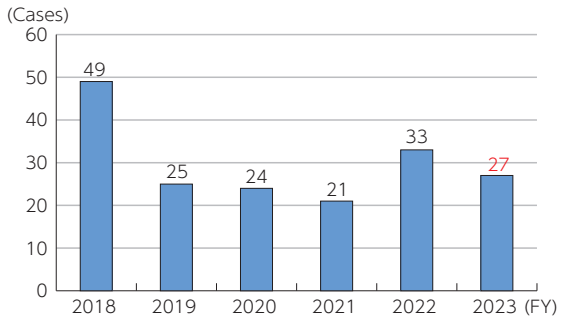
Broadcasting serves as a highly important public utility, providing essential information for daily life and critical information such as disaster alerts instantaneously and widely. Therefore, the broadcasting equipment that

supports this service must meet high standards of safety and reliability.

In FY2023, there were 344 incidents of broadcasting interruptions, of which 27 were classified as major incidents[4], accounting for approximately 8% of the total (**Figure 2-1-3-7**). In response, measures to prevent recurrence of such incidents are being rigorously implemented by each broadcaster, and efforts to share incident cases within the industry are being promoted to prevent similar incidents.

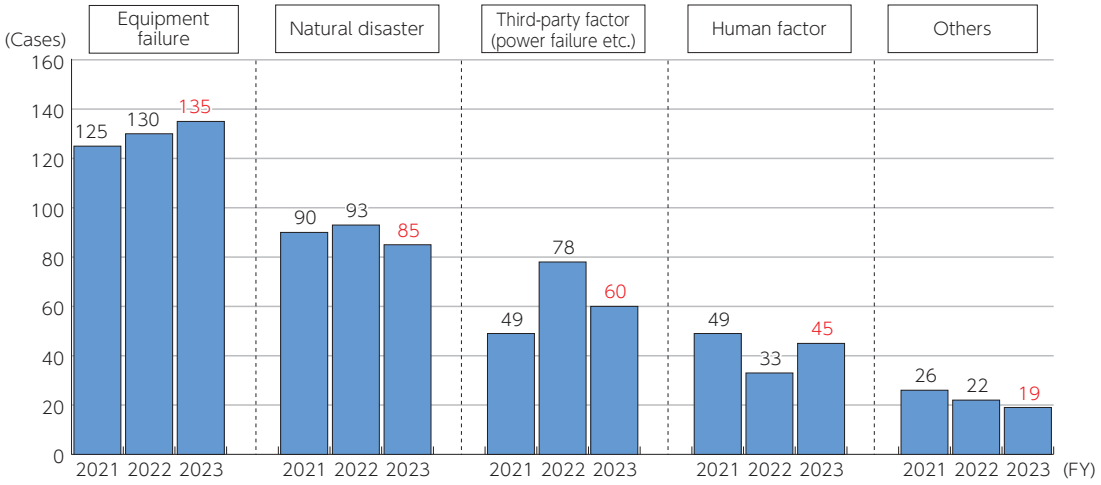
The number of broadcasting interruption incidents for terrestrial and satellite broadcasting was 255, the lowest since the start of data collection in FY2011. The number of incidents for general cable broadcasting was 89, showing a decreasing trend. The most common cause of broadcasting interruptions was equipment failure, followed by natural disasters (**Figure 2-1-3-8**).

**Figure 2-1-3-7 Changes in the number of serious accidents**




(Source) Prepared based on MIC "State of the Occurrence of Broadcasting Suspension Accidents"[5] (FY2023)

**Figure 2-1-3-8 Changes in the number of broadcasting suspension accidents by cause**




(Source) Prepared based on MIC "State of the Occurrence of Broadcasting Suspension Accidents"[6] (FY2023)

## 2. Content market

### (1) Size of Japan's content market

#### A Market overview

The size of Japan's content market in 2023 was 12.5833 trillion yen. In terms of market composition by type of content, video-based content accounted for nearly 60% of the total. Text-based content made up about 35%, and audio-based content accounted for approximately 7%[7] (**Figure 2-1-3-9**).

The size of the content market saw a significant increase in 2021, and has remained roughly at the same level since then. By type of content, text-based and audio-based content showed an increasing trend **(Figure 2-1-3-10)**.

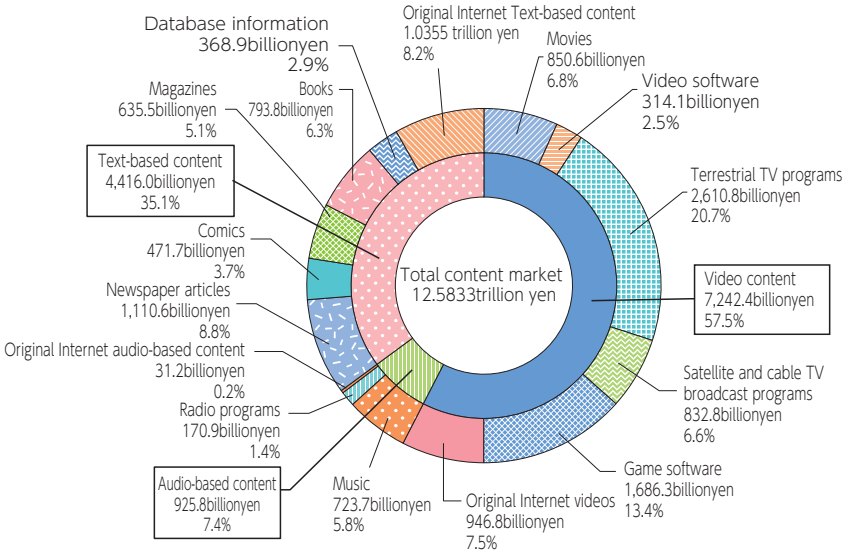
[4] Accidents falling under Articles 113, 122 or 137 of the Broadcasting Act: "If the suspension of broadcasting caused by the equipment for basic broadcasting or other major accident stipulated in the Ministerial Ordinance of the Ministry of Internal Affairs and Communications occurs, the approved basic broadcaster must report such matter as well as the reason or cause without delay to the Minister for Internal Affairs and Communications."

[5] https://www.soumu.go.jp/menu_seisaku/ictseisaku/housou_suishin/hoso_teishijiko.html

[6] https://www.soumu.go.jp/menu_seisaku/ictseisaku/housou_suishin/hoso_teishijiko.html

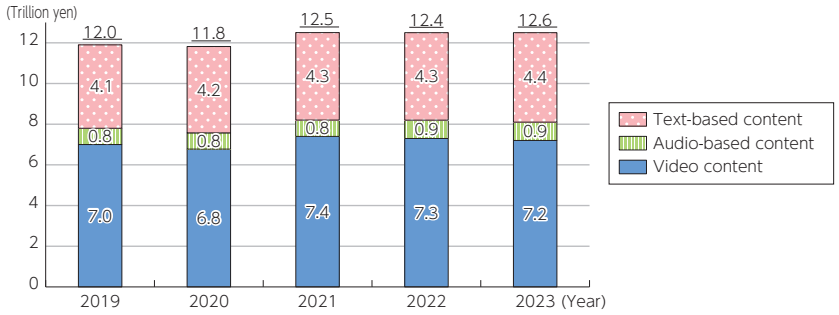
[7] Rather than aggregating by media, market size was calculated and analyzed after aggregation according to distribution stage such as primary distribution and multi-use with a focus on the original nature of the content.

**Figure 2-1-3-9 Breakdown of the Japanese content market (2023)**




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

**Figure 2-1-3-10 Changes in the size of the Japanese content market (by content type)**




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

### B Status of multi-use

The size of the primary distribution market in 2023 was 9.5898 trillion yen, accounting for about 75% of the total market. The breakdown of the primary distribution market is as follows: video-based content at 5.5128 trillion yen, text-based content at 3.3023 trillion yen, and audio-based content at 774.7 billion yen.

On the other hand, the size of the multi-use market was 2.9936 trillion yen, showing a slight decrease from the previous year. The breakdown is as follows: video-based content at 1.7287 trillion yen, text-based content at 1.1137 trillion yen, and audio-based content at 151.1 billion yen.

**Figure (related data) Breakdown of primary distribution market (2023)**
Source: MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00178
(Data collection)

**Figure (related data) Breakdown of multi-use market (2023)**
Source: MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00179
(Data collection)

### C Communication-based content market

Within the content market, the size of the communication-based content market, which includes content delivered via the Internet to PCs and smart phones, was 6.0672 trillion yen. In terms of market composition by type of content, video-based content accounted for 56.5%, text-based content for 34.4%, and audio-based content for 9.1%.

The size of the communication-based content market continues to grow. By type of content, the market size is growing for all types of content.

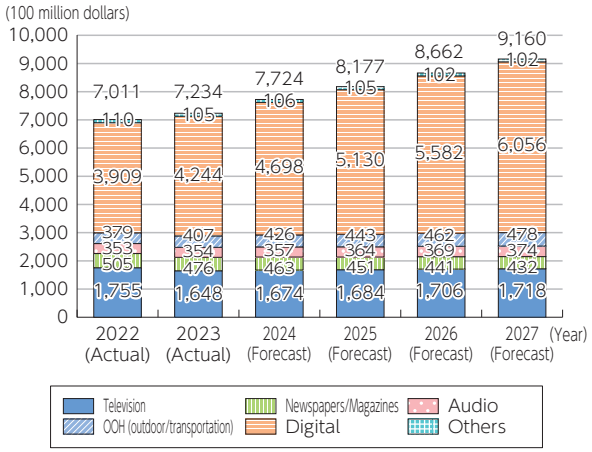
**Figure (related data) Breakdown of the communication content market (2023)**
Source: MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00180
(Data collection)

**Figure (related data) Changes in the size of the communication content market (by content type)**
Source: MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00181
(Data collection)

### (2) Advertising

Looking at the global advertising market, digital advertising expenditure is projected to reach 469.8 billion dollars in 2024 (a 10.7% increase from the previous year), and the proportion of digital advertising expenditure in total advertising expenditure is expected to increase to 60.8% (**Figure 2-1-3-11**). In terms of Japan's digital advertising market, in 2024, Internet advertising expenditure reached 3.6517 trillion yen, while advertising in the four mass media[8] declined to 2.3363 trillion yen. Since 2021, when Internet advertising expenditure first surpassed that of the four mass media, the gap has been widening (**Figure 2-1-3-12**).

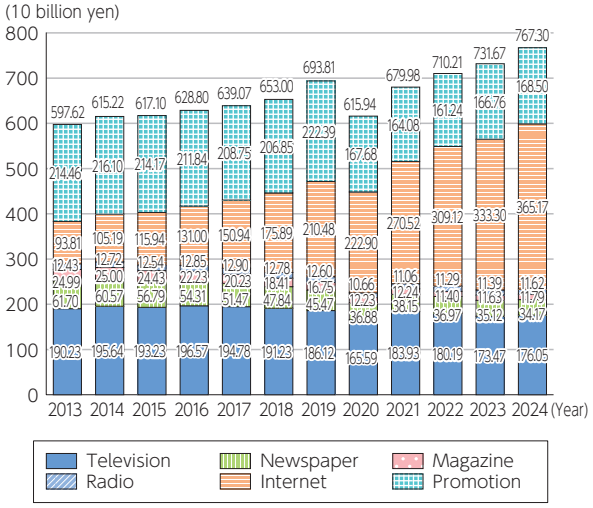
**Figure 2-1-3-11 Changes and forecasts of global advertising expenditures by media type**




(Source) Prepared based on Dentsu Group "Global Advertisement Spend Growth Rate Forecast (2024-2027)" (December 3, 2024)[9]

[8] Television media, newspapers, magazines and radio.
[9] https://www.group.dentsu.com/jp/news/release/001375.html

**Figure 2-1-3-12 Changes in advertising expenditure by media in Japan[10]**




(Source) Prepared based on Dentsu "Knowledge & Data 2024 Advertising expenditure in Japan"[11]

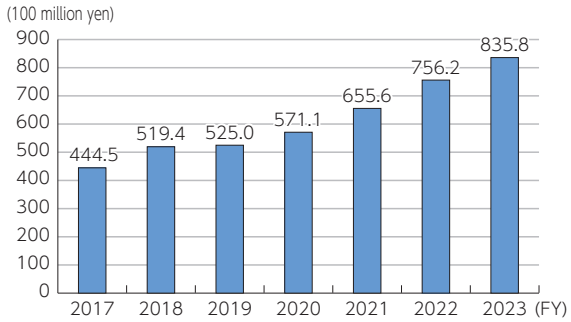
**Figure (related data) Changes in global total advertising expenditure**
Source: Dentsu Group "Global Advertisement Spend Growth Rate Forecast (2024-2027)"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00184
(Data collection)

### (3) Trends in overseas exports of Japan's broadcast content

The export value of broadcast content from Japan continued to increase in FY 2023, reaching 83.58 billion yen (a 10.5% increase from the previous year) (**Figure 2-1-3-13**).

By entity, the proportion of semi-key private broadcasting stations located in Osaka increased significantly.

**Figure 2-1-3-13 Changes in the value of broadcasting content exports from Japan**




*1 Value of broadcasting content exports: Total sales to overseas of program broadcasting rights, Internet distribution rights, video/DVD rights, program format remake rights, and merchandising rights, etc.

*2 Calculated based on questionnaire responses submitted by NHK, key private broadcasting stations, semi-key private broadcasting stations, local stations, satellite broadcasters, CATV operators, and production companies, etc.

(Source) Prepared based on MIC "Analysis of the Current Status of Overseas Expansion of Broadcasting Content"

**Figure (related data) Changes in the value of Japan's broadcasting content exports by rights**
Source: Prepared based on the MIC "Analysis of the Current Status of Overseas Expansion of Broadcasting Content"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00186
(Data collection)

**Figure (related data) Changes in the value of Japan's broadcasting content exports by entities**
Source: Prepared based on the MIC "Analysis of the Current Status of Overseas Expansion of Broadcasting Content"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00187
(Data collection)

[10] Since 2019, advertisements on EC platforms for selling goods and the event field are included in the advertisement expenditure in Japan to estimate the advertisement market. Data for 2018 and before is not retroactively adjusted.
[11] https://www.dentsu.co.jp/knowledge/ad_cost/index.html

# Section 4 Trends in radio wave usage in Japan

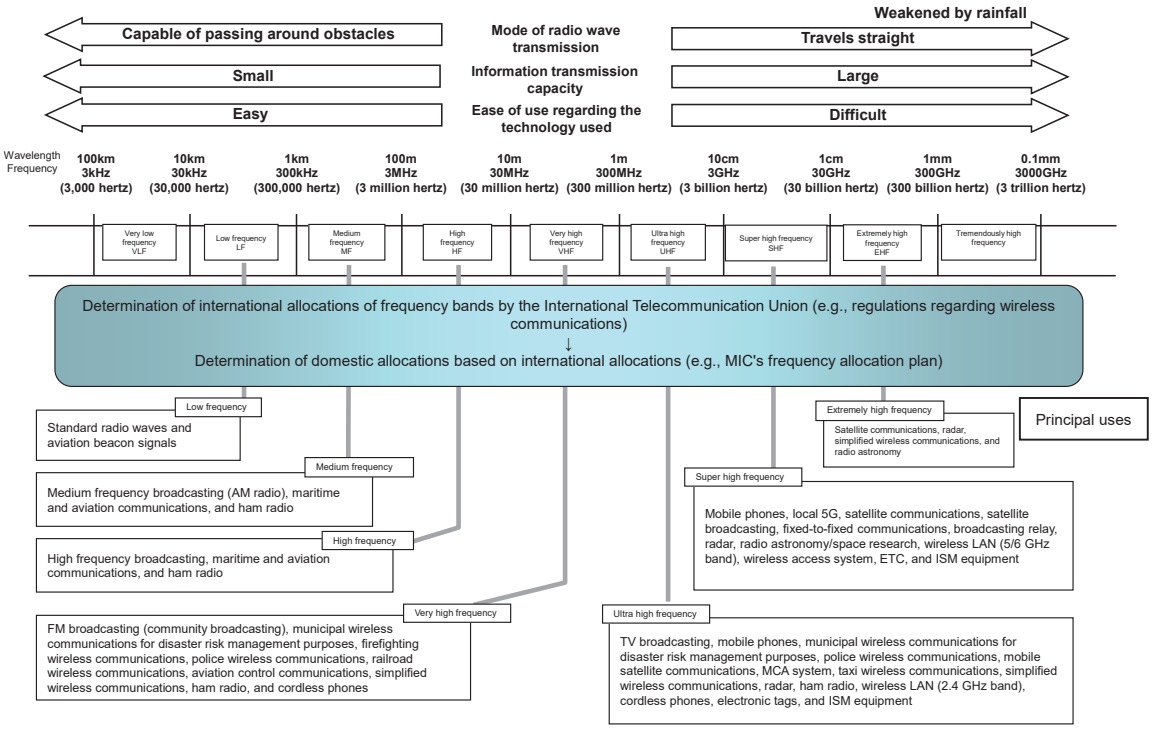
## 1. Major use by frequency band

Regarding frequency, the International Telecommunication Union (ITU) divides the world into three regions and specifies international allocations for each frequency band and type of operation based on the Radio Regulations established in the ITU Constitution.

Based on these international allocations, the "Frequency Allocation Plan[1]" specifies the frequencies, types of operations, purposes, and conditions that can be allocated to assist in the application for licenses for radio stations under the Radio Act. When establishing or amending this plan, the Radio Regulatory Council is consulted.

The main uses and characteristics of frequency bands in our country are as shown in (**Figure 2-1-4-1**).

**Figure 2-1-4-1 Main uses and characteristics of each frequency band in Japan**




| Spectrum | Wavelength | Characteristics |
|---|---|---|
| Very low frequency | 10 to 100km | Propagating along ground surface, waves of this spectrum can go over low hills. Being capable of propagating in water, the spectrum can be used for seabed exploration. |
| Low frequency | 1 to 10km | Being capable of propagating to very distant places, the spectrum is used by standard frequency stations to inform radio clock, etc. of time and frequency standard. |
| Medium frequency | 100 to 1000m | Capable of propagating through reflection off the E-layer of the ionosphere that is formed at the height of about 100km, the spectrum is used mainly for radio broadcasting. |
| High frequency | 10 to 100m | Capable of reaching the other side of the globe by being reflected off the F-layer of the ionosphere that is formed at the height of about 200 to 400km and by repeating reflection between F-layer and the ground surface. Widely used for ocean ship and international flight plane communication, international broadcasting and amateur radio. |
| Very high frequency | 1 to 10m | Waves of this spectrum propagate rather straight and are not easily reflected off the ionosphere, but are capable of reaching the other side of mountains and buildings to a certain extent. The spectrum is widely used for a variety of mobile communications including emergency and fire emergency radio. |
| Ultra high frequency | 10cm to 1m | Waves of this spectrum have stronger tendency to propagate straight compared with very high frequency, but are capable of reaching the other side of mountains and buildings to a certain extent. The spectrum is widely used mostly for a variety of mobile communication systems including mobile phones, and digital television broadcasting and microwave ovens. |
| Super high frequency | 1 to 10cm | Due to the strong tendency to propagate straight, this spectrum is suitable for emission to a specific direction. It is mainly used for fixed trunk circuits, satellite communication, satellite broadcasting and wireless LAN. |
| Extremely high frequency | 1mm to 10mm | With strong tendency to propagate straight, waves of the spectrum can transmit very large information quantity, but not very far in bad weather due to rain or fog. For this reason, the spectrum is used for relatively short-distance radio access communication and image transmission systems, simplicity radio, car collision prevention radar and radio telescopes for astronomical observation. |
| Tremendously high frequency | 0.1mm to 1mm | The spectrum has nature similar to light. It is rarely used for communication but used for radio telescopes for astronomical observation as is the case of Extremely high frequency. |

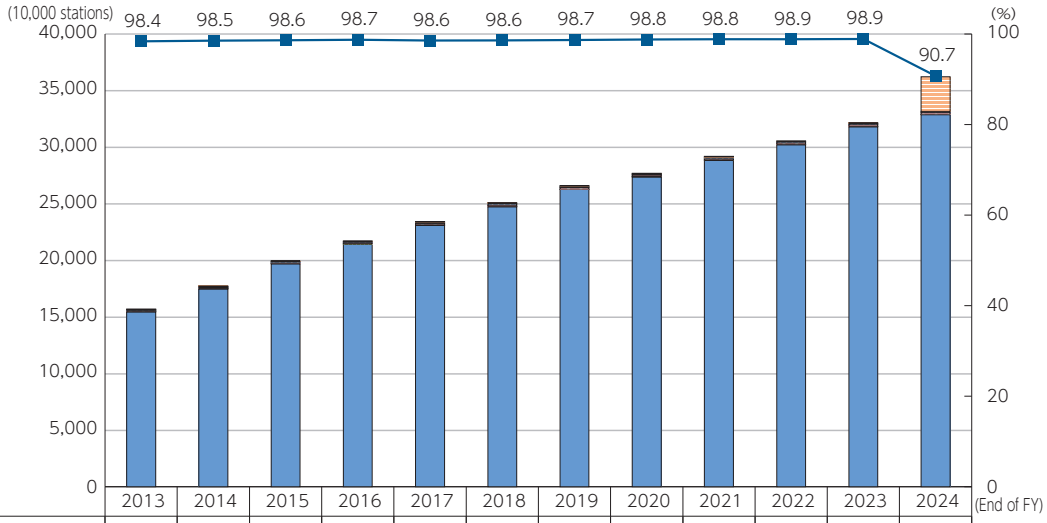
[1] Frequency Allocation Plan: https://www.tele.soumu.go.jp/j/adm/freq/search/share/index.htm

## 2. Trends in the number of radio stations

As of the end of the FY2024, the number of radio stations (excluding radio stations that do not require licenses, such as wireless LAN terminals) was 362.3 million (an increase of 12.6% from the previous fiscal year). Among these, the number of land mobile stations such as mobile phone terminals was 328.76 million (an increase of 3.3% from the previous fiscal year), accounting for 90.7% of the total number of radio stations, which is a decrease from the previous year but is still at a high level. The reason for this decrease is the significant increase in the number of other radio stations (from 0.58 million at the end of FY2023 to 30.57 million at the end of FY2024). In particular, the impact of the increase in portable mobile earth stations following the launch of satellite direct communication services was significant. The number of portable mobile earth stations has increased by 30.03 million from the end of FY2023 (from 0.14 million at the end of FY2023 to 30.17 million at the end of FY2024).

Additionally, the number of simple radio stations also increased to 1.53 million (an increase of 2.2% from the previous fiscal year) **(Figure 2-1-4-2)**.

**Figure 2-1-4-2 Changes in the number of radio stations**




| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other | 50 | 50 | 55 | 49 | 49 | 55 | 59 | 61 | 51 | 55 | 58 | 3,057 |
| Base stations | 68 | 71 | 70 | 73 | 125 | 132 | 117 | 95 | 108 | 112 | 110 | 109 |
| Convenience stations *2 | 90 | 97 | 105 | 112 | 118 | 125 | 132 | 137 | 142 | 143 | 150 | 153 |
| Amateur stations | 44 | 44 | 44 | 43 | 43 | 41 | 40 | 39 | 38 | 37 | 36 | 34 |
| Land mobile stations *1 | 15,472 | 17,493 | 19,711 | 21,457 | 23,109 | 24,748 | 26,278 | 27,379 | 28,859 | 30,219 | 31,811 | 32,876 |
| Percentage of land mobile stations | 98.4 | 98.5 | 98.6 | 98.7 | 98.6 | 98.6 | 98.7 | 98.8 | 98.8 | 98.9 | 98.9 | 90.7 |

*1 Land mobile station: A radio station (such as mobile phone devices) operated while moving on land or stationary at an unspecified point.

*2 Convenience radio station: A radio station that performs simple radio communication.

## 3. Radio wave monitoring to eliminate obstruction of important radio communication etc.

The MIC has established "DEURAS (DEtect Unlicensed RAdio Stations)" facilities to detect radio sources that interfere with important radio communications, such as fire and emergency radio, aviation and maritime radio, and mobile phones, and to crack down on unauthorized radio stations that disrupt the radio usage environment using sensor station facilities installed on the rooftops of major cities' towers and buildings and unauthorized radio station search vehicles[2].

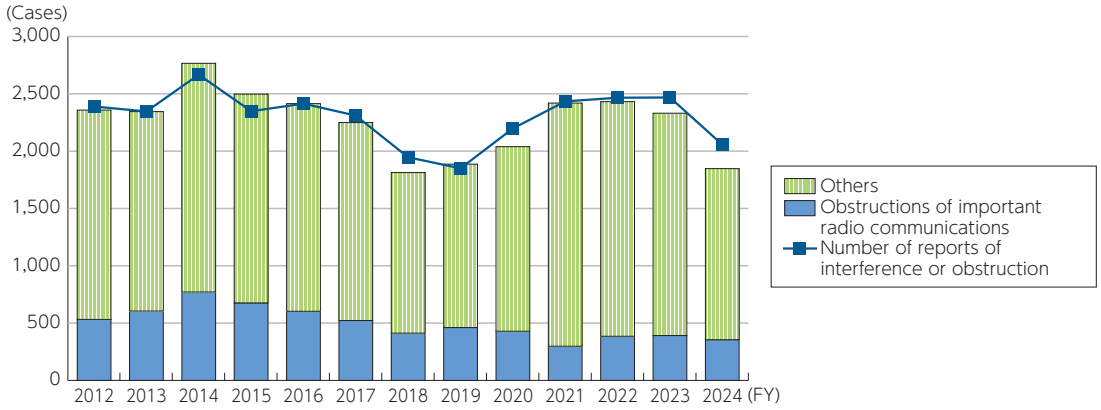
In FY2024, the number of interference and obstruction reports was 1,847, a decrease of 484 cases (20.8% decrease) from the previous fiscal year. Among these, the number of cases of interference with important radio communications decreased by 36 cases (9.2% decrease) to 355 cases compared with the previous fiscal year. The total number of measures for such interference and obstruction in FY2024, including previously unaddressed cases, was 2,057 **(Figure 2-1-4-3)**.

Furthermore, the number of appearances of unauthorized radio stations in FY2024 increased by 94 cases (2.5% increase) to 3,926 cases compared with the previous year. The total number of measures in FY2024, including previously unaddressed cases, increased by 433 cases (49.1% increase) to 1,315 cases compared with the

[2] Regarding obstructions to important radio communications, in FY2010, DEURAS established a 24-hour system for receiving obstruction reports and has been working to promptly eliminate them. As an international radio wave monitoring facility registered with the International Telecommunication Union (ITU), DEURAS plays a role in HF and cosmic radio wave monitoring.

previous year. The breakdown of these measures includes 41 prosecutions (3.1%) and 1,274 directives (96.9%) **(Figure 2-1-4-4)**.

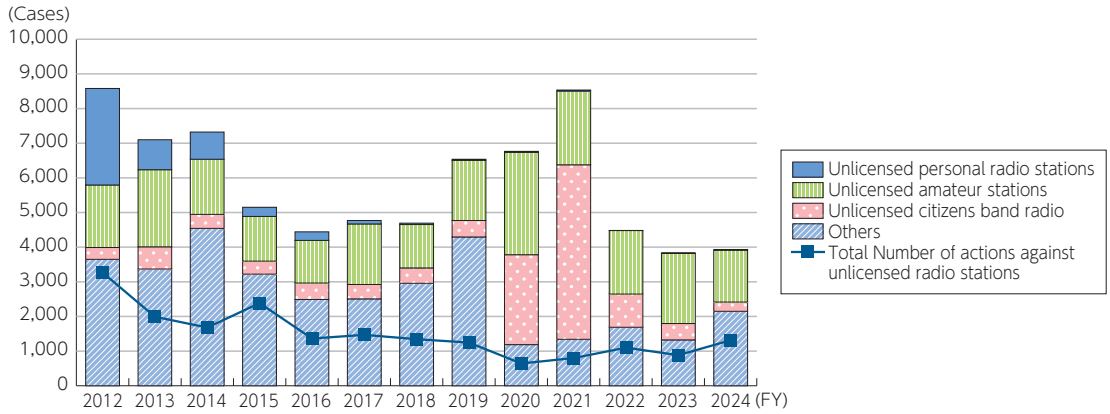
**Figure 2-1-4-3 Changes in the number of reports of interference and obstruction of radio stations and the number of actions taken**




| Number of reports of interference or obstruction | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Obstructions of important radio communications | 532 | 605 | 771 | 676 | 603 | 522 | 412 | 461 | 429 | 298 | 385 | 391 | 355 |
| Others | 1,826 | 1,740 | 1,995 | 1,821 | 1,811 | 1,727 | 1,401 | 1,425 | 1,610 | 2,121 | 2,047 | 1,940 | 1,492 |
| Total | 2,358 | 2,345 | 2,766 | 2,497 | 2,414 | 2,249 | 1,813 | 1,886 | 2,039 | 2,419 | 2,432 | 2,331 | 1,847 |

| Number of actions in response to reports of interference or obstructions | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of actions in response to reports of interference | 2,389 | 2,346 | 2,667 | 2,348 | 2,414 | 2,310 | 1,946 | 1,850 | 2,198 | 2,434 | 2,466 | 2,468 | 2,057 |

**Figure 2-1-4-4 Changes in the number of reports of unlicensed radio stations and the number of actions taken**




| Number of actions | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of actions | Unlicensed personal radio stations | 2,788 | 865 | 784 | 265 | 245 | 99 | 40 | 28 | 25 | 32 | 3 | 7 | 9 |
| | Unlicensed amateur stations | 1,803 | 2,225 | 1,592 | 1,291 | 1,229 | 1,749 | 1,253 | 1,739 | 2,959 | 2,126 | 1,831 | 2,028 | 1,500 |
| | Unlicensed citizens band radio | 342 | 642 | 404 | 375 | 478 | 414 | 443 | 477 | 2,594 | 5,035 | 958 | 472 | 269 |
| | Others | 3,648 | 3,369 | 4,541 | 3,221 | 2,489 | 2,508 | 2,958 | 4,293 | 1,187 | 1,341 | 1,689 | 1,325 | 2,148 |
| | Total | 8,581 | 7,101 | 7,321 | 5,152 | 4,441 | 4,770 | 4,694 | 6,537 | 6,765 | 8,534 | 4,481 | 3,832 | 3,926 |

| Number of actions | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of actions | Prosecution | 231 | 228 | 215 | 230 | 168 | 168 | 208 | 189 | 62 | 49 | 94 | 63 | 41 |
| | Guidance | 3,038 | 1,764 | 1,465 | 2,156 | 1,196 | 1,300 | 1,136 | 1,058 | 581 | 752 | 1,004 | 819 | 1,274 |
| | Total | 3,269 | 1,992 | 1,680 | 2,386 | 1,364 | 1,468 | 1,344 | 1,247 | 643 | 801 | 1,098 | 882 | 1,315 |

# Section 5 Trends related to ICT equipment and devices in Japan and overseas

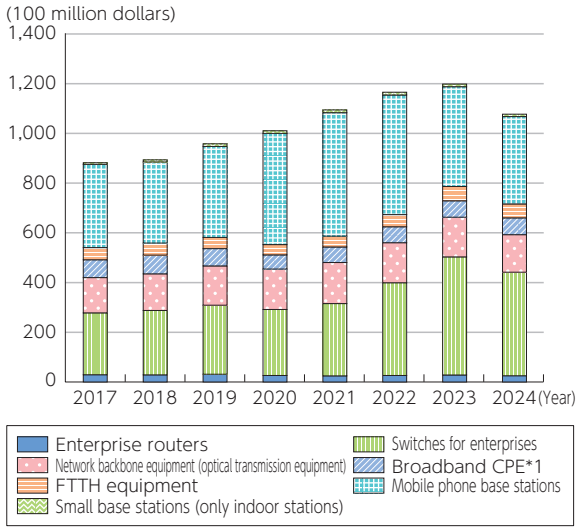
## 1. Trends in the ICT equipment market in Japan and overseas

### (1) Market size

The global shipment value of network equipment has been on an upward trend since 2017; however, in 2024, the amount decreased to 107.7 billion dollars (a 10.1% decrease from the previous year) (**Figure 2-1-5-1**). The breakdown shows that mobile base stations and enterprise switches are the main components.

In Japan, the production value of network equipment had been declining since the early 2000s but started to increase gradually from 2018. It then turned downward again in 2021, but increased to 661.6 billion yen in 2024. The breakdown indicates a decrease in telephone application devices[1] and switches due to the shift from fixed-line phones to mobile and IP phones. Currently, wireless application devices[2], carrier devices[3], and other wireless communication equipment[4] constitute the largest segments. The production of base station communication equipment has shown significant fluctuations, experiencing a downturn after 4G investments were largely completed in 2016. However, following a temporary increase in 2020, it has declined. Network connection equipment[5] used for IP communication started to increase in 2019, and then decreased from 2021 to 2022. It then briefly increased in 2023, but decreased in 2024.

**Figure 2-1-5-1 Changes in the value of global network equipment shipments**




* Customer-facing equipment for broadband communications via xDSL (ADSL, VDSL, G.fast, etc.) and cable networks.

(Source) Omdia

### (2) Market trends by equipment type

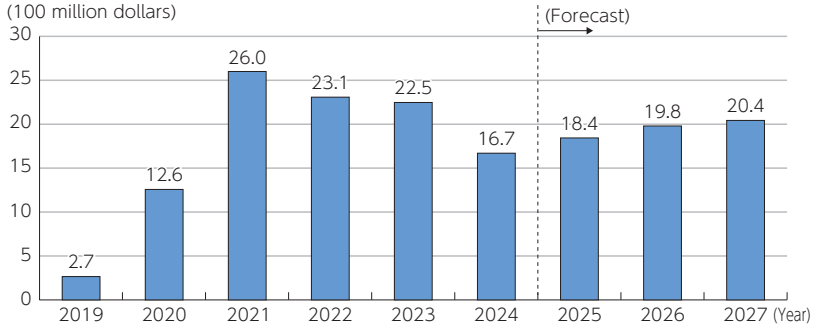
#### A 5G base stations

The global market size (shipment value) for 5G base stations (macro cells) in 2024 was 24.9 billion dollars (a 15.2% decrease from the previous year), while in Japan, it was 1.7 billion dollars (a 25.7% decrease from the previous year) **(Figure 2-1-5-3)**. Although both markets seem to have already peaked, they are anticipated to maintain high levels. In 2024, the global market share (shipment value) for 5G base stations (macro cells) was led by Huawei (31.0%), followed by Ericsson (26.6%) and Nokia (18.1%). This indicates that major overseas companies hold a high share in the 5G base station (macro cell) market, while Japanese companies have low international competitiveness.

On the other hand, Japanese companies are expected to hold a 33% share of the global market for electronic components incorporated into mobile base stations and smartphones as of 2023, indicating potential competitiveness for Beyond 5G (**Figure 2-1-5-4**).

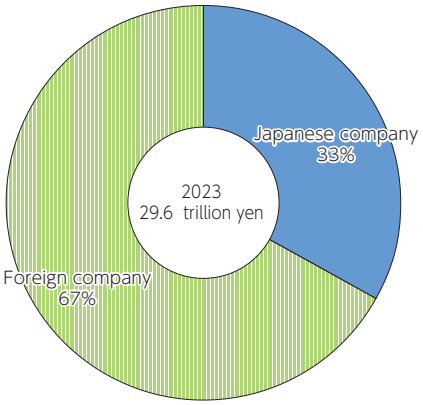
[1] Key telephone system and interphones
[2] Maritime/aeronautical radars, wireless location measuring devices, telemeter/telecontrol apparatus, etc.
[3] Digital transmission devices, power line carrier devices, CATV carrier devices, optical transmission devices, etc.
[4] Satellite/terrestrial fixed communications equipment, maritime/aeronautical communications equipment, transceivers, etc.
[5] Routers, hubs, gateways, etc.

**Figure 2-1-5-3 5G base stations (macro cells) market size in Japan (value of shipments)**




(Source) Omdia

**Figure 2-1-5-4 Share of global electronic components market (in terms of sales) (2023)**




(Source) Omdia

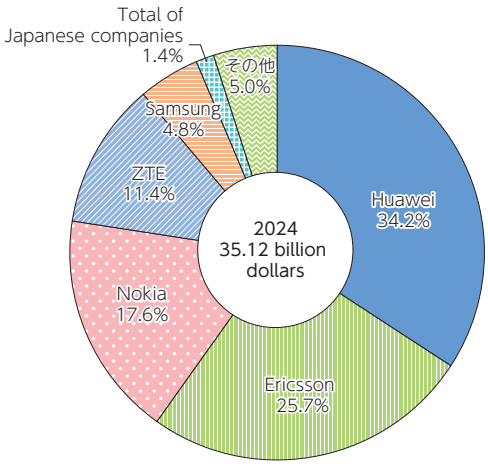
**Figure (related data) Global 5G base stations (macro cells) market size (value of shipments)**
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00196
(Data collection)

**Figure (related data) Global 5G base stations (macro cells) market share (value of shipments)**
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00197
(Data collection)

### B Macro cell base stations (including 5G)

In 2024, the global market share based on shipment value was led by Huawei (34.2%), followed by Ericsson (25.7%) and Nokia (17.6%), with Japanese companies collectively holding a 1.4% share **(Figure 2-1-5-5)**.

**Figure 2-1-5-5 Share of the global macro cells base station market (value of shipments in 2024)**




(Source) Omdia

**C Enterprise routers**

In 2024, the global market share based on shipment value was led by Cisco (62.6%), followed by H3C (10.2%) and Huawei (8.7%).

In the Japanese market, the shipment value share in 2024 was led by Cisco (35.0%), followed by NEC (27.5%) and Yamaha (23.5%).

**Figure (related data) Global enterprise router market share**
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00199
(Data collection)

**Figure (related data) Japanese enterprise router market share**
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00200
(Data collection)

## 2. Trends in the ICT device market in Japan and overseas

**(1) Market size**

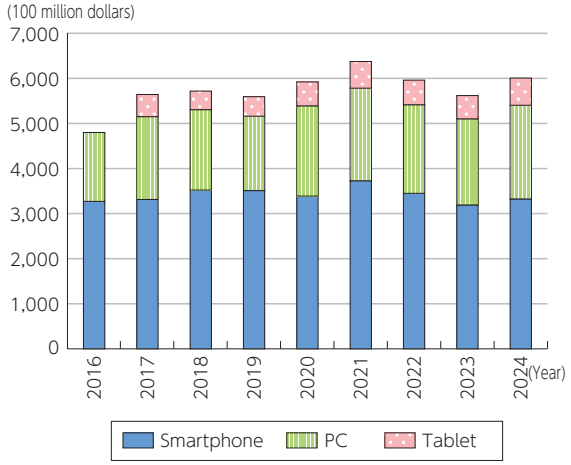
The global shipment value of information terminals in 2024 was 600.7 billion dollars (a 6.9% increase from the previous year) **(Figure 2-1-5-6)**. The breakdown shows that smartphones and PCs are the main contributors.

The production value of information terminals in Japan has significantly decreased compared with the 2000s. It has remained flat at around 1 trillion yen since 2020, reaching 1.092 trillion yen in 2024. The breakdown shows that mobile phones and PHS[6] were major contributors until the mid-2010s, but have since declined, and now desktop PCs, laptop PCs, and information terminals[7] are the main contributors.

[6] Since 2019, the value of mobile phone and PHS production has not been disclosed, so the values for radio communications equipment (including satellite communications equipment) have been used after deducting the values of broadcasting equipment, fixed communications equipment (satellite and terrestrial), other terrestrial mobile communications equipment, maritime/aeronautical mobile communications equipment, base station communications equipment, other radio communications equipment and associated radio equipment. In addition, the value of radio communications equipment production (including satellite communications equipment) has not been disclosed since 2022, therefore the value is recorded as zero.

[7] External memories, printers, monitors, etc. Information kiosk terminal devices are excluded because their production has not been disclosed in some years.

**Figure 2-1-5-6 Changes in the value of global information device shipments**




* Tablets have been counted since 2017.

(Source) Omdia

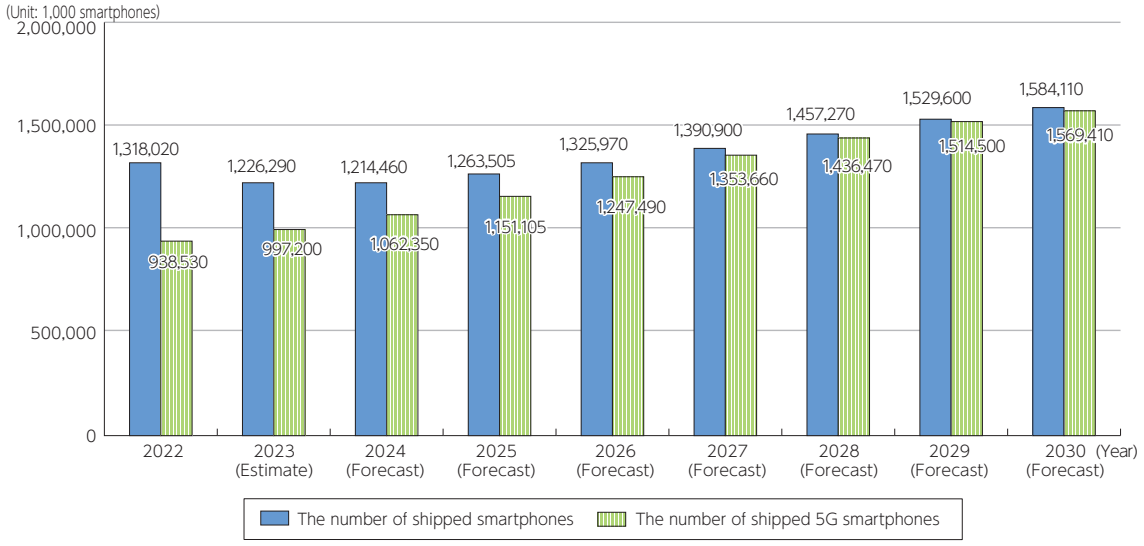
### (2) Market trends by device

#### A 5G-compatible smartphones

The global shipment volume of 5G-compatible smartphones was 938.53 million units in 2022, accounting for 71% of the total smartphone shipments (1.31802 billion units). The shipment volume of 5G-compatible smartphones is expected to continue expanding, reaching 1.56941 billion units by 2030 (**Figure 2-1-5-8**).

The shipment volume of 5G-compatible smartphones in Japan was 25.05 million units in 2023 (a 12.4% decrease from the previous year) **(Figure 2-1-5-9)**.

**Figure 2-1-5-8 Changes and forecasts of the global shipment volume of smartphones and 5G smartphones**



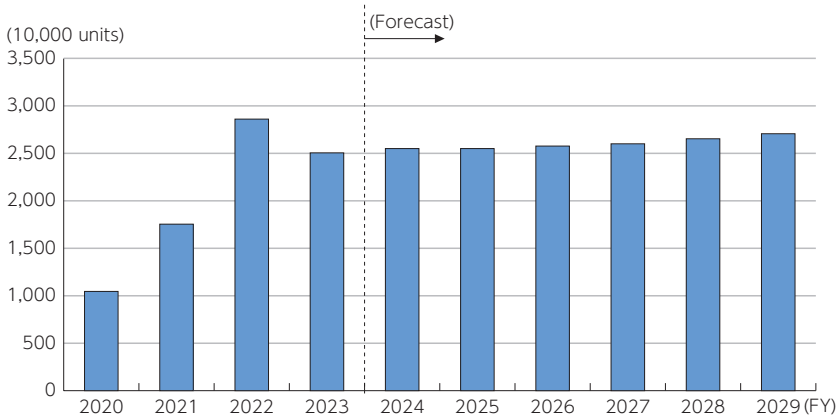

*1 It is based on manufacturers' shipment volume.

*2 The shipment volume of 5G smartphones is included in the shipment volume of smartphones.

*3 The value for 2023 is estimated, and the values for 2024 onwards are forecasts.

(Source) Yano Research Institute Ltd. "Global Market of Mobile Phone Subscriptions and Shipment Volume: Key Research Findings 2023" (published on April 2,2024)

**Figure 2-1-5-9 Shipment of 5G smartphones in Japan**

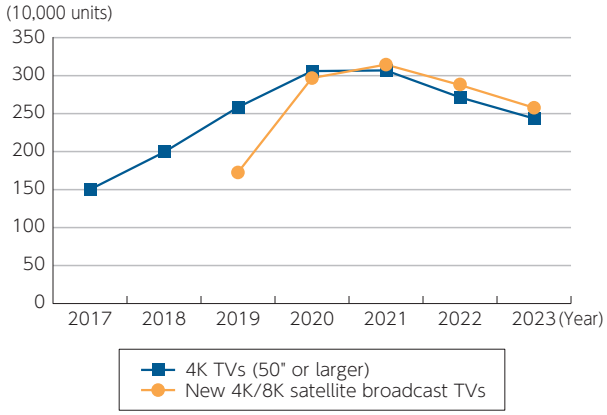



(Source) CIAJ "Medium-term Demand Forecast for Communications Devices [FY2024-DY2029]"

### B 4K and 8K televisions

The domestic shipment volume of 4K-compatible televisions (50 inches and above) was 2.43 million units in 2023 (a 10.3% decrease from the previous year), and the shipment volume of new 4K/8K satellite broadcast-compatible televisions was 2.57 million units in 2023 (a 10.4% decrease from the previous year). Both categories appear to be stabilizing **(Figure 2-1-5-10)**.

**Figure 2-1-5-10 Number of 4K and 8K televisions shipped in Japan**




(Source) JEITA "Domestic Shipments of Consumer Electronic Devices"

### C VR and AR

The global shipment volume of VR headsets had been increasing since 2019, but declined in 2023, and in 2024, reached 6.9 million units in 2024 (a 9.9% decrease from the previous year).

In Japan, the shipment volume of XR (which includes "VR (Virtual Reality)", "AR (Augmented Reality)", and "MR (Mixed Reality)") compatible HMDs and smart glasses was 0.38 million units in 2022, and it is predicted to increase to 1.02 million units by 2025.

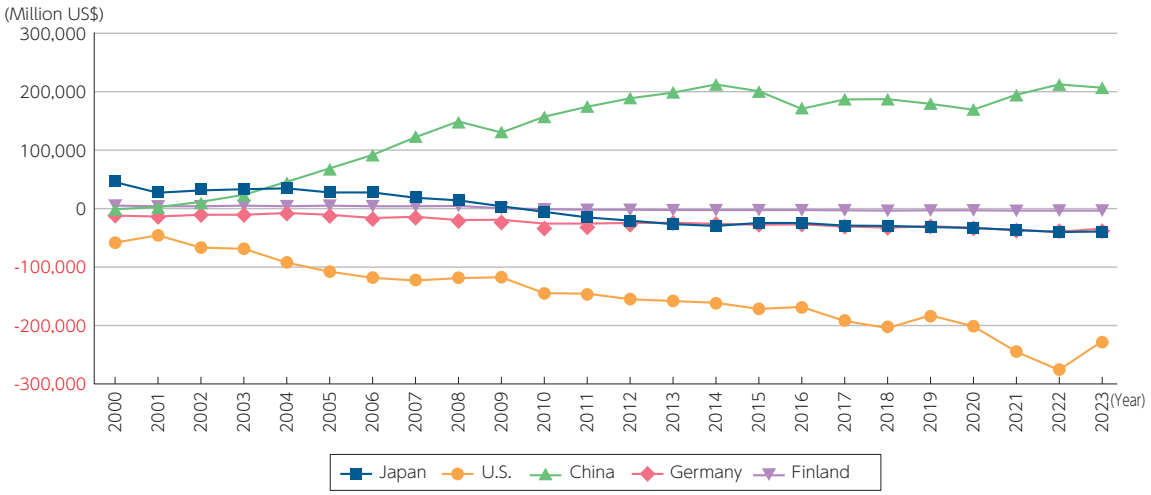
**Figure (related data) Changes in and forecast for global VR headset shipments**
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00206
(Data collection)

**Figure (related data) Forecast on domestic shipment volume of HMDs for XR (VR/AR/MR) and smart grasses**
Source: Yano Research Institute Ltd., "The Market of HMDs (Head Mounted Displays) for XR (VR/AR/MR) and Smart Grasses (2023)" (published in July 5, 2023)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00207
(Data collection)

## 3. Trends in the import and export of ICT equipment and devices by country

Regarding the import and export of ICT equipment and devices[8] in each country, according to the "UNCTAD STAT" by the United Nations Conference on Trade and Development (UNCTAD)[9], Japan has had a trade deficit since 2010, with the export value reaching 54.9 billion dollars (a 9.9% decrease from the previous year) and the import value reaching 94.3 billion dollars (a 6.9% decrease from the previous year) in 2023, resulting in a trade deficit of 39.4 billion dollars (a 2.4% decrease from the previous year). In 2023, the U.S. had a trade deficit of 227.2 billion dollars (a 17.7% decrease from the previous year), while China had a trade surplus of 206.9 billion dollars (a 2.6% decrease from the previous year) **(Figure 2-1-5-11)**.

**Figure 2-1-5-11 Changes in the value of the export surplus of ICT equipment and devices by country**




(Source) UNCTAD "UNCTAD STAT"[10]

**Figure (related data) Changes in the value of exports of ICT equipment and devices by country**
Source: UNCTAD "UNCTAD STAT"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00209
(Data collection)

**Figure (related data) Changes in the value of imports of ICT equipment and devices by country**
Source: UNCTAD "UNCTAD STAT"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00210
(Data collection)

[8] Computers, communications equipment, consumer electronics, electronic components, etc.
[9] It should be noted that due to differences in the scope of calculation, the figures do not necessarily match the export, import, and export/import values of ICT goods based on the Ministry of Finance's "Trade Statistics," as stated in Part II, Chapter 1, Section 1, Item 4, "Exports and imports in the ICT field."
[10] https://unctadstat.unctad.org/EN/Index.html

## 4. Trends in the semiconductor[11] market

The global semiconductor market (shipment value) reached 90.6 billion dollars in 2024 (a 4.7% decrease from the previous year). Looking at the breakdown, discrete semiconductors are the most abundant. For image sensors, which have seen the highest growth rate since 2013, a Japanese company (Sony Semiconductor Solutions) holds a 51.1% share.

Japan's semiconductor market (shipment value) had been declining since 2018, but increased from 2021 before falling again in 2023, reaching 6.6 billion dollars in 2024 (a 6.5% decrease from the previous year). Similar to the global market, discrete semiconductors are the most abundant when looking at the breakdown.

**Figure (related data) Changes in global semiconductor market (value of shipments)**
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00211
(Data collection)

**Figure (related data) Changes in global imaging sensor market share (value of shipments in 2024)**
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00212
(Data collection)

**Figure (related data) Changes in Japan's semiconductor market (value of shipments)**
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00213
(Data collection)

[11] In this section, this means the discrete semiconductors used for the imaging sensors, MCUs, MEMS sensors and indispensable power sources that are positioned as key devices in the electronic equipment implementing IoT and AI, which are being introduced as part of the DX.

# Section 6 Trends in platforms

## 1. Market trends

Comparing major players in the ICT-related market based on their market capitalization as of March 2024 and March 2025, Apple surpassed Microsoft to take the top spot. While the U.S.-based GAFAM companies continue to dominate, NVIDIA has risen to second place, buoyed by strong performance and expansion in demand for semiconductor-related products in the generative AI space. Samsung Electronics (the Republic of Korea), which was ranked 11th in 2024, has fallen out of the top 15, while stock market valuations of media and software companies are increasing (**Figure 2-1-6-1**).

**Figure 2-1-6-1 Changes in the top 15 companies by market capitalization in the global ICT market**

2024

| Company name | Major business | Country or region | Market capitalization (100 million dollars) |
|---|---|---|---|
| Microsoft | Cloud service | U.S. | 31,420 |
| Apple | Hardware, software, services | U.S. | 26,380 |
| NVIDIA | Semiconductor | U.S. | 23,750 |
| Amazon.com | Cloud service, e-commerce | U.S. | 18,670 |
| Alphabet/Google | Search engine | U.S. | 18,660 |
| Meta Platforms/ Facebook | SNS | U.S. | 12,820 |
| Taiwan Semiconductor Manufacturing | Semiconductor | Taiwan | 6,350 |
| Broadcom | Hardware, semiconductor | U.S. | 6,260 |
| Visa | Payment | U.S. | 5,650 |
| Mastercard | Payment | U.S. | 4,440 |
| Samsung Electronics | Hardware | Republic of Korea | 3,960 |
| Oracle | Cloud service | U.S. | 3,470 |
| Tencent | SNS | China | 3,440 |
| Salesforce | Cloud service | U.S. | 2,970 |
| Advanced Micro Devices (AMD) | Semiconductor | U.S. | 2,890 |

2025

| | Company name | Major business | Country or region | Market capitalization (100 million dollars) |
|---|---|---|---|---|
| ↑ | Apple | Hardware, software, services | U.S. | 33,610 |
| ↑ | NVIDIA | Semiconductor | U.S. | 29,450 |
| ↓ | Microsoft | Cloud service | U.S. | 29,380 |
| | Amazon.com | Cloud service, e-commerce | U.S. | 21,800 |
| | Alphabet/Google | Search engine | U.S. | 20,790 |
| | Meta Platforms/ Facebook | SNS | U.S. | 15,870 |
| ↑ | Broadcom | Hardware, semiconductor | U.S. | 8,850 |
| ↓ | Taiwan Semiconductor Manufacturing | Semiconductor | Taiwan | 7,760 |
| | Visa | Payment | U.S. | 6,730 |
| ↑ | Tencent | SNS | China | 5,860 |
| ↓ | Mastercard | Payment | U.S. | 4,970 |
| | Oracle | Cloud service | U.S. | 4,320 |
| new | Netflix | Media | U.S. | 4,270 |
| new | SAP | Software | Germany | 3,270 |
| new | Alibaba | e-commerce | China | 3,150 |

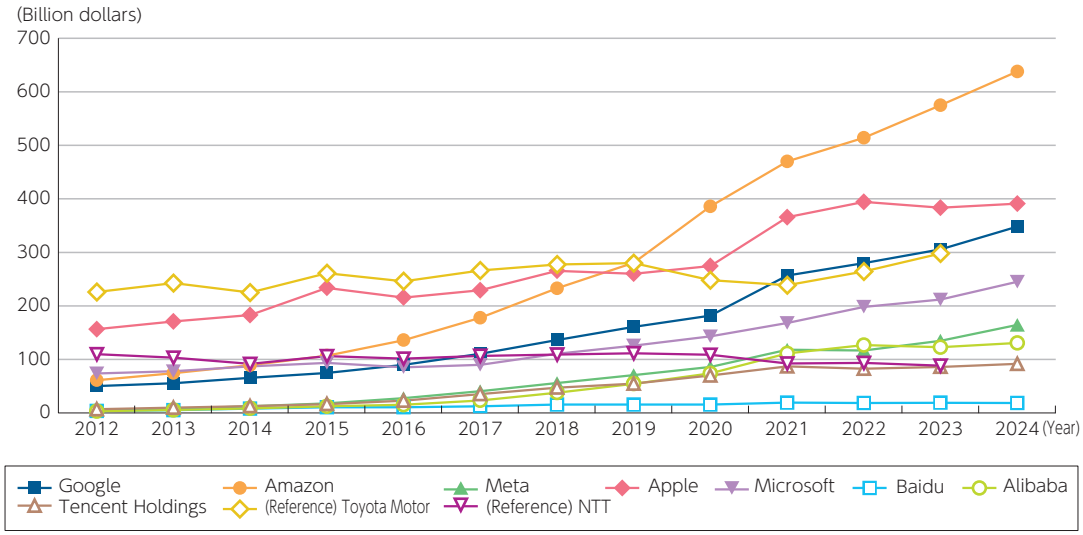
* The figures for 2024 are as of March 27, 2024, and the ones for 2025 are as of March 27, 2025.

(Source) Acquired from Wright Investors' Service, Inc.[1]

Looking at the sales trends of the world's leading platform providers in the U.S. and China, while many of them continue to see sales growth, Apple, Alibaba, and Baidu are experiencing sluggish growth **(Figure 2-1-6-2)**.

[1] https://www.corporateinformation.com/#/tophundred

**Figure 2-1-6-2 Sales of platform providers in the U.S. and China**




*For Japanese and Chinese companies, figures are converted into dollars using the average exchange rate for each year. For Japanese companies, fiscal year closing values are used.

(Source) Prepared based on Statista data and the financial information of each company

## 2. Trends of major platform providers

The major platform companies in the U.S. and China are leveraging their respective strengths and enhancing their services that utilize generative AI. In particular, multiple platforms are investing in the development of generative AI, so it is anticipated that generative AI will be utilized in various scenarios in the future (**Figure 2-1-6-3**).

**Figure 2-1-6-3 Trends of major platform providers in the U.S. and China**

<The U.S.>

| Key areas | Company | Business overview and areas | New areas and businesses |
|---|---|---|---|
| Advertising, search | Alphabet (Google) | It provides the largest search engine service in the world, and is developing a massive economic sphere including cloud and devices focused mainly in search advertising. | In addition to strengthening its search engine services using generative AI, Google is likely to focus on using AI in the physical world, such as in robots. |
| E-commerce | Amazon | It is one of the largest e-commerce operator in the world, with a hugeeconomic sphere centered on cloud services (AWS). | In addition to providing generative AI-related services on AWS, Amazon is strengthening its efforts related to generative AI by announcing its own generative AI model. |
| SNS, apps | Meta (Facebook) | The company provides one of the world's largest social media services. In 2021 it changed its name to Meta Platforms to promote its metaverse business. | Meta is focusing on developing its generative AI assistant "Meta AI" and the large-scale language model "Llama," as well as AI infrastructure such as data centers and undersea cables. |
| Communications devices, terminals | Apple | It is the world's largest manufacture and retailer of the internet and digital home appliances. The company has developed a massive economic sphere centered on iPhone and other devices. | Apple is expanding its business centered around iPhone at its core and is focusing on on-device generative AI using a small language model (SLM). |
| Terminals, cloud | Microsoft | It is one of the largest software vendors in the world. The company has a massive economic sphere centered on software and cloud services such as Windows and Office. | While focusing on utilizing generative AI in collaboration with OpenAI, Microsoft also announced that it will develop its own generative AI model for business software, therefore future developments are likely to draw attention. |

<China>

| Key areas | Company | Business overview and areas | New areas and businesses |
|---|---|---|---|
| Advertising, search | Baidu | Baidu is the largest search engine operator in China. It is using abundant data obtained from its search services to advance AI technology development. It is focusing on collaboration with various industries, and is expanding into autonomous driving. | Baidu launched its generative AI service called "ERNIE Bot." The number of its users reached 430 million people in November 2024, making it the most used LLM in China. The company is focused on the AI business, including providing AI AgentBuilder. |
| E-commerce | Alibaba | It is the world's largest e-commerce operator based on gross merchandise volume. The company is leveraging data technology to provide services ranging from marketing to logistics and payments, and also expanding to cloud. | Alibaba is promoting an AI-driven business strategy, increasing investment in AI infrastructure and focusing on industrial LLMs, as well as AI agents for corporate digital transformation. |
| SNS, apps | Tencent | It is the China's largest social media app platformer. The company has built a massive digital ecosystem to provide payment services, games and other services based on "WeChat". | Tencent reorganized its AI team in 2024 to focus on research and development of its own AI model "Kongen," while also introducing models from other companies, such as DeepSeek, into its SNS to improve usability. |
| Communications devices, terminals | Huawei | It is a leading global communications device vendor with operations in the following areas: ICT infrastructure, devices, cloud services, digital energy, and automobile solutions. | In 2024, Huawei released the world's first tri-fold smartphone, which attracted attention, and continues to focus on its device business, as well as its automotive and energy businesses, which have turned profitable. |

(Source) Prepared based on published materials of each company

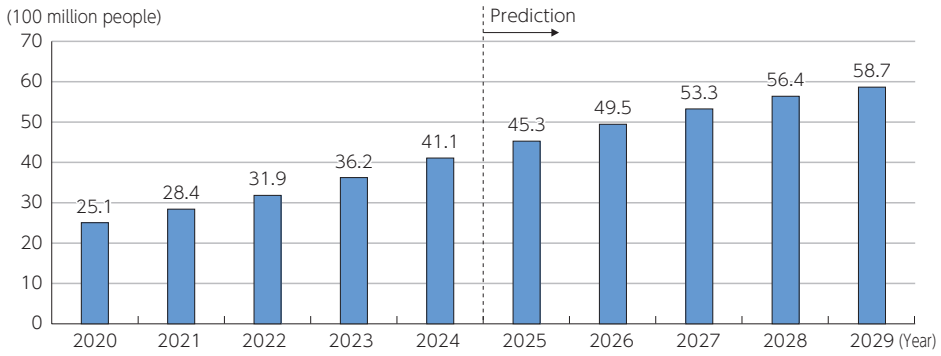
**Figure (related data) Sales of major platform providers in the U.S. and China by business**
Source: Prepared based on published materials of each company
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00236
(Data collection)

# Section 7 Trends in the market of ICT services and contents and application services

## 1. SNS

The number of social media users worldwide[1] is expected to increase from 4.11 billion in 2024 to 5.87 billion by 2029. Social media is being used not only for text communication purposes but also for other purposes such as watching short video content (**Figure 2-1-7-1**).

**Figure 2-1-7-1 Changes and forecasts of the number of global social media users**




(Source) Prepared based on Statista (data obtained on February 1, 2025)[2]

## 2. EC

The global EC market sales continue to show an increasing trend, with an estimated expansion from 7.2 trillion dollars in 2024 to 10.4 trillion dollars in 2028. The average annual growth rate by country from 2024 to 2029 is expected to be high in Turkey, Brazil, India and Mexico, while countries such as Japan, the U.S., and Germany are expected to fall below the global average, and South Korea is expected to have a particularly low growth rate.

**Figure (related data) Changes and forecasts of sales in the global EC market**
Source: Prepared based on Statista (a.o. eMarketer, Activate, Digital Commerce 360) (data obtained on February 1, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00238
(Data collection)

**Figure (related data) Growth rate of EC market by country (2024 to 2029)**
Source: Prepared based on Statista "Statista Digital Market Insights" (data obtained on February 1, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00239
(Data collection)

## 3. Searching services

In the world market for desktop search services, Google holds a high share, but its share has gradually decreased to 79.1% as of December 2024. On the other hand, Bing's share is expanding, reaching double digits at 11.9% as of December 2024. Microsoft's browser "Edge" sets Bing as the default search service, contributing to the expansion of Bing's share.

In Japan, as of December 2024, Google holds the highest share, accounting for over 70% in personal computers, smartphones and tablets. Additionally, Bing's share is roughly 12% in personal computers, while Yahoo! holds a share of less than 1% in smartphones and tablets, indicating differences in trends by device.

[1] The people using social media sites and applications at least once a month.
[2] https://www.statista.com/forecasts/1146659/social-media-users-in-the-world

**Figure (related data) Changes in global market share of search engines (desktop)**
Source: Prepared based on StatCounter (cited from Statista) (data obtained on January 31, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00242
(Data collection)

**Figure (related data) Changes in global market share of search engines (mobile)**
Source: Prepared based on StatCounter (cited from Statista) (data obtained on January 31, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00243
(Data collection)

**Figure (related data) Market share of searching engines in Japan**
Source: Prepared based on StatCounter (cited from Statista) (data obtained on January 31, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00244
(Data collection)

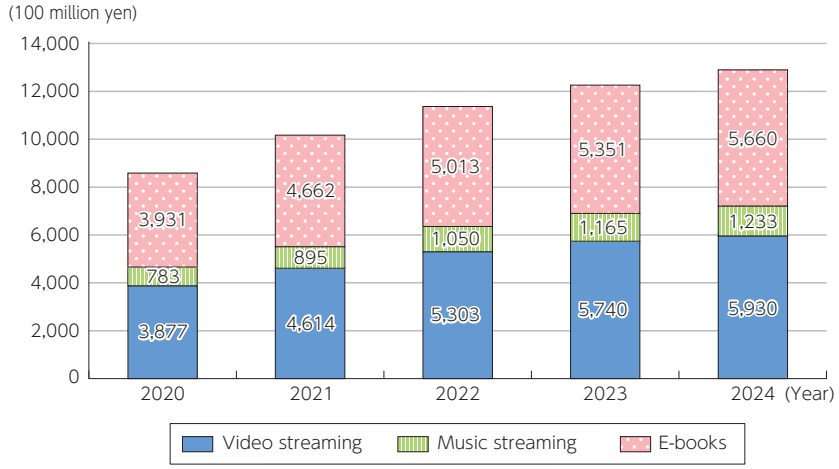
## 4. Video streaming, music streaming and e-book

The global market for video streaming, music streaming, and e-books has continued to grow, driven by the increasing popularity of subscription-based services and the rise in at-home time due to the spread of COVID-19. The total market size reached 180.3 billion dollars in 2024, marking a 12.1% increase from the previous year.

**Figure (related data) Changes in and forecast for the size of the global video streaming, music streaming and e-book markets**
Source: Prepared based on Omdia and Statista (data obtained on March 14, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00245
(Data collection)

In Japan, the video streaming market reached 593 billion yen (a 3.3% increase from the previous year), the music streaming market 123.3 billion yen (a 5.8% increase), and the e-book market 566 billion yen (a 5.8% increase) in 2024 (**Figure 2-1-7-2**). These markets are all experiencing growth trends similar to those seen globally.

**Figure 2-1-7-2 Changes in the size of the video streaming, music streaming and e-book markets in Japan**




(Source) Prepared based on GEM Partners "Video Streaming (VOD) Market Forecast for Five Years (2025-2029) Report"[3], the Recording Industry Association of Japan "Japan's Recording Industry 2025"[4] and the All Japan Magazine and Book Publisher's and Editor's Association/Research Institute for Publications (2025) "Quarterly Publication Index - Winter 2025 Issue"[5].

[3] https://www.gem-standard.com/columns/1029
[4] https://www.riaj.or.jp/f/pdf/issue/industry/RIAJ2025.pdf
[5] https://shuppankagaku.com/wp/wp-content/uploads/2025/01/%E3%83%8B%E3%83%A5%E3%83%BC%E3%82%B9%E3%83%AA%E3%83%AA%E3%83%BC%E3%82%B92501.pdf

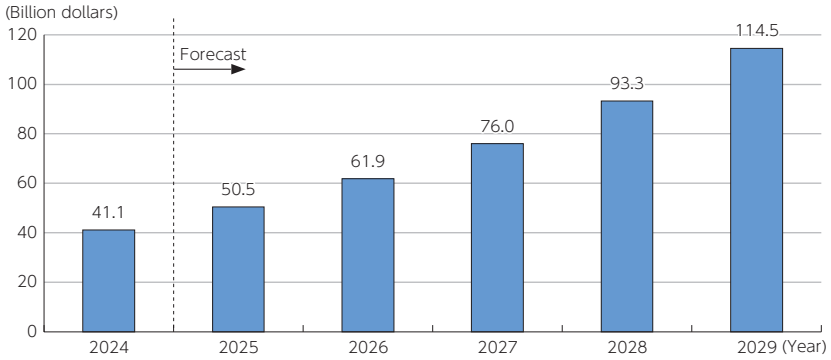
## 5. New trends in the market of ICT services and contents and application services

### (1) Autonomous Driving

For autonomous driving, efforts are underway to achieve Level 4 (fully autonomous driving under limited conditions) through the implementation of autonomous driving by local governments and private companies, as well as research and development by universities and private companies. There is a shift towards systems that use AI technology, and development of hybrid frameworks is also underway, integrating traditional robotics approaches which allow for detailed protocol descriptions[6].

The size of the global autonomous driving market is predicted to exceed 40 billion dollars in 2024 and reach approximately 110 billion dollars by 2029 **(Figure 2-1-7-3)**.

**Figure 2-1-7-3 The size of the global autonomous driving market**



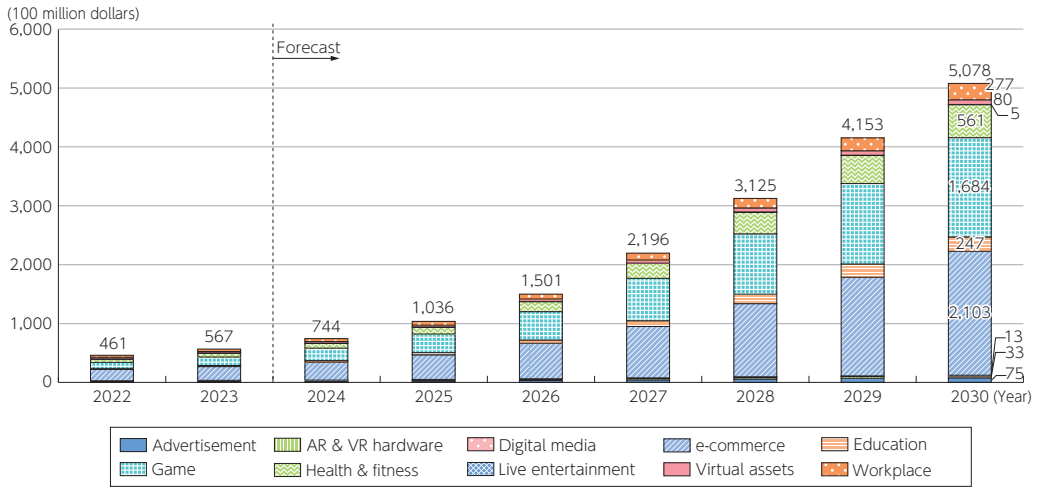

(Source) Prepared based on BNP Paribas (cited from Statista) (data obtained on March 12, 2025)[7]

### (2) Metaverse

The global metaverse market is forecasted to expand from 74.4 billion dollars in 2024 to 507.8 billion dollars by 2030 (**Figure 2-1-7-4**). The largest segment within the metaverse is e-commerce, followed by games and health and fitness. The market is primarily driven by consumer-oriented metaverse services, rather than the hardware needed to enjoy the metaverse.

The Japanese metaverse market (including metaverse platforms, content, infrastructure, and XR (VR, AR, MR) devices used in metaverse services)[8] is expected to reach 275 billion yen in FY2024, a 47.6% increase from the previous fiscal year, and expand to 1.87 trillion yen by FY2028 (**Figure 2-1-7-5**). In the future, the market is expected to expand with the advancement of XR devices, development of AI technology, and increase in awareness of the metaverse.

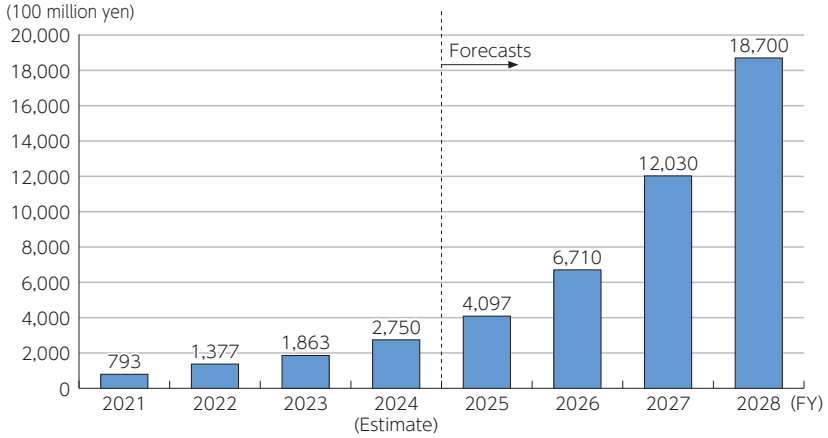
**Figure 2-1-7-4 Changes and forecasts of the size of the global metaverse market**




(Source) Prepared based on Statista (data obtained on February 1, 2025)[9]

[6] https://tier4.jp/media/detail/?sys_id=6UQblxseKbqGhwFOd0573W&category=NEWS
[7] https://www.statista.com/statistics/428692/projected-size-of-global-autonomous-vehicle-market-by-vehicle-type/
[8] The figures for platforms, content, and infrastructure are calculated based on sales of business operators, while the figures for XR devices are calculated based on sales prices.
[9] https://www.statista.com/outlook/amo/metaverse/worldwide

**Figure 2-1-7-5 Changes and forecasts of the size of the Japan's metaverse market (in terms of sales)**




*1 The total market size is the sum of metaverse platforms, content, infrastructure, etc., and XR (VR, AR, MR) equipment used in metaverse services. The figures for platforms, content, and infrastructure, etc. are calculated based on sales of business operators, while the figures for XR equipment are calculated based on sales prices.

*2 The enterprise (corporate) metaverse and consumer metaverse are included in the scope, while game-only metaverse services are excluded.

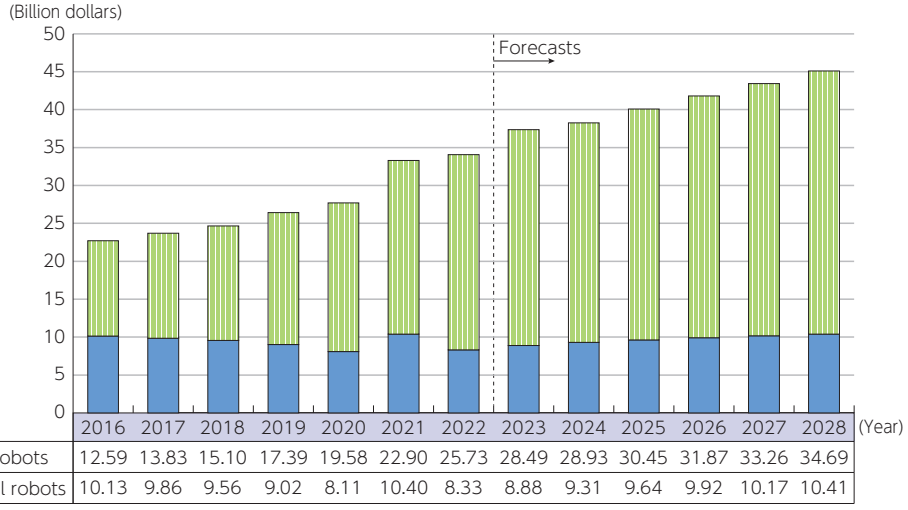
(Source) Yano Research Institute Ltd., "Metaverse Market in Japan: Key Research Findings 2024"(published on December 17,2024)

**(3) Robots**

A wide variety of robots are used in various fields, such as among others, industry, home, healthcare, entertainment. In particular, the application of AI technology is expected to lead to the emergence of even more advanced robots.

The global robot market, valued at 34.1 billion dollars in 2022, is projected to grow to 45.1 billion dollars by 2028, representing a compound annual growth rate (CAGR) of 4.8% from 2022 to 2028. Looking at the breakdown, the service robot segment is projected to increase from 25.7 billion dollars in 2022 to 34.7 billion dollars in 2028 (a CAGR of 5.1%), while the industrial robot segment is projected to increase from 8.3 billion dollars in 2022 to 10.4 billion dollars in 2028 (a CAGR of 3.8%). In terms of the trend of the market size since 2016, the service robot segment has been driving the overall growth of the global robot market **(Figure 2-1-7-6)**.

**Figure 2-1-7-6 Changes and forecasts of the size of the global robot market**




(Source) Prepared based on Statista (data obtained on March 12, 2025)[10]

[10] https://www.statista.com/forecasts/1384829/global-robotics-revenue-by-category

# Section 8 Trends in the data center market and cloud services market

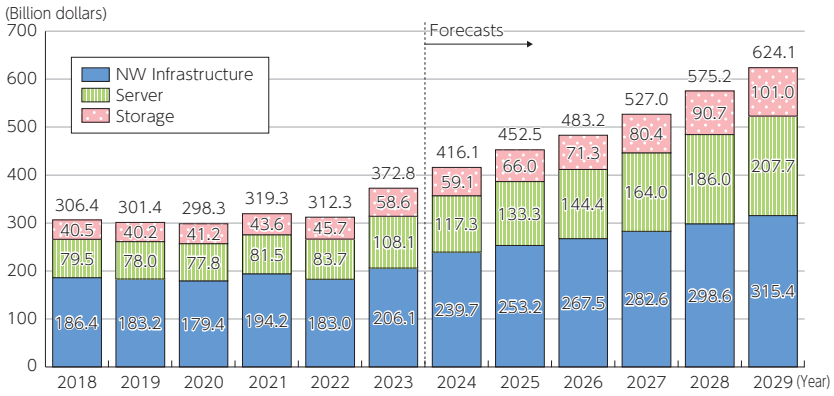
## 1. Data centers

The number of data centers worldwide is overwhelmingly high in the U.S., with 5,426 as of March 2025. The combined total for the 15 countries ranked second and below is 3,975, highlighting the concentration in the U.S. Japan has 222 data centers, which is approximately 4% of the U.S.

The global market size (sales) for data center systems is expected to reach 416.1 billion dollars in 2024 and expand to 624.1 billion dollars by 2029. Approximately half of the sales is comprised of equipment and services related to network infrastructure (**Figure 2-1-8-1**).

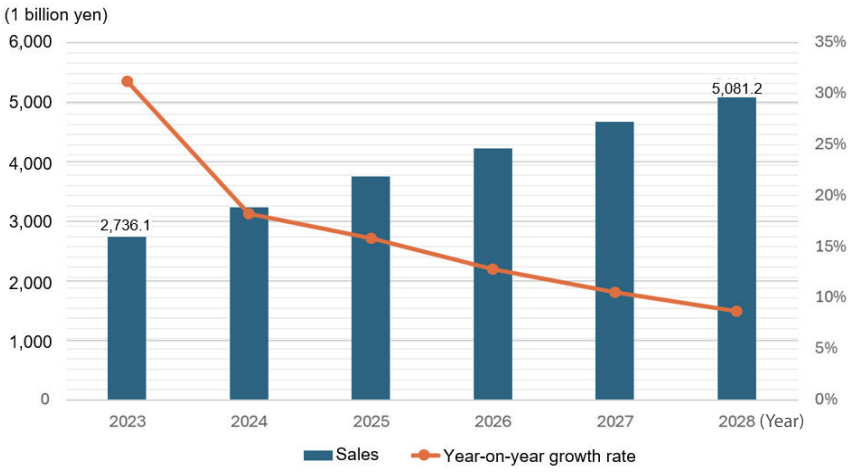
The market size (sales) for data center services in Japan was 2.7361 trillion yen in 2023 and is projected to reach 5.0812 trillion yen by 2028 (**Figure 2-1-8-2**).

**Figure 2-1-8-1 Changes and forecasts of the size of the global data center systems market (sales)**




(Source) Prepared based on Statista Market Insights (data obtained on February 1, 2025)[1]

**Figure 2-1-8-2 Changes and forecasts of the size of Japan's data center services market (sales)**




* The values for 2023 are actual results, and the values for 2024 onwards are forecasts.

(Source) IDC Japan, October 2024 "Domestic Data Center Service Market Prediction 2024-2028" (JPJ51508524)

**Figure (related data) Changes and forecasts of the size of data center systems markets by country (sales)**
Source: Prepared based on Statista Technology Market Insights (data obtained on February 1, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00260
(Data collection)

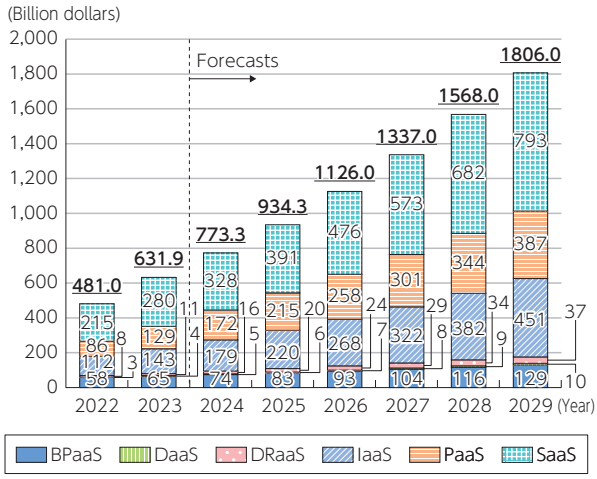
**Figure (related data) The number of data centers by country and region**
Source: Prepared based on Statista (Cloudscene) (data obtained on March 28, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00261
(Data collection)

[1] https://www.statista.com/forecasts/1441973/revenue-data-center-market-for-different-segments-worldwide

## 2. Cloud services

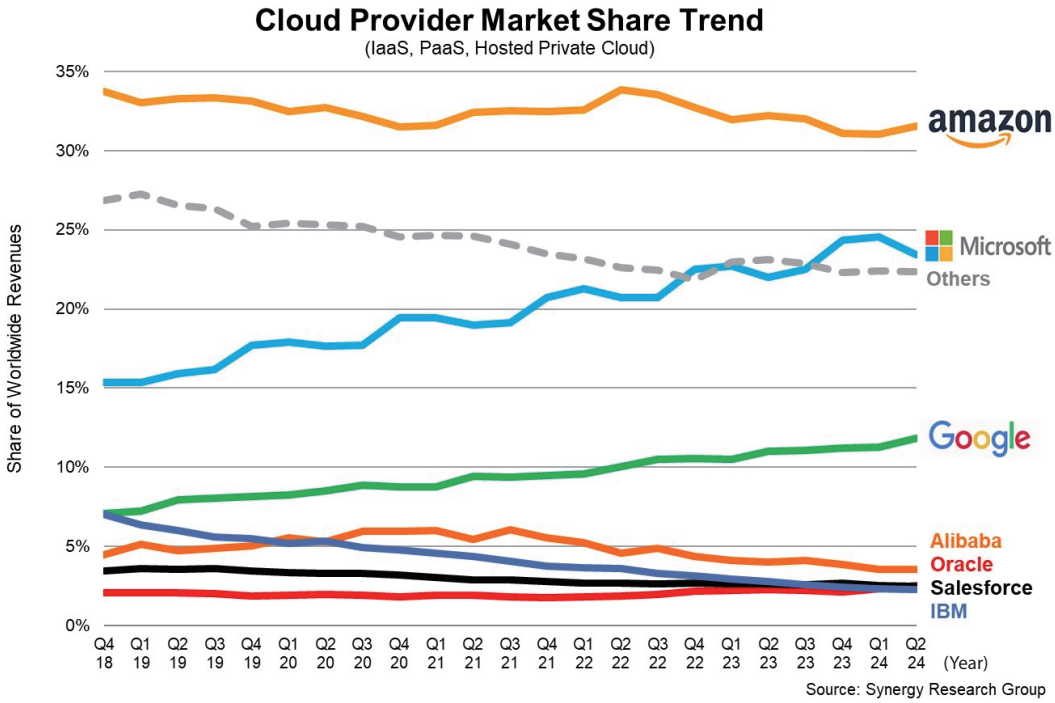
The global sales of public cloud services is expected to increase to 773.3 billion dollars in 2024 (a 22.4% increase from the previous year). This is attributed to the essential role of cloud services in business operations and the growing demand towards flexibility and scalability among companies. Moreover, the development of foundational model for generative AI and the growing use of related applications are also driving the market growth. (**Figure 2-1-8-3**). The share of global expenditure on cloud infrastructure services[2] continues to be dominated by Amazon, followed by Microsoft and Google, with Amazon accounting for approximately 32%, Microsoft 23%, and Google 12% as of the second quarter of 2024. While the market share of Microsoft and Google has been increasing in recent years, the cloud services of the three major companies still hold a large share of the market (**Figure 2-1-8-4**).

**Figure 2-1-8-3 Changes and forecasts of the size of the global public cloud service market (sales)**




(Source) Prepared based on Statista Market Insights (data obtained on March 14, 2025)[3]

**Figure 2-1-8-4 Changes in the global market share in cloud infrastructure services**

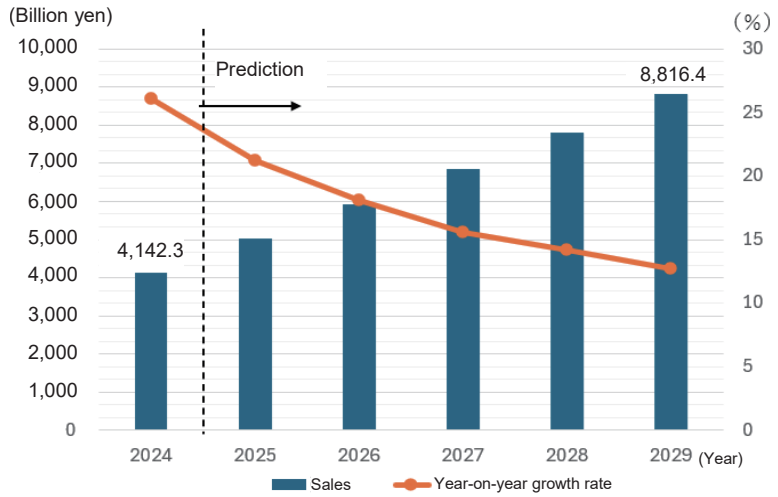



(Source) Synergy "Cloud Market Growth Stays Strong in Q2 While Amazon, Google and Oracle Nudge Higher"[4]

[2] Total of IaaS, PaaS and hosted private cloud.
[3] https://www.statista.com/outlook/tmo/public-cloud/worldwide
[4] https://www.srgresearch.com/articles/cloud-market-growth-stays-strong-in-q2-while-amazon-google-and-oracle-nudge-higher

The public cloud services market in Japan[5] achieved significant growth, reaching 4.1423 trillion yen in 2024, a 26.1% increase compared to the previous year (**Figure 2-1-8-5**).

**Figure 2-1-8-5 Changes and forecasts of the size of the public cloud service market in Japan (sales)**




(Source) IDC Japan, February 2025 "Domestic Public Cloud Service Market Prediction 2025-2029" (JPJ52152425)

## 3. Edge computing

The global edge computing market size (expenditure) is projected to expand to 227 billion dollars in 2024 and further to 380 billion dollars by 2028 (**Figure 2-1-8-6**).

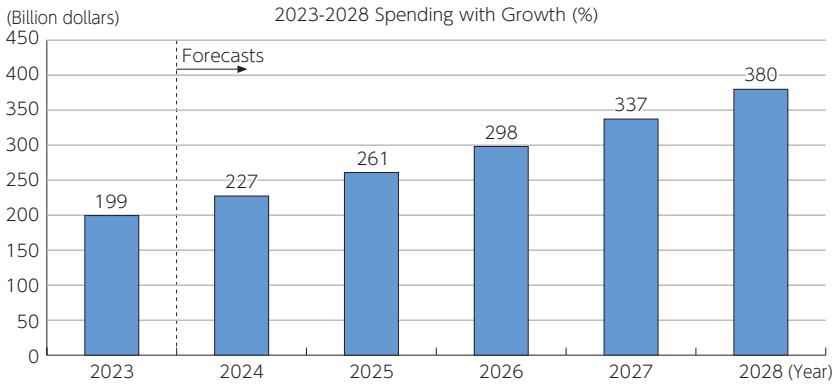
In Japan, the edge computing market size (expenditure) is estimated to reach 1.9 trillion yen in 2025 (a 12.9% increase from the previous year) and is expected to grow to 2.6 trillion yen by 2028 (**Figure 2-1-8-7**).

Among edge computing technologies, Multi-access Edge Computing (MEC), which takes mobile communications into account, is a technology that processes data exchanged between the cloud and devices on edge servers (edge data centers) located at the edge of the communication network (near the device) instead of performing computation in the cloud. This approach is expected to help avoid the impact of latency.

MEC services being used and provided in Japan include "docomo MEC"[6] by NTT Docomo, "AWS Wavelength"[7] by KDDI, and "5G MEC"[8] by SoftBank. Major use cases are video transmission and analysis, remote control and operation, real-time energy control, XR, and autonomous driving.

Furthermore, the market for solutions that utilize edge AI[9] is highly compatible with IoT, therefore it is continuing to expand steadily along with the expansion of the IoT market.

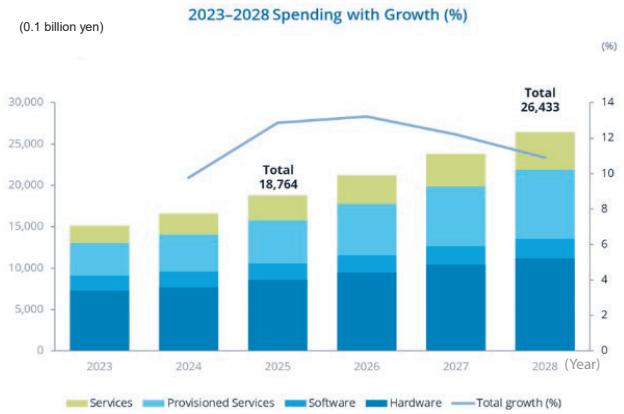
**Figure 2-1-8-6 Changes and forecasts of the global market size of edge computing (expenditure)**




(Source) Prepared based on IDC "Worldwide Edge Spending Guide 2025 V1"

[5] Cloud services that specialize in IT-related functions provided to a wide range of users without special regulations or restrictions.
[6] https://www.mec.docomo.ne.jp/
[7] https://biz.kddi.com/5g/aws_wavelength/
[8] https://www.softbank.jp/corp/news/press/sbkk/2022/20220526_01/
[9] Edge AI cameras, edge AI computers and edge AI platforms

**Figure 2-1-8-7 Changes and forecasts of the market size of edge computing in Japan (expenditure)**




(Source) IDC "Investment in edge computing in the domestic market is predicted to reach 1.9 trillion yen in 2025, up 12.9% from the previous year, and reach approximately 2.6 trillion yen by 2028 - the Forecast for the Domestic Edge Infrastructure Market Announced -" (April 8, 2025)[10]

**Figure (related data) Changes and forecasts of the market size of the Japanese edge AI solutions (FY2023 - FY2029)**
Source: Deloitte Tohmatsu MIC Research Institute "Reality and Future Prospects of Edge AI Solutions Market - FY2025 Version"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00270
(Data collection)

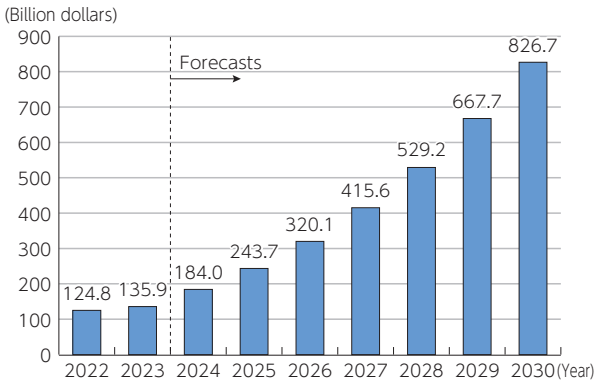
[10] https://my.idc.com/getdoc.jsp?containerId=prJPJ53301925

# Section 9 Trends in AI

## 1. Market overview

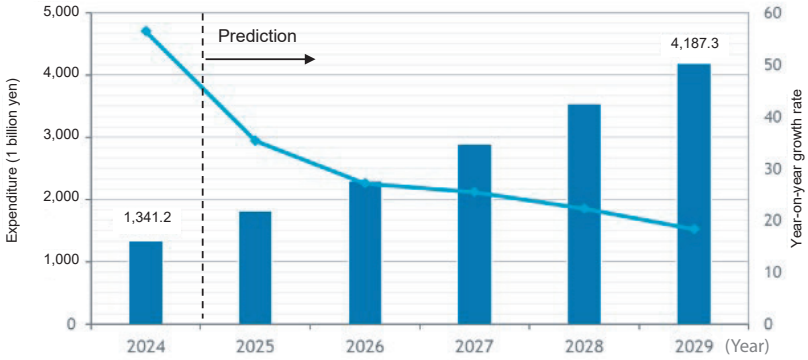
The global AI market size (sales) is expected to expand to 184 billion dollars in 2024 and 826.7 billion dollars by 2030 (**Figure 2-1-9-1**). The market size for AI systems[1] in Japan (expenditure) is projected to reach 1.3412 trillion yen in 2024, a 56.5% increase from the previous year, and continue growing to 4.1873 trillion yen by 2029 (**Figure 2-1-9-2**).

**Figure 2-1-9-1 Changes and forecasts of the size of the global AI market (sales)**




(Source) Prepared based on Statista (data obtained on March 27, 2025)[2]

**Figure 2-1-9-2 Changes and forecasts of the size of the AI market in Japan (expenditure)**

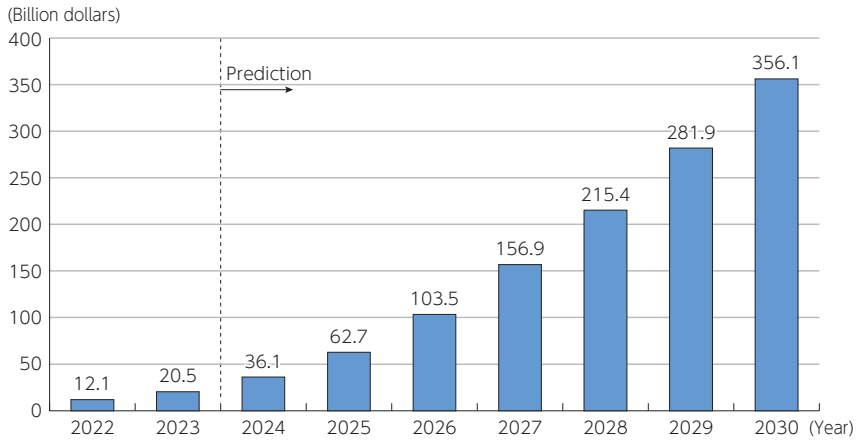



(Source) IDC "Announced Market Prediction of Domestic AI System in 2024" (May 1, 2025)[3]

The social adoption of AI is advancing, and generative AI, which creates text, images, audio, and video, is gaining attention. The global generative AI market is expected to expand from 20.5 billion dollars in 2023 to 36.1 billion dollars in 2024 (19.6% of the total AI market) and to 356.1 billion dollars by 2030 (43.1% of the total AI market). This growth is driven by the rapid adoption of many models and services such as Gemini, Copilot, and DeepSeek, following the release of ChatGPT in 2022. Companies are increasingly using generative AI for a variety of purposes, including programming, text summarization, marketing, call centers and customer support, as well as the creation of illustrations and posters. While it was mainly used to address labor shortages and improve business efficiency, going forward, it is expected to be increasingly used to create new services. In addition, the advancement of AI agents[4] and the physical intelligence[5] that utilize generative AI technology is also expected to further drive the market expansion **(Figure 2-1-9-3)**.

[1] Hardware and software platforms for using AI functions and IT services related to the construction of AI systems
[2] https://www.statista.com/forecasts/1474143/global-ai-market-size
[3] https://my.idc.com/getdoc.jsp?containerId=prJPJ53362125
[4] AI systems that autonomously perform specific tasks without human intervention
[5] Systems realized through advanced integration of AI and machinery (robots, etc.)

**Figure 2-1-9-3 Changes and forecasts of the size of the global generative AI market**




(Source) Prepared based on Statista (data obtained on March 27, 2025)[6]

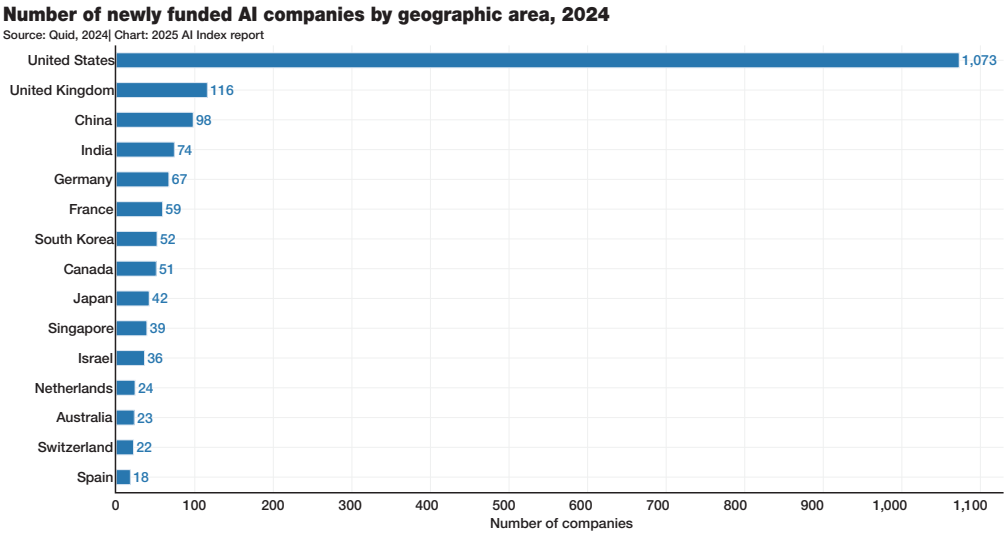
## 2. Trends in AI by country

AI research is being conducted across the globe. According to AIRankings, which publishes leading countries, companies, and universities based on the number of research papers and other factors, the top countries are the U.S., China, the UK, Germany, in the respective order, with Japan ranking 11th or 12th in recent years.

**Figure (related data) Changes of AI rankings by country (top 15)**
Source: Prepared based on AIRankings (data obtained on February 25, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00274
(Data collection)

Investment in AI-related companies is also increasing. According to Stanford University's "Artificial Intelligence Index Report 2025," the number of AI companies that received new funding in 2024 was highest in the U.S. (1,073 companies), followed by the U.K. (116 companies), and Japan ranked 9th with 42 companies (**Figure 2-1-9-4**).

**Figure 2-1-9-4 Number of newly funded AI companies by country in 2024**




(Source) Stanford University "Artificial Intelligence Index Report 2025"[7]

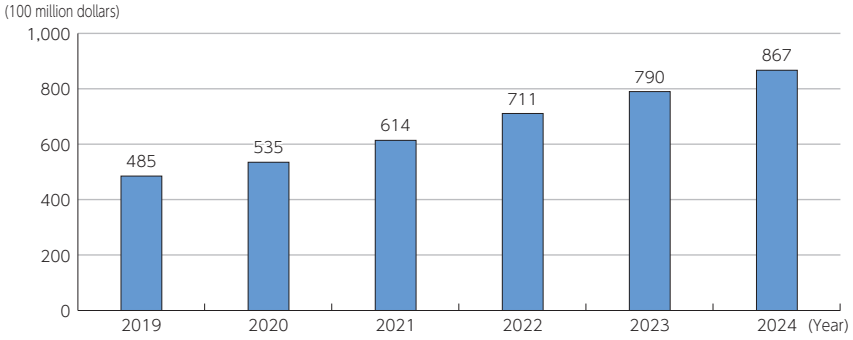
[6] https://www.statista.com/forecasts/1449838/generative-ai-market-size-worldwide
[7] https://hai-production.s3.amazonaws.com/files/hai_ai_index_report_2025.pdf

# Section 10 Trends of cybersecurity

## 1. Market overview

The global market for cybersecurity has remained robust, reaching 86.7 billion dollars in 2024, representing a 9.7% increase from the previous year (**Figure 2-1-10-1**).

**Figure 2-1-10-1 Changes in the global cybersecurity market size**




(Source) Prepared based on Canalys data

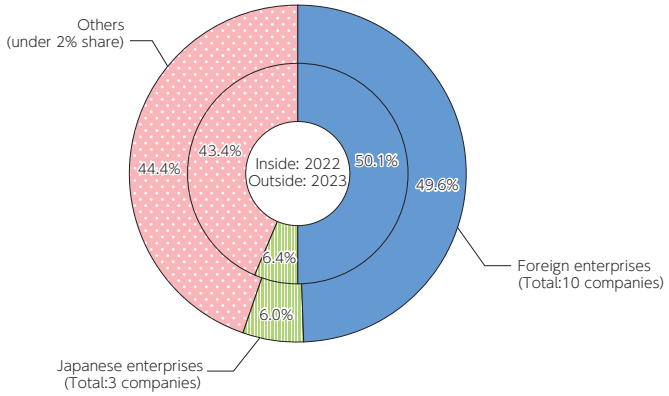
As for the major players in the cybersecurity market, Palo Alto Networks, Cisco, and Fortinet held the top three global market shares since 2019, however, as of the second quarter of 2024, Microsoft has replaced Cisco and entered the top three. In recent years, Palo Alto Networks, which holds the top share, has been expanding its market share, approaching 10%. Microsoft has also been rapidly expanding its share in recent years, and is gaining recognition in this field, for features such as the ease of implementation, as it offers advanced security features such as Microsoft 365 E5 Security as part of its Microsoft 365 series.

**Figure (related data) Major global cybersecurity companies**
Source: Prepared based on Canalys data
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00277
(Data collection)

In 2023, the domestic market for information security products (sales) in Japan reached 557.404 billion yen, a 12.0% increase from the previous year. By functional market segments of security products, the sales of security software, including endpoint security software and network security software, accounted for 89.1% of the total market at 496.511 billion yen in 2023, while security appliances, including content management, UTM, and VPN, accounted for 10.9% at 60.893 billion yen.

Furthermore, the domestic market share of information security product vendors (sales) in 2022 and 2023 was categorized into "Foreign Companies" and "Domestic Companies" for those with a market share of 2% or more, and the sales amounts of those companies were calculated for 2022 and 2023.The results showed that foreign companies held a share of over 50% for both years, indicating that a significant portion of Japan's cybersecurity products rely on overseas sources (**Figure 2-1-10-2**).

**Figure 2-1-10-2 Domestic information security products market share (sales) (2022 and 2023)**




(Source) Prepared based on IDC Japan, April 2025 "Japan IT Security Products Market Shares in the 1st Half of 2024: The Growing SaaS Security Market" (JPJ50704524)

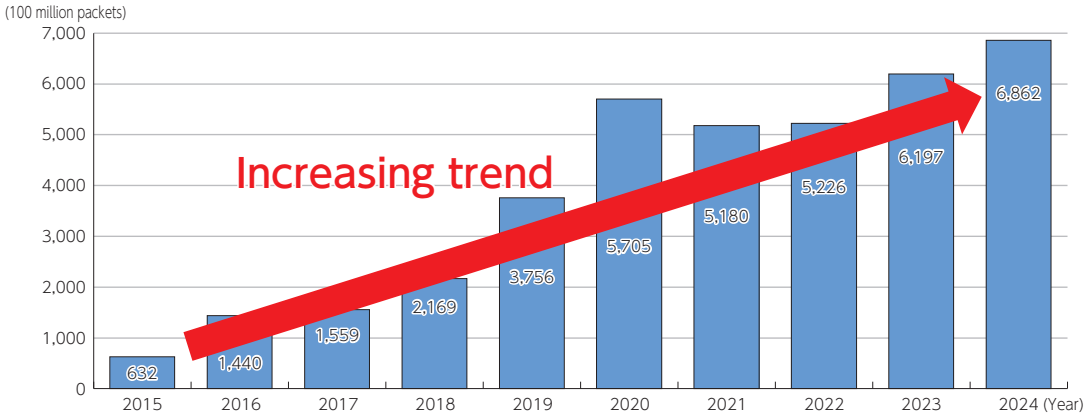
## 2. Current status of cybersecurity

### (1) The increasing threat of cybersecurity

The large-scale cyberattack observation network (NICTER), which is operated by the NICT, observed a total of approximately 686.2 billion packets through darknet monitoring in 2024, a 10.86-fold increase compared with 2015 (approximately 63.2 billion packets). This indicates that a significant number of observation packets are still being received. (**Figure 2-1-10-3**). In addition, the total observed packet count in 2024 corresponds to an observation occurring approximately every 13 seconds for each IP address.

It should be noted that 2024 has recorded the highest number of observations to date, and the observation packets flying around the Internet are even more active compared with 2023.

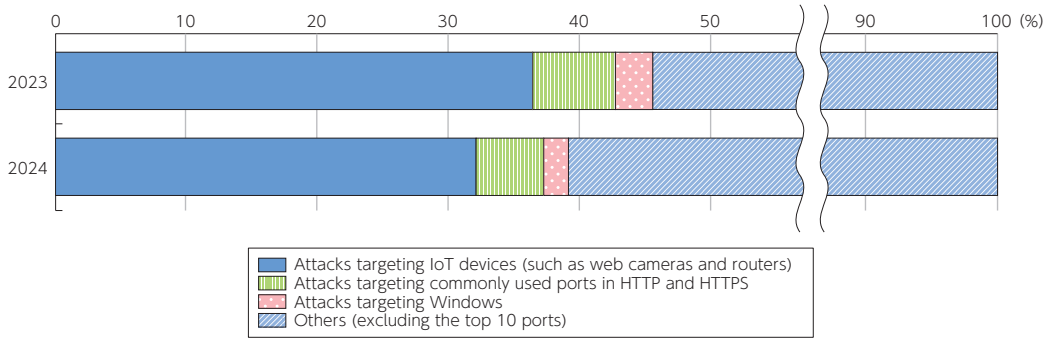
**Figure 2-1-10-3 Changes in the number of cyberattack-related communications detected by NICTER**




(Source) Prepared based on NICT "NICTER Observation Report 2024"

Furthermore, the observed communications related to cyberattacks in NICTER shows that, similar to 2023, communications targeting IoT devices were most frequently observed, accounting for about 30% of all cyberattack-related communications. The next most frequently observed attacks were on ports used by HTTP and HTTPS (**Figure 2-1-10-4**).

**Figure 2-1-10-4 Targets of cyberattack-related communications detected by NICTER**




(Source) Prepared based on NICT "NICTER Observation Report 2024"

In 2024, there were 563 cases of violations of the Act on Prohibition of Unauthorized Computer Access (hereinafter referred to as the "Unauthorized Computer Access Prohibition Act"), an increase of 42 cases from the previous year.

**Figure (related data) Changes in arrests for violation of the Unauthorized Computer Access Prohibition Act**
Source: Prepared based on the National Police Agency, the MIC and the METI "Status of Unauthorized Access Activities and Research and Development of Access Control Technology",
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00283
(Data collection)

### (2) Economic losses caused by cybersecurity issues

Various organizations have conducted research and analysis on the economic losses caused by cybersecurity issues (**Figure 2-1-10-5**). The numerical values vary depending on the scope of the losses, but for example, according to a survey conducted by Trend Micro in 2024, the average cumulative damage caused by cyberattacks experienced by corporate organizations over the past three years was approximately 171 million yen.

**Figure 2-1-10-5 Economic losses caused by cybersecurity issues**

| Investigation/ analysis entity | Target area | Period covered | Overview of economic loss | Amount of loss |
|---|---|---|---|---|
| Trend Micro | Japan | 2024 [research period] | Average cumulative damage amount for corporate organizations thatexperienced damage from cyber attacks in the past three years | 171 million yen (an increase of approximately 4.6 million yen from the previous year) |
| National Police Agency | Japan | First half of 2024 | Total investigation and recovery costs associated with ransomware damage | 25%: <1 million yen<br>21%: 1 million to <5 million yen<br>8%: 5 million to <10 million yen<br>27%: 10 million to <50 million yen<br>19%: ≧ 50 million yen or more |
| FBI | The U.S. | 2023 | Total amount of reported damage by cybercrime incidents | 12.5 billion dollars (a 22% increase from the previous year) |
| Sophos | 14 countries (North America, Central and South America, Europe, Asia Pacific) | 2024 | Ransom paid per organization to recover from a ransomware attack | ・Average: Approximately 3.96 million dollars (a 2.6-fold increase from the previous year)<br>・Median: 2 million dollars (a 5-fold increase from the previous year) |
| | | | Average annual cost per organization to recover from a ransomware attack (excluding ransom payment) | 2.73 million dollars |
| IBM | World | 2024 | Global average cost of single data breach for an organization | 4.88 million dollars |
| Statista | World | 2018 - 2029 | Estimated global cost of cybercrime | 9.22 trillion dollars in 2024<br>15.63 trillion dollars in 2029 |

(Source) Prepared based on published materials

### (3) Trends in wireless LAN security

According to a survey conducted by the MIC[1] in November 2024 to understand the security awareness among wireless LAN users, the recognition of public wireless LAN is high (approximately 92%), but only about half of the respondents actually use it. The most common reason for not using public wireless LAN is "Security Concerns", cited by about 60% of respondents. Among users of public wireless LAN, nearly 90% feel "Security Concerns", with many users citing information theft and unauthorized access from outside as their particular concerns.

Public Wi-Fi that supports OpenRoaming[2] uses technology to encrypt communications and prevent connections to fake public Wi-Fi, allowing users to safely use public Wi-Fi. In addition, once a user registers to use OpenRoaming, the user can use any public Wi-Fi that supports OpenRoaming around the world without any additional settings. In Japan, OpenRoaming is being introduced in urban areas such as Tokyo and Osaka, and the number of public Wi-Fi networks that support OpenRoaming is expected to expand gradually.

### (4) Adoption status of sender domain authentication technologies

As of September 2024, the adoption status of sender domain authentication technologies in the JP domain for preventing spoofed emails is approximately 88.4% for SPF and approximately 32.6% for DMARC, both showing an increase.

**Figure (related data) Adoption status of sender domain authentication technologies in the JP domain**
Source: Compiled by the MIC with the cooperation of four telecommunications companies
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00283
(Data collection)

[1] https://www.soumu.go.jp/main_sosiki/cybersecurity/wi-fi/
[2] An international Wi-Fi Roaming platform supported by the Wireless Broadband Alliance, a global organization that introduces and promotes the latest Wi-Fi technologies and services.

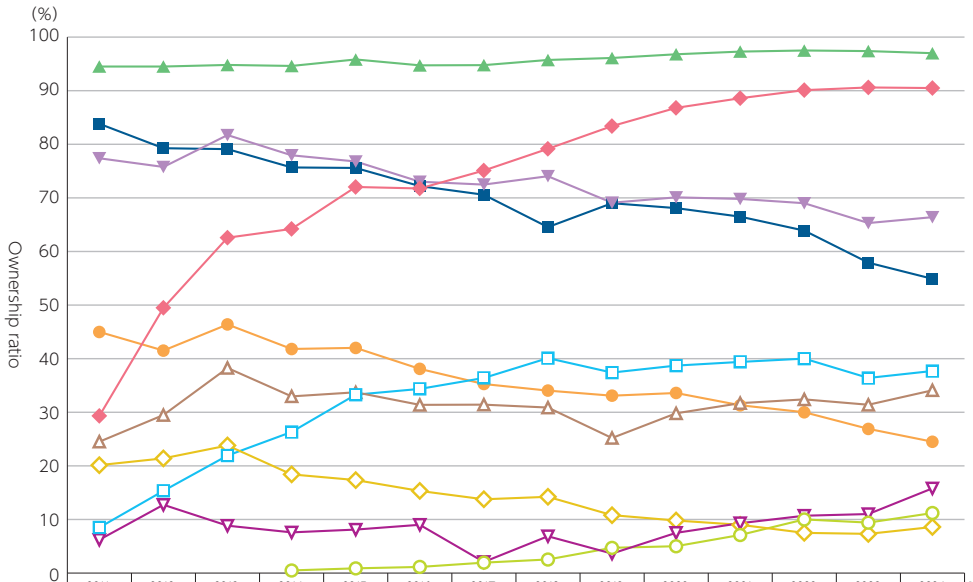
# Section 11 Trends in digital usage

## 1. Trends in digital usage in the daily life of the citizens

### (1) Information and communication devices and terminals

Regarding the terminals necessary for connecting to the Internet and utilizing digital services, the household ownership rate of information and communication devices in 2024 was 97.0% for "All Mobile Devices," with "Smartphones" accounting for 90.5% of that figure. Additionally, the ownership rate for personal computers was 66.4% (**Figure 2-1-11-1**).

**Figure 2-1-11-1 Changes in the rate of household ownership of ICT devices**




| | 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) | 2018 (n=16,255) | 2019 (n=15,410) | 2020 (n=17,345) | 2021 (n=17,365) | 2022 (n=15,968) | 2023 (n=14,059) | 2024 (n=15,304) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fixed-line telephone | 83.8 | 79.3 | 79.1 | 75.7 | 75.6 | 72.2 | 70.6 | 64.5 | 69.0 | 68.1 | 66.5 | 63.9 | 57.9 | 54.9 |
| FAX | 45.0 | 41.5 | 46.4 | 41.8 | 42.0 | 38.1 | 35.3 | 34.0 | 33.1 | 33.6 | 31.3 | 30.0 | 26.9 | 24.5 |
| All Mobile Devices | 94.5 | 94.5 | 94.8 | 94.6 | 95.8 | 94.7 | 94.8 | 95.7 | 96.1 | 96.8 | 97.3 | 97.5 | 97.4 | 97.0 |
| Smartphones | 29.3 | 49.5 | 62.6 | 64.2 | 72.0 | 71.8 | 75.1 | 79.2 | 83.4 | 86.8 | 88.6 | 90.1 | 90.6 | 90.5 |
| Computers | 77.4 | 75.8 | 81.7 | 78.0 | 76.8 | 73.0 | 72.5 | 74.0 | 69.1 | 70.1 | 69.8 | 69.0 | 65.3 | 66.4 |
| Tablets | 8.5 | 15.3 | 21.9 | 26.3 | 33.3 | 34.4 | 36.4 | 40.1 | 37.4 | 38.7 | 39.4 | 40.0 | 36.4 | 37.7 |
| Wearable devices | | | | 0.5 | 0.9 | 1.1 | 1.9 | 2.5 | 4.7 | 5.0 | 7.1 | 10.0 | 9.4 | 11.2 |
| Home game consoles | 24.5 | 29.5 | 38.3 | 33.0 | 33.7 | 31.4 | 31.4 | 30.9 | 25.2 | 29.8 | 31.7 | 32.4 | 31.4 | 34.1 |
| Portable music players | 20.1 | 21.4 | 23.8 | 18.4 | 17.3 | 15.3 | 13.8 | 14.2 | 10.8 | 9.8 | 9.0 | 7.5 | 7.3 | 8.6 |
| Smart appliances | 6.2 | 12.7 | 8.8 | 7.6 | 8.1 | 9.0 | 2.1 | 6.9 | 3.6 | 7.5 | 9.3 | 10.7 | 11.0 | 15.8 |

* Includes no responses

(Source) MIC "Communications Usage Trend Survey"[1]

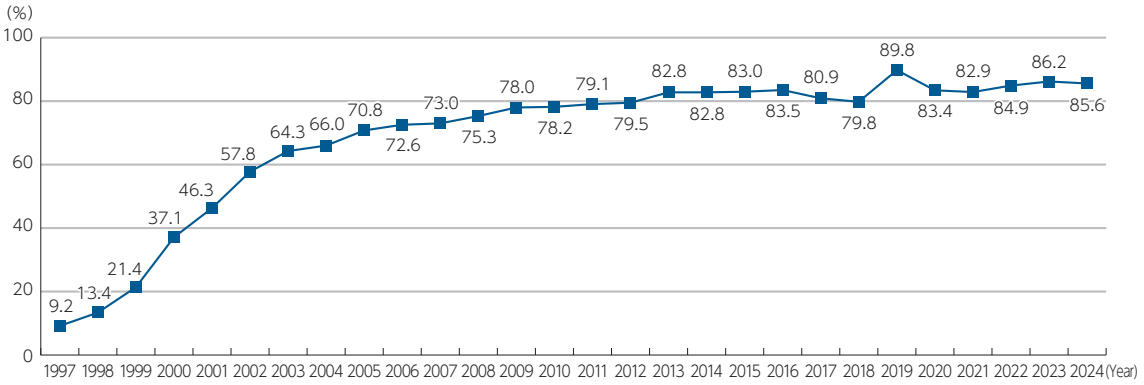
### (2) Internet

#### A Usage status

The Internet usage rate (individual) in 2024 was 85.6% (**Figure 2-1-11-2**). When broken down by device, the Internet usage rate (individual) for "Smartphones" (74.4%) surpassed that for "Personal Computers" (46.8%) by 27.6 percentage points.

[1] https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

**Figure 2-1-11-2 Changes in Internet usage rate (individuals)[2]**

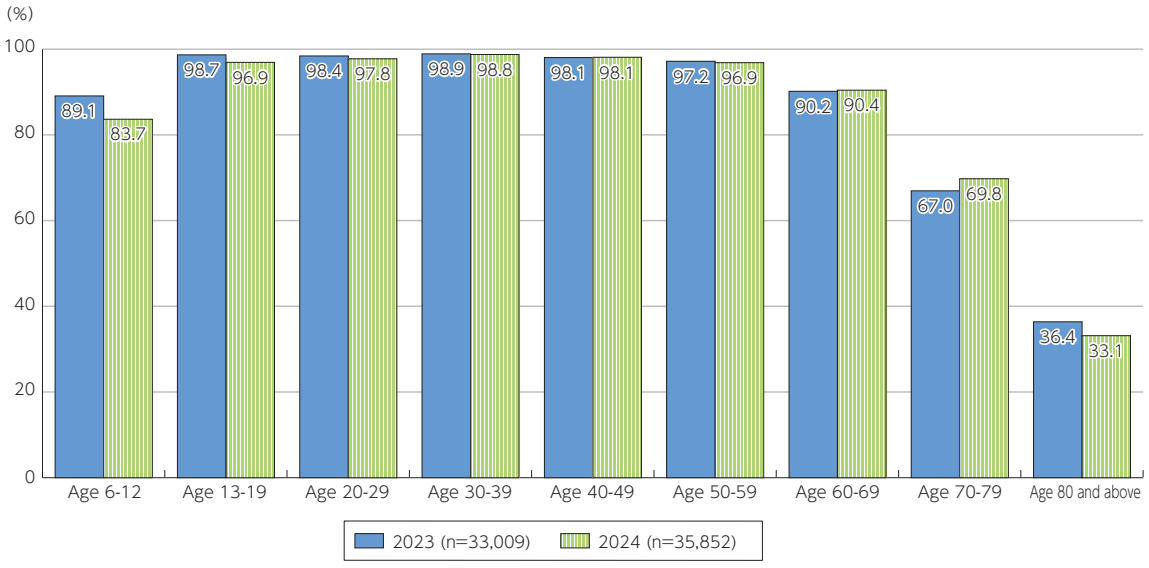



(Source) MIC "Communications Usage Trend Survey"

**Figure (related data) Device types of Internet use (individuals)**
Source: MIC "Communications Usage Trend Survey"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00294
(Data collection)

Examining the Internet usage rate by age group, it exceeds 90% for each group from ages 13 to 69, while it tends to decrease as the age group rises beyond 70 years old (**Figure 2-1-11-3**). Additionally, the Internet usage rate by household income shows that it exceeded 80% for all income brackets above 4 million yen (**Figure 2-1-11-4**). Furthermore, by prefecture, 38 prefectures had an Internet usage rate exceeding 80%, and in all prefectures, the usage rate for smartphones exceeded 60%.

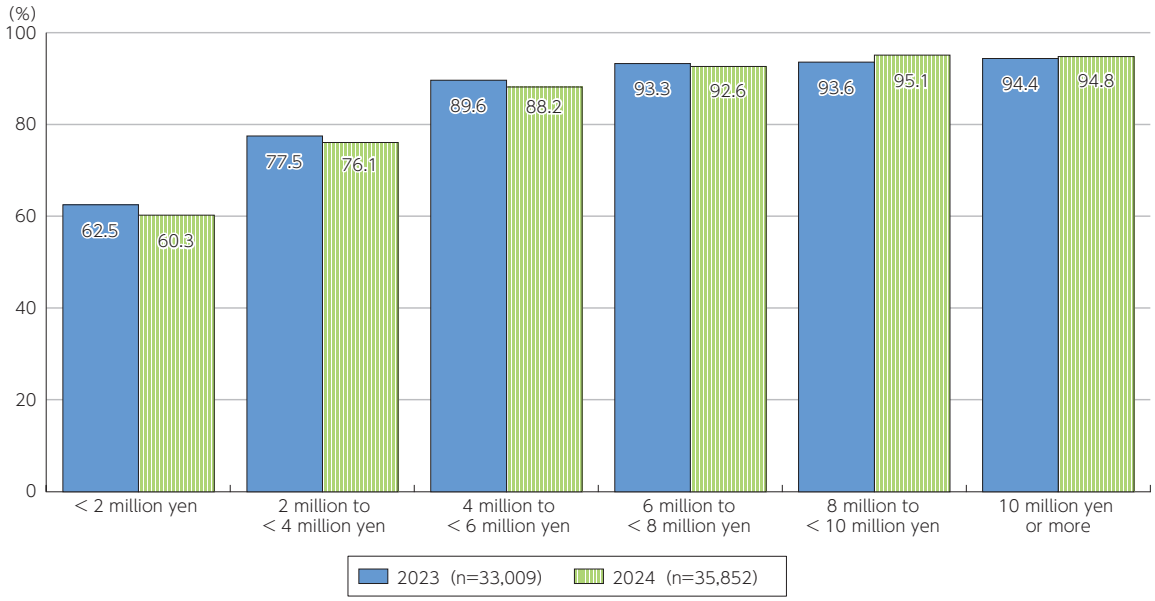
**Figure 2-1-11-3 Internet usage rate by age group**




(Source) MIC "Communications Usage Trend Survey"

[2] The design of the questionnaire in the 2019 survey was partially different from that in previous years, so care should be taken when comparing data across years.

**Figure 2-1-11-4 Internet usage rate by annual household income**



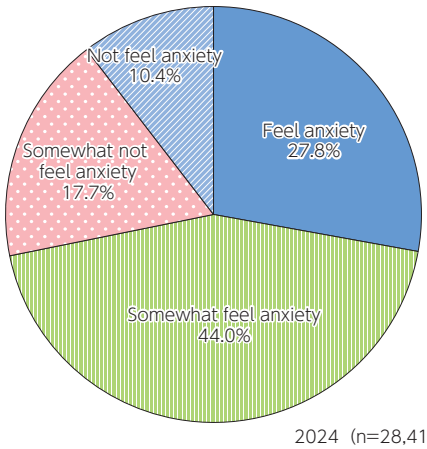

(Source) MIC "Communications Usage Trend Survey"

**Figure (related data) Rate of Internet usage by prefecture and the status of usage by device (individuals) (2024)**
Source: MIC "Communications Usage Trend Survey"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00297
(Data collection)

### B Concerns about Internet usage

Approximately 70% of Internet users felt some form of anxiety when using the Internet (**Figure 2-1-11-5**). The specific concerns included "Leakage of Personal Information and Internet Usage History" at 90.2%, followed by "Infection by Computer Viruses" at 61.6%, and "Fraudulent Billing or Internet Scams" at 53.9% (**Figure 2-1-11-6**).

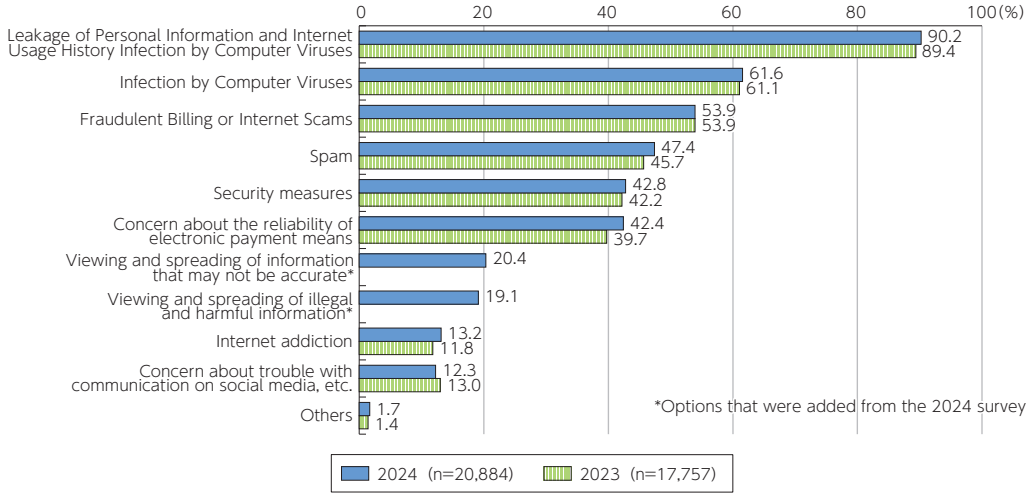
**Figure 2-1-11-5 Percentage of individuals who feel anxiety when using the Internet**




2024 (n=28,413)

(Source) MIC "Communications Usage Trend Survey"

**Figure 2-1-11-6 Anxiety felt when using the Internet (multiple answers allowed)**



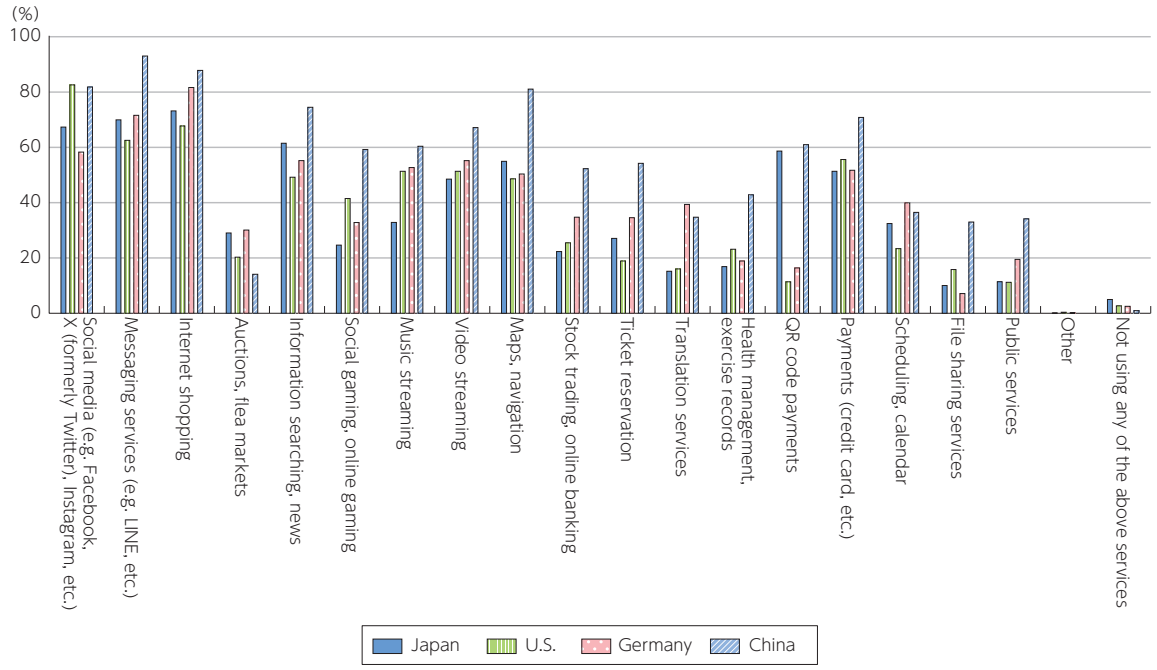

(Source) MIC "Communications Usage Trend Survey"

### (3) Utilization of digital services

#### A General utilization of digital services

A survey was conducted in Japan, the U.S., Germany, and China regarding the digital services people commonly use. In Japan, the services with over 60% usage included "Internet Shopping," "Messaging Services," "Social Media," and "Information Search and News," which were higher compared with other services. The relatively high usage of "QR Code Payments" in Japan can be attributed to the widespread use of smartphones, promotional campaigns by QR code payment providers, government initiatives to promote cashless transactions, and support for small and medium- sized enterprises (**Figure 2-1-11-7**).

**Figure 2-1-11-7 Status of overall usage of digital services**

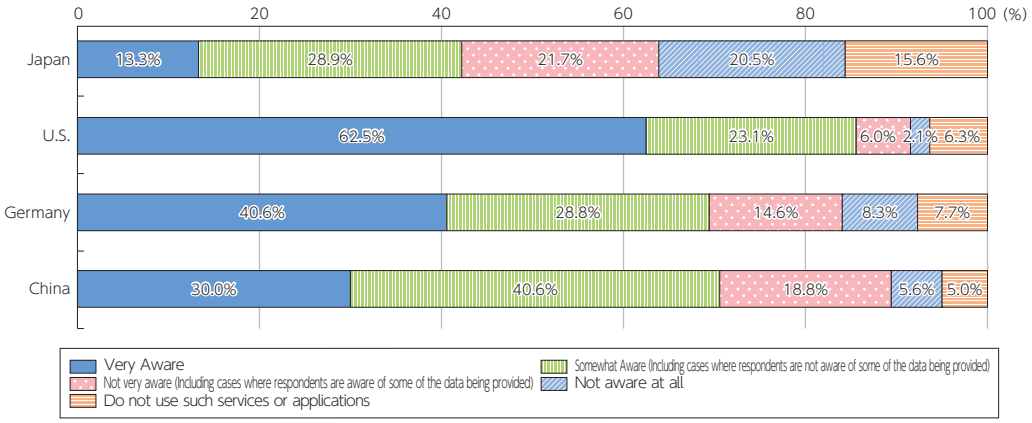



(Source) MIC (2025) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

Additionally, when asked whether they were aware of providing personal data when using services or applications offered by platform companies, the percentage of respondents who answered "Aware" (sum of "Very Aware" and "Somewhat Aware") was highest in the U.S. (85.6%), while in Japan it was 42.2% (**Figure 2-1-11-8**).

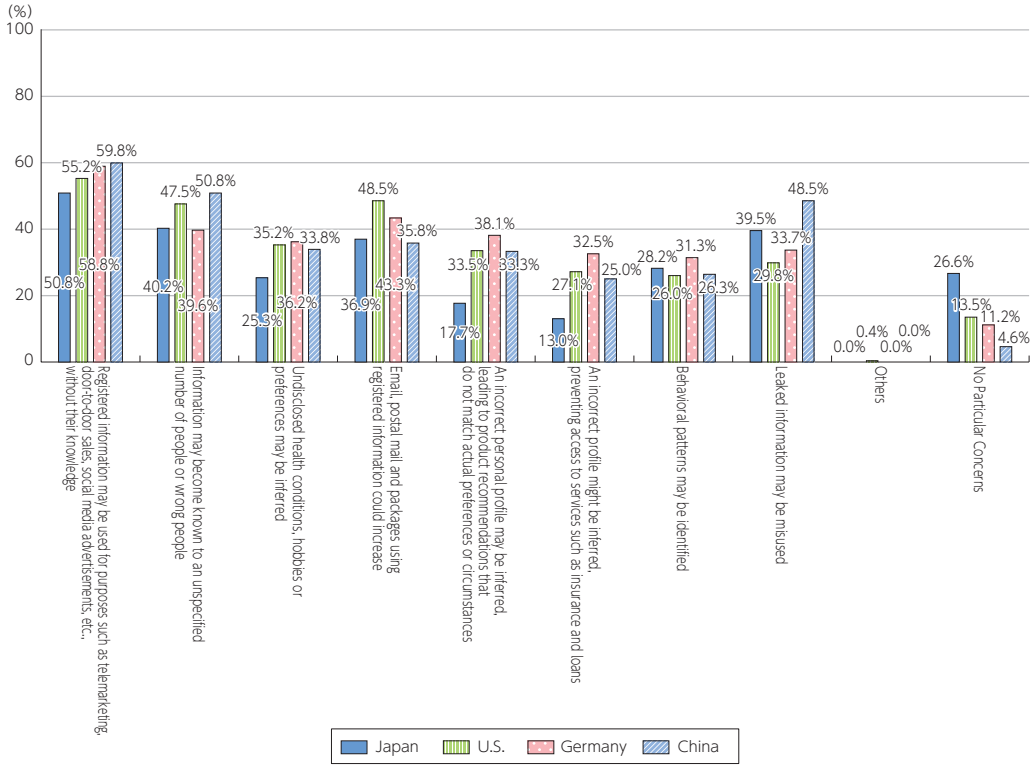
When asked about their concerns, the most common concern across all countries, including Japan, was that "registered information may be used for purposes such as telemarketing, door-to-door sales, social media advertisements, etc., without their intention." On the other hand, the percentage of respondents in Japan who answered "No Particular Concerns" was 26.6%, which was higher than other countries (**Figure 2-1-11-9**).

**Figure 2-1-11-8 Awareness concerning the provision of personal data**




(Source) MIC (2025) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

**Figure 2-1-11-9 Concerns regarding services which require the provision of personal data**




(Source) MIC (2025) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

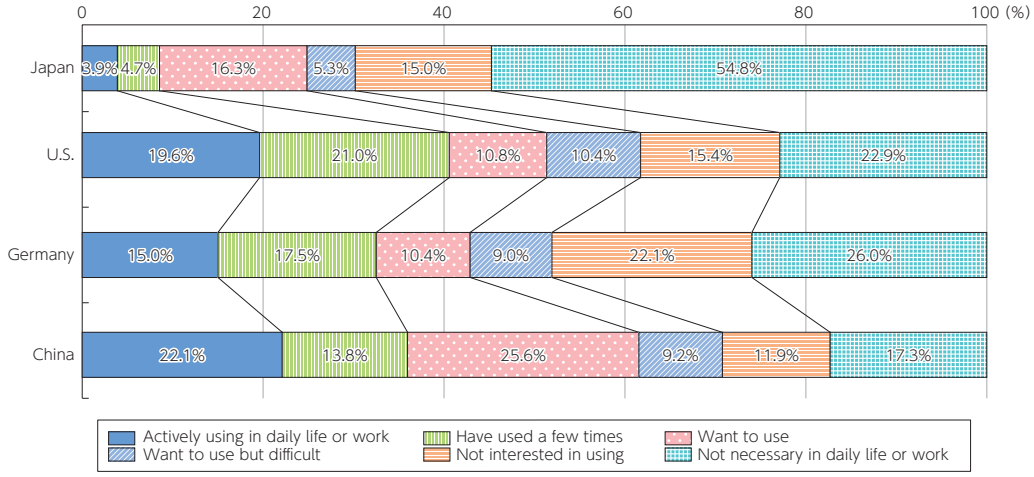
When asked about the conditions under which they would be willing to provide personal data to platform companies, the number of respondents who chose "no worry about the data being leaked," "no worry about companies misusing data," and "protection of privacy is ensured" was particularly high in Japan compared to other countries. The increase in opportunities to provide personal data and to set conditions for its use may have raised awareness among users.

**Figure (related data) Conditions under which users are willing to provide personal data**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00303
(Data collection)

### B Utilization of digital services in virtual spaces (XR content)

The percentage of respondents who have used experiential entertainment services in virtual spaces[3] (sum of "Actively Using in Daily Life or Work" and "Have Used a Few Times") was about 30-40% in the U.S., Germany, and China, while in Japan it was significantly lower at 8.5%. The percentage of respondents who indicated low intention to use such services (sum of "Not Necessary in Daily Life or Work" and "Not Interested in Using") was 69.8% in Japan, which was higher than other countries (**Figure 2-1-11-10**). Looking at the usage in Japan by age group, the usage rate was highest among respondents in their 40s (12.1%), and the percentage of those who "Want to Try Using It in the Future" was highest among respondents in their 20s (25.7%).

**Figure 2-1-11-10 Usage of experiential entertainment services in virtual spaces (comparison by country)**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

**Figure (related data) Usage of experiential entertainment services in virtual spaces (by age)**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00305
(Data collection)

**Figure (related data) Reasons why people do not use entertainment services in virtual spaces**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00306
(Data collection)

### C Media usage time

Since 2012, the MIC's Institute for Information and Communications Policy has been conducting joint research with Professor Emeritus HASHIMOTO Yoshiaki of the University of Tokyo, Professor KITAMURA Satoshi of Tokyo Keizai University, and others[4] on the usage time, time slots, purposes, and reliability of information and communication media[5]. Below is an overview of the usage time of information and communication media based on the FY2024 survey results[6].

[3] XR content (experiential entertainment services in virtual space) is a type of services in which users have interactive relationships with others in real-time, such as online games and virtual events.
[4] Assistant Professor KAWAI Daisuke in School of Cultural and Creative Studies in Aoyama Gakuin University
[5] "Survey on Usage Time of Information and Communications Media and Information Behavior": 1,800 men and women aged 13 to 79 (selected by sex and age group (in 10 years increments) in proportion to the actual situation in the Basic Resident Register; the register of January 2024 was used for the FY2024 survey) were visited and received questionnaires based on random location quota sampling. The FY2024 survey was conducted from December 2 to December 8, 2024.
[6] In the past, the survey targeted 1,500 people between the ages of 13 and 69, but the 2024 survey targeted 1,800 people, including those in their 70s, and therefore the figures for "all age groups" are calculated as the overall figures for those between the ages of 13 and 79. Accordingly, figures for "all age groups" from past survey results have been recalculated to include figures for those in their 70s, which had previously been surveyed and collected for reference purposes, and therefore those figures may not necessarily match the figures of the survey results published until last year.

(A) Average usage time[7] and user rate[8] of major media

The average usage time and user rate of "Real-time TV Viewing,"[9] "Recorded TV Viewing," "Internet Usage,"[10] "Newspaper Reading," and "Radio Listening" are shown in (**Figure 2-1-11-11**).

The FY2024 survey results showed that for all age groups combined, the average usage time for "Internet Usage" was the longest on both weekdays and holidays, followed by "Real-time TV Viewing." The user rate for "Internet Usage" exceeded that of "Real-time TV Viewing" on both weekdays and holidays.

By age group, the average usage time for "Internet Usage" on holidays exceeded that of "Real-time TV Viewing" for the first time among those in their 40s. The user rate for "Internet Usage" exceeded that of "Real-time TV Viewing" on both weekdays and holidays for those in their teens to 50s. Additionally, the user rate for "Newspaper Reading" increased with age from the 20s, but compared with the previous FY2023 survey results, the user rate for those in their 40s to 70s either decreased or remained almost flat.

[7] The total number of hours of all people surveyed for a particular information behavior per survey day, divided by the number of people surveyed. The average time is calculated by including the respondents who did not do the activities throughout the day.
[8] For weekdays, the ratio of people who performed a particular information behavior for each day of the two survey days was calculated and averaged over the two days. For holidays, this is the ratio of survey days.
[9] Television viewing (real-time): Real-time television viewing with any device not limited to TV receiver.
[10] Internet use: The use of services over an Internet connection, including email, website, social media, video sites, and online games, regardless of device.

## Figure 2-1-11-11 Average usage time and user rate of major media

<Weekday (one day)>

| | | Average usage time (Unit: minutes) | | | | | Doers' ratio | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Television viewing (real-time) | Television viewing (recorded program) | Internet use | Newspaper reading | Radio listening | Television viewing (real-time) | Television viewing (recorded program) | Internet use | Newspaper reading | Radio listening |
| All age groups combined | 2020 | 193.2 | 20.4 | 149.3 | 13.1 | 15.6 | 84.0 | 19.1 | 81.3 | 31.2 | 9.2 |
| | 2021 | 171.9 | 19.0 | 156.3 | 11.5 | 14.3 | 77.6 | 18.7 | 82.9 | 28.4 | 7.2 |
| | 2022 | 163.5 | 20.5 | 154.7 | 10.4 | 10.0 | 77.2 | 17.8 | 83.9 | 25.2 | 6.9 |
| | 2023 | 162.9 | 18.4 | 173.6 | 9.3 | 9.4 | 75.1 | 16.2 | 85.3 | 22.1 | 6.6 |
| | 2024 | 154.7 | 18.1 | 181.8 | 9.0 | 11.8 | 72.1 | 15.1 | 87.0 | 20.3 | 6.5 |
| 10s | 2020 | 73.1 | 12.2 | 224.2 | 1.4 | 2.3 | 59.9 | 14.8 | 90.1 | 2.5 | 1.8 |
| | 2021 | 57.3 | 12.1 | 191.5 | 0.4 | 3.3 | 56.7 | 16.3 | 91.5 | 1.1 | 0.7 |
| | 2022 | 46.0 | 6.9 | 195.0 | 0.9 | 0.8 | 50.7 | 10.0 | 94.3 | 2.1 | 1.8 |
| | 2023 | 39.2 | 3.6 | 257.8 | 0.0 | 0.8 | 47.1 | 5.7 | 96.4 | 0.0 | 2.1 |
| | 2024 | 39.7 | 2.8 | 243.4 | 0.5 | 0.0 | 35.0 | 2.9 | 93.9 | 2.5 | 0.0 |
| 20s | 2020 | 88.0 | 14.6 | 255.4 | 1.7 | 4.0 | 65.7 | 13.6 | 96.0 | 6.3 | 3.1 |
| | 2021 | 71.2 | 15.1 | 275.0 | 0.9 | 7.0 | 51.9 | 13.7 | 96.5 | 2.6 | 3.0 |
| | 2022 | 72.9 | 14.8 | 264.8 | 0.4 | 2.1 | 54.4 | 11.8 | 97.7 | 2.8 | 2.3 |
| | 2023 | 53.9 | 6.2 | 275.8 | 0.5 | 4.8 | 43.3 | 7.4 | 98.4 | 1.8 | 2.8 |
| | 2024 | 52.6 | 5.6 | 257.2 | 0.3 | 2.1 | 48.4 | 7.1 | 97.0 | 1.4 | 1.1 |
| 30s | 2020 | 135.4 | 19.3 | 188.6 | 1.9 | 8.4 | 78.2 | 19.4 | 95.0 | 8.8 | 6.0 |
| | 2021 | 107.4 | 18.9 | 188.2 | 1.5 | 4.8 | 65.8 | 20.9 | 94.9 | 5.9 | 3.2 |
| | 2022 | 104.4 | 14.6 | 202.9 | 1.2 | 4.1 | 67.1 | 14.9 | 95.7 | 4.1 | 3.9 |
| | 2023 | 89.9 | 13.7 | 201.9 | 0.5 | 2.5 | 64.5 | 13.3 | 94.0 | 3.9 | 4.1 |
| | 2024 | 80.2 | 9.7 | 225.8 | 1.3 | 4.7 | 59.9 | 10.1 | 96.6 | 4.6 | 3.0 |
| 40s | 2020 | 151.0 | 20.3 | 160.2 | 5.5 | 11.7 | 86.2 | 23.0 | 92.6 | 24.1 | 6.0 |
| | 2021 | 132.8 | 13.6 | 176.8 | 4.3 | 12.9 | 77.8 | 15.3 | 94.6 | 17.9 | 5.4 |
| | 2022 | 124.1 | 17.2 | 176.1 | 4.1 | 5.5 | 75.7 | 18.0 | 91.5 | 16.5 | 6.3 |
| | 2023 | 134.6 | 13.7 | 176.2 | 2.7 | 7.2 | 78.3 | 15.7 | 93.0 | 11.2 | 5.4 |
| | 2024 | 117.5 | 11.0 | 200.3 | 1.9 | 11.7 | 71.4 | 12.1 | 94.9 | 6.9 | 5.9 |
| 50s | 2020 | 195.6 | 23.4 | 130.0 | 11.9 | 26.9 | 91.8 | 20.7 | 85.0 | 39.4 | 13.4 |
| | 2021 | 187.7 | 18.7 | 153.6 | 9.1 | 23.6 | 86.4 | 20.9 | 89.4 | 33.8 | 11.1 |
| | 2022 | 160.7 | 18.6 | 143.5 | 7.8 | 14.0 | 84.0 | 19.5 | 88.8 | 29.6 | 8.6 |
| | 2023 | 163.2 | 21.2 | 173.8 | 7.6 | 8.6 | 81.2 | 19.4 | 90.0 | 27.3 | 7.5 |
| | 2024 | 159.0 | 16.5 | 181.0 | 6.3 | 13.0 | 79.7 | 14.7 | 89.7 | 22.0 | 7.0 |
| 60s | 2020 | 271.4 | 25.7 | 105.5 | 23.2 | 18.5 | 92.9 | 22.3 | 71.3 | 53.7 | 12.1 |
| | 2021 | 254.6 | 25.8 | 107.4 | 22.0 | 14.4 | 92.0 | 23.0 | 72.8 | 55.1 | 10.0 |
| | 2022 | 244.2 | 30.5 | 103.2 | 17.7 | 16.7 | 92.8 | 25.2 | 78.5 | 46.1 | 9.9 |
| | 2023 | 257.0 | 31.3 | 133.7 | 15.9 | 15.2 | 91.5 | 23.1 | 79.8 | 39.4 | 7.6 |
| | 2024 | 226.7 | 37.2 | 151.3 | 14.8 | 18.0 | 88.2 | 27.3 | 84.9 | 35.6 | 9.0 |
| 70s | 2020 | 352.3 | 21.9 | 47.3 | 37.3 | 27.7 | 95.9 | 15.6 | 46.5 | 61.5 | 16.8 |
| | 2021 | 305.9 | 25.2 | 50.4 | 33.7 | 25.0 | 94.0 | 19.1 | 48.4 | 60.5 | 12.1 |
| | 2022 | 306.3 | 32.2 | 50.0 | 32.8 | 19.9 | 95.2 | 19.6 | 50.7 | 56.0 | 11.6 |
| | 2023 | 304.6 | 28.6 | 69.2 | 30.1 | 20.2 | 95.1 | 20.8 | 55.4 | 52.2 | 12.8 |
| | 2024 | 310.7 | 32.8 | 72.4 | 30.5 | 23.4 | 94.3 | 23.3 | 59.6 | 52.9 | 14.1 |

<Holiday (one day)>

| | | Average usage time (Unit: minutes) | | | | | Doers' ratio | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Television viewing (real-time) | Television viewing (recorded program) | Internet use | Newspaper reading | Radio listening | Television viewing (real-time) | Television viewing (recorded program) | Internet use | Newspaper reading | Radio listening |
| All age groups combined | 2020 | 247.4 | 36.7 | 154.2 | 12.4 | 10.0 | 82.7 | 25.4 | 77.8 | 28.2 | 6.2 |
| | 2021 | 213.9 | 25.5 | 154.2 | 10.6 | 9.0 | 77.9 | 20.5 | 79.3 | 24.9 | 5.0 |
| | 2022 | 207.2 | 30.2 | 164.3 | 10.2 | 7.3 | 76.2 | 22.1 | 81.8 | 23.6 | 5.3 |
| | 2023 | 202.0 | 23.8 | 179.7 | 8.7 | 6.6 | 73.2 | 18.0 | 82.2 | 20.5 | 4.7 |
| | 2024 | 182.7 | 25.0 | 183.7 | 8.5 | 7.9 | 69.1 | 17.4 | 83.7 | 18.5 | 4.1 |
| 10s | 2020 | 93.9 | 29.8 | 290.8 | 0.9 | 0.0 | 54.9 | 25.4 | 91.5 | 1.4 | 0.0 |
| | 2021 | 73.9 | 12.3 | 253.8 | 0.0 | 0.0 | 57.4 | 14.9 | 90.8 | 0.0 | 0.0 |
| | 2022 | 69.3 | 17.4 | 285.0 | 1.0 | 2.8 | 46.4 | 19.3 | 92.9 | 2.1 | 2.1 |
| | 2023 | 56.8 | 4.8 | 342.2 | 0.0 | 0.0 | 42.9 | 6.4 | 95.0 | 0.0 | 0.0 |
| | 2024 | 41.7 | 7.2 | 316.1 | 0.4 | 0.0 | 31.4 | 8.6 | 92.1 | 1.4 | 0.0 |
| 20s | 2020 | 132.3 | 26.5 | 293.8 | 2.0 | 1.9 | 64.3 | 20.2 | 97.7 | 6.6 | 2.3 |
| | 2021 | 90.8 | 17.2 | 303.1 | 0.7 | 1.8 | 49.3 | 14.0 | 97.2 | 2.3 | 1.4 |
| | 2022 | 89.6 | 25.1 | 330.3 | 0.5 | 1.0 | 48.4 | 16.1 | 96.8 | 2.3 | 1.4 |
| | 2023 | 66.0 | 15.0 | 309.4 | 0.2 | 1.0 | 41.0 | 11.1 | 97.2 | 0.9 | 1.4 |
| | 2024 | 62.7 | 11.3 | 302.7 | 0.3 | 0.0 | 43.1 | 9.2 | 94.5 | 0.5 | 0.0 |
| 30s | 2020 | 198.1 | 45.0 | 191.3 | 1.6 | 7.4 | 77.2 | 31.6 | 91.2 | 5.6 | 3.2 |
| | 2021 | 147.6 | 30.3 | 212.3 | 1.5 | 3.2 | 69.6 | 22.7 | 92.3 | 4.0 | 1.2 |
| | 2022 | 152.5 | 25.9 | 199.9 | 0.8 | 6.9 | 63.3 | 19.6 | 92.7 | 3.3 | 4.1 |
| | 2023 | 121.2 | 17.8 | 218.3 | 1.6 | 2.3 | 57.3 | 14.5 | 92.1 | 4.6 | 2.5 |
| | 2024 | 103.8 | 14.5 | 218.4 | 1.1 | 2.7 | 53.6 | 12.7 | 95.4 | 4.2 | 0.8 |
| 40s | 2020 | 232.7 | 41.5 | 154.5 | 5.2 | 4.2 | 85.3 | 28.5 | 89.3 | 19.9 | 3.1 |
| | 2021 | 191.1 | 28.5 | 155.7 | 4.9 | 6.3 | 79.0 | 21.0 | 91.0 | 14.8 | 3.4 |
| | 2022 | 191.0 | 29.7 | 157.5 | 4.6 | 4.8 | 76.5 | 22.9 | 89.0 | 16.3 | 2.8 |
| | 2023 | 188.2 | 23.1 | 176.2 | 2.8 | 3.1 | 78.6 | 21.4 | 90.7 | 10.2 | 2.6 |
| | 2024 | 159.1 | 21.5 | 199.0 | 2.3 | 7.2 | 67.3 | 16.3 | 94.8 | 6.5 | 3.6 |
| 50s | 2020 | 256.5 | 49.8 | 127.8 | 12.5 | 16.3 | 91.6 | 31.4 | 81.5 | 36.6 | 7.7 |
| | 2021 | 242.6 | 28.9 | 119.0 | 9.2 | 14.2 | 84.8 | 24.9 | 82.2 | 29.6 | 8.1 |
| | 2022 | 220.5 | 33.0 | 134.9 | 7.6 | 5.6 | 85.7 | 24.8 | 85.3 | 24.4 | 4.6 |
| | 2023 | 225.3 | 29.0 | 152.7 | 7.3 | 6.3 | 81.2 | 21.9 | 86.5 | 23.5 | 3.8 |
| | 2024 | 200.4 | 32.1 | 164.9 | 6.8 | 9.2 | 78.2 | 21.8 | 85.5 | 19.1 | 3.0 |
| 60s | 2020 | 334.7 | 37.2 | 83.7 | 22.0 | 10.9 | 91.8 | 25.9 | 63.1 | 50.4 | 9.2 |
| | 2021 | 326.1 | 31.4 | 92.7 | 22.3 | 11.2 | 93.5 | 25.4 | 71.0 | 50.4 | 8.0 |
| | 2022 | 291.4 | 42.2 | 105.4 | 15.0 | 10.1 | 92.3 | 29.8 | 78.7 | 45.2 | 8.5 |
| | 2023 | 307.6 | 39.8 | 119.3 | 14.4 | 8.6 | 91.9 | 24.1 | 73.0 | 37.0 | 5.9 |
| | 2024 | 276.8 | 42.7 | 130.8 | 13.5 | 10.1 | 88.9 | 24.0 | 77.9 | 32.8 | 6.3 |
| 70s | 2020 | 375.9 | 21.3 | 43.9 | 34.5 | 23.0 | 94.0 | 13.5 | 41.8 | 57.1 | 14.2 |
| | 2021 | 318.8 | 21.3 | 38.5 | 27.7 | 19.3 | 92.8 | 16.6 | 41.4 | 53.8 | 9.3 |
| | 2022 | 330.9 | 30.5 | 47.4 | 33.9 | 16.3 | 96.6 | 19.4 | 47.6 | 53.7 | 11.2 |
| | 2023 | 329.4 | 24.4 | 64.2 | 27.3 | 19.5 | 92.6 | 17.9 | 52.0 | 50.0 | 13.5 |
| | 2024 | 318.3 | 31.7 | 59.7 | 27.8 | 19.1 | 91.9 | 21.8 | 54.4 | 49.7 | 11.4 |

(Source) MIC Institute for Information and Communications Policy "FY2024 Survey on Usage Time of Information and Communications Media and Information Behavior"

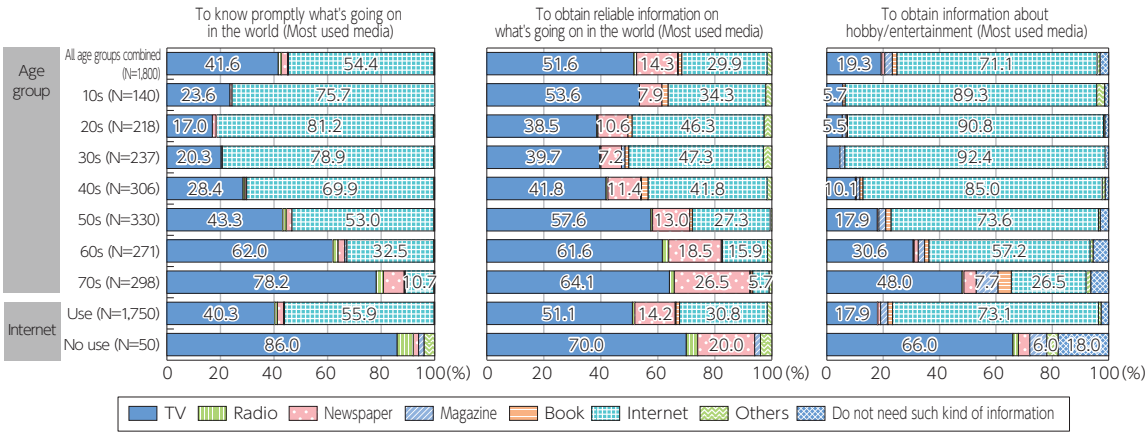
(B) Position of the Internet as a medium

The comparison of the Internet with other media for different usage purposes is shown in (**Figure 2-1-11-12**).

The Internet was the most used medium for "quickly knowing about events and trends in the world" for all age groups combined. By age group, the "Internet" was most used by those in their teens to 50s, while "TV" was most used by those in their 60s and 70s. For "obtaining reliable information about events and trends in the world," "TV" was the most used medium for all age groups combined. By age group, the "Internet" was most used by those in their 20s and 30s, "TV" and the "Internet" were equally used by those in their 40s, and "TV" was most used by other age groups. "Newspapers" were used more than the "Internet" by those in their 60s and 70s.

For "obtaining information about hobbies and entertainment," the "Internet" was the most used medium for all age groups combined. By age group, the "Internet" was most used by those in their teens to 60s, and "TV" was most used by those in their 70s. The percentage of "Internet" usage was around 90% for those in their teens to 30s.

**Figure 2-1-11-12 Media used by purpose (most used media by all groups, by age group and by using or not using the Internet)**

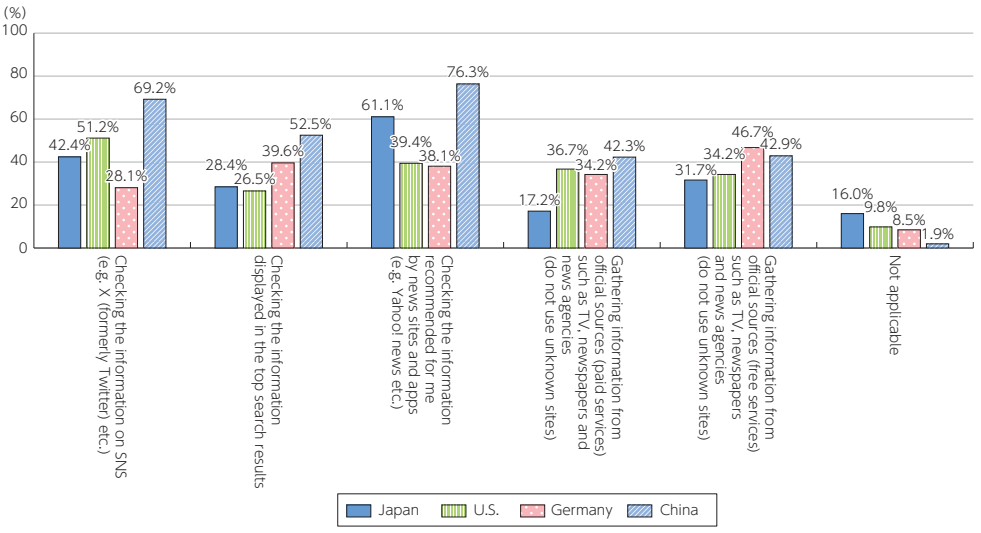



(Source) MIC Institute for Information and Communications Policy "FY2024 Survey on Usage Time of Information and Communications Media and Information Behavior"

D Utilization of Internet media, etc.

When asked about their actions when they want to know the latest news online, the percentage of respondents in Japan who "look at recommended information from news sites/apps" (61.1%) and "look at information on social media" (42.4%) was high, while relatively fewer people relied on traditional mass media such as TV, newspapers, and news agencies (**Figure 2-1-11-13**).

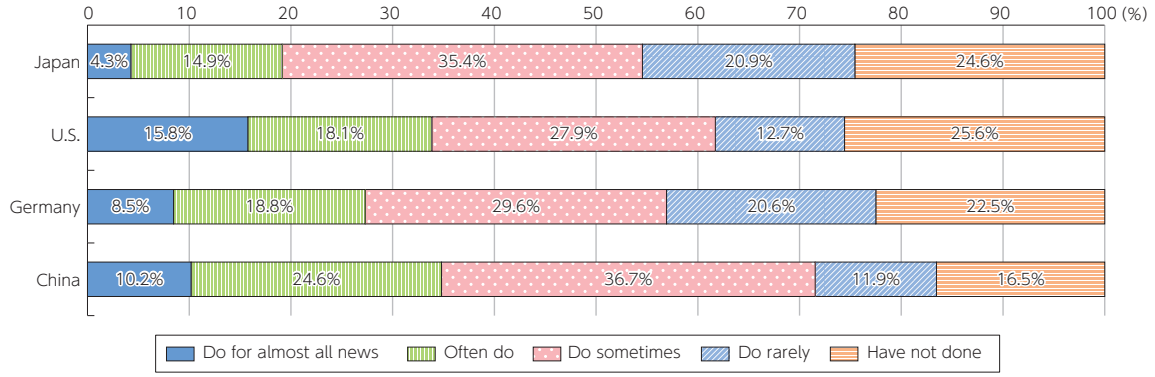
**Figure 2-1-11-13 Ways to obtain the latest news online (by country)**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

When asked whether they check the source (organization or individual) of the information flowing online, the percentage of respondents in Japan who answered that they do (sum of "Do for Almost All News" and "Often Do") was 19.1%, lower compared with other countries **(Figure 2-1-11-14)**.

**Figure 2-1-11-14 Frequency of checking the source of information (organizations and individuals) (by country)**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

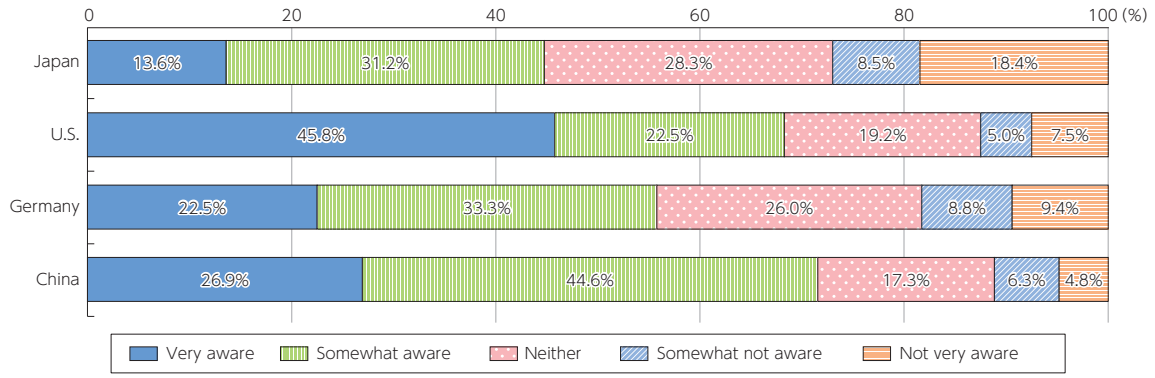
**Figure (related data) The proportion of comparing news reports from multiple media (broadcasters, news media and news agencies)**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00320
(Data collection)

**Figure (related data) The proportion of checking official information announced by the government etc.**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00321
(Data collection)

**Figure (related data) The proportion of checking the results of verification by experts and fact-checking organizations**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00322
(Data collection)

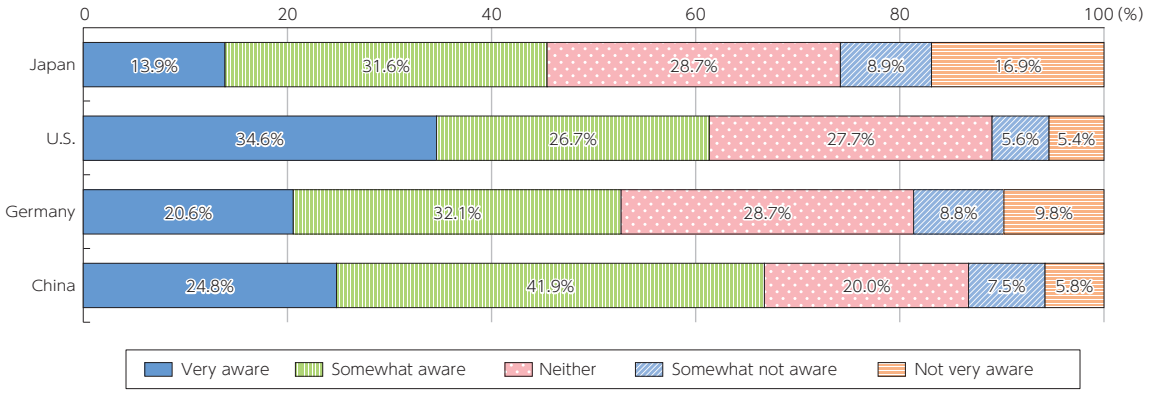
Additionally, when asked about their awareness of the characteristics of online services and apps (such as searching services and social media), including the "Information displayed, such as search results, social media, videos, and music, is optimized (personalized) for the user," "Recommended accounts or content on social media may be those that the social media provider wants the user to see," and "Information close to the user's opinions and thoughts is displayed on social media," the percentage of respondents in Japan who answered that they were aware (sum of "Very Aware" and "Somewhat Aware") was below 50% for these items **(Figure 2-1-11-15)** **(Figure 2-1-11-16)** **(Figure 2-1-11-17)**.

**Figure 2-1-11-15 Awareness that the information displayed in search results and on social media is personalized**



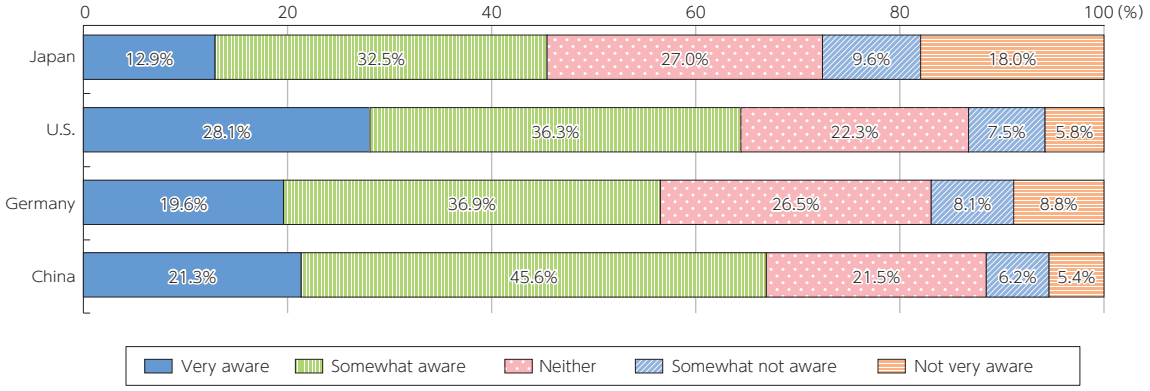

(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

**Figure 2-1-11-16 Awareness that service providers may display accounts or content they want users to see**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

**Figure 2-1-11-17 Awareness that opinions and information similar to the user's views tend to be displayed on social media etc.**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

## 2. Trends in utilization in corporate activities

### (1) The Status of digitalization by companies in each country

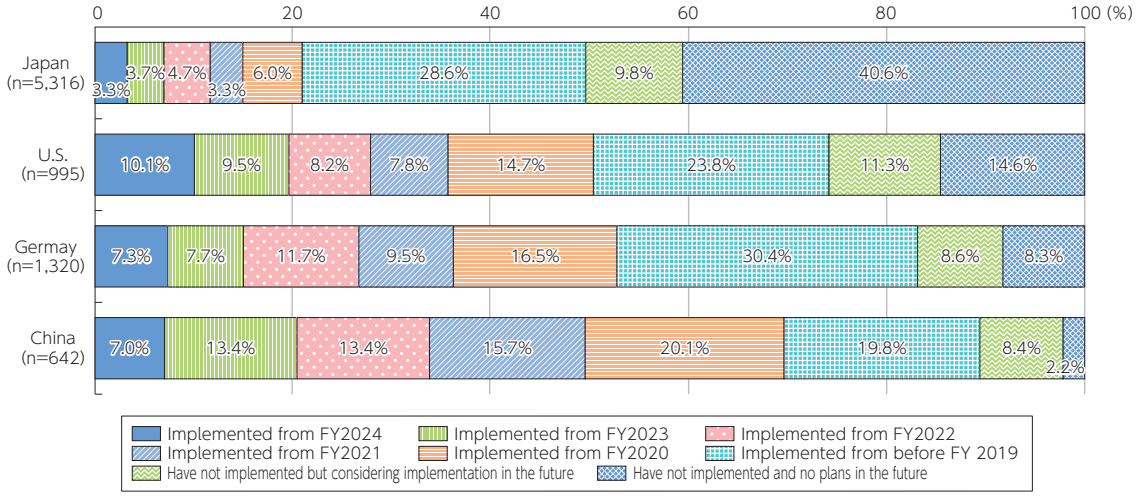
#### A Efforts in digitalization

A survey was conducted on the efforts toward digitalization among companies in Japan, the U.S., Germany, and China. After excluding those who responded with "Do not know,"[11] it was found that in Japan, the proportion of companies that had not implemented digitalization efforts (combining "Have not implemented but considering implementation in the future" at 9.8% and "Have not implemented and no plans in the future" at 40.6%) was approximately 50%, indicating a delay in promoting digitalization compared with overseas. When looking at the efforts by company size in Japan, it was observed that about 25% of large companies and about 70% of small and medium-sized enterprises responded with "Have not implemented," indicating that there are differences in the status of digitalization efforts depending on the company size (**Figure 2-1-11-18**).

In Japanese companies, while there are many comprehensive efforts in digitalizing new ways of working (such as telework) and improving/reforming business processes (such as optimizing business flows with ERP), there are fewer comprehensive digitalization efforts in creating new businesses or creating and improving customer experiences. In Japanese companies, there is a tendency to focus more on defensive digitalization rather than proactive digitalization. In contrast, in the U.S. companies, there is a trend of comprehensive efforts toward new business creation, but partial efforts at the departmental level to create and improve customer experiences (**Figure 2-1-11-19**).

[11] The data were compiled based on the screening data collected until the number of samples for this study was secured.

**Figure 2-1-11-18 Status of initiatives to promote digitalization (comparison by country)**




* Based on screening research results to extract companies which are taking on digitalization.

(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

**Figure (related data) Status of digitalization (Japan: comparison by company size)**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00327
(Data collection)

**Figure 2-1-11-19 Detailed initiatives to promote digitalization (comparison by country)**


(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

### B Effects of digitalization

Regarding the effects of digitalization in terms of "Creating New Business," "Improving/enhancing Customer Experiences," "Adding High Value to Existing Products/services," "Creating/improving Business Processes," "Streamlining Operations," and "Realizing New Ways of Working," it was found that in Japan, the proportion of responses indicating "Exceeding Expectations" was the lowest across all aspects, and the proportion of responses indicating "Not Achieving the Expected Effects" was the highest among the four countries.

**Figure (related data) Effects of digitalization**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00329
(Data collection)

### C Challenges in digitalization

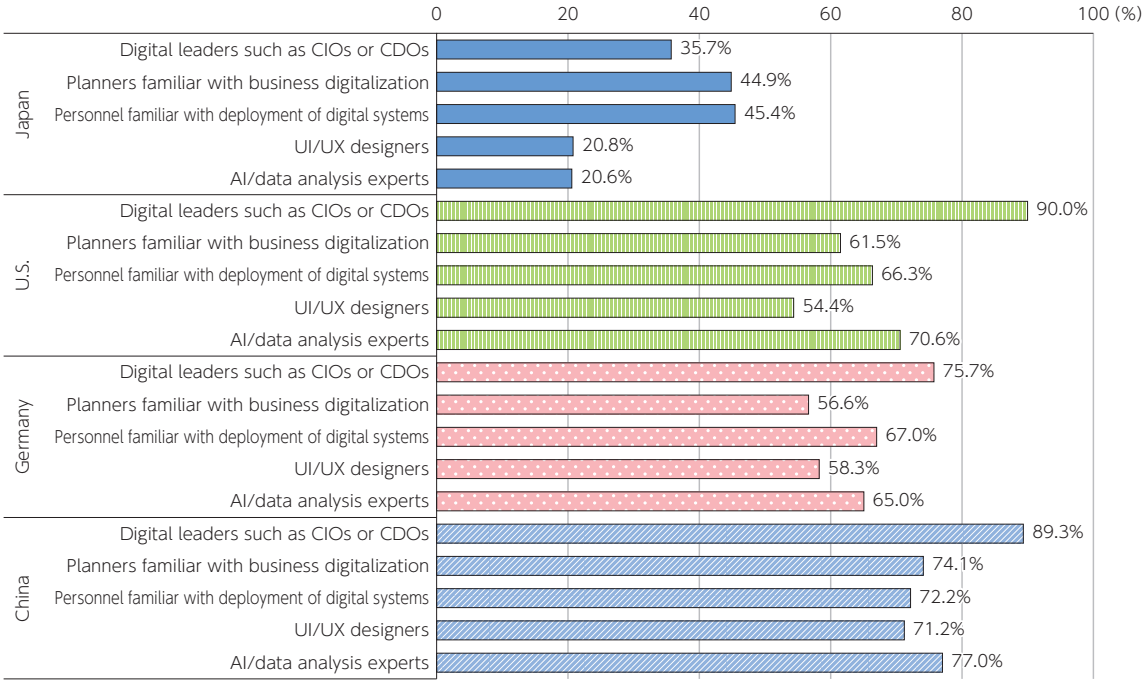
In terms of challenges and barriers currently recognized or anticipated in digitalization, Japanese companies had the highest response rate for "Insufficient human resources (48.7%)," which was overwhelmingly higher compared with companies in other countries. This was followed by "Analogue-oriented culture/values are rooted (27.8%)," "Division of roles and scope of DX is unclear (27.4%)," and "Absence of clear purpose /targets (27.4%)" (**Figure 2-1-11-20**).

**Figure 2-1-11-20 Challenges and barriers currently recognized or anticipated in digitalization (comparison by country)**


(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

Particularly notable in Japanese companies is the scarcity of UI/UX designers and AI/digital analytics specialists compared with other countries. The proportion of companies indicating the "Presence of UI/UX designers" was 20.8% in Japan, while it was approximately 55-70% in other countries. Similarly, the proportion of companies indicating the "Presence of AI/digital analytics specialists" was 20.6% in Japan, while it was approximately 65-80% in other countries (**Figure 2-1-11-21**).

**Figure 2-1-11-21 Status of specialized digital human resources**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

**Figure (related data) Initiatives to secure digital human resources (comparison by country)**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00332
(Data collection)

Furthermore, when asked about the status of internal system development, it was found that in Japan, 35.7% of companies responded that they conduct system development under their own leadership ("almost all development is carried out by in-house engineers" and "mainly developed by in-house engineers, with some development outsourced to external vendors"). In contrast, overseas, approximately 80-90% of companies reported that they conduct system development under their own leadership, showing a significant difference from Japan.

**Figure (related data) In-house development of systems (comparison by country)**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00333
(Data collection)

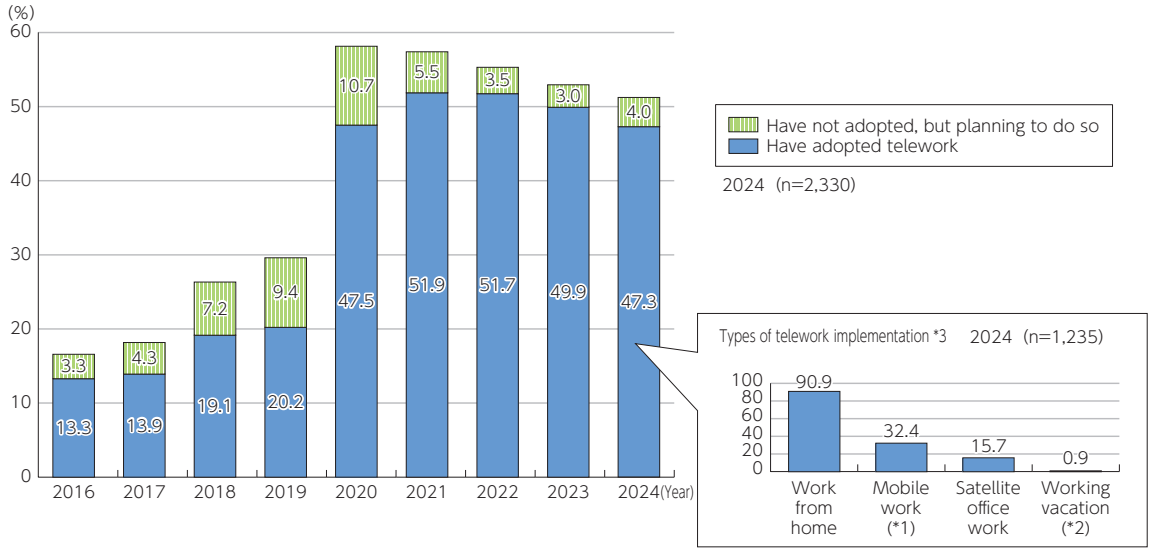
### (2) Telework and online meetings

#### A Adoption of telework in Japanese companies

The adoption of telework in private companies rapidly progressed after the spread of COVID-19 in 2020, however, it has been on a declining trend since 2022.

According to the 2024 Communication Usage Trend Survey conducted by the MIC, about 47.3% of companies have adopted telework (**Figure 2-1-11-22**).

**Figure 2-1-11-22 Changes in the adoption rate of telework**




*1 Working outside of the office for sales activities and other similar work, including work such as checking email and writing daily reports during commutes or at locations such as cafes.

*2 Telework performed in a location other than the usual workplace or the home, while also spending time for personal matters.

*3 The total includes entities that provided no response to adoption type.

(Source) MIC "Communications Usage Trend Survey"

**Figure (related data) Purpose of adopting of telework (multiple answers allowed)**
Source: MIC "Communications Usage Trend Survey"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00338
(Data collection)

**Figure (related data) Reasons for not adopting telework (time series)**
Source: MIC "Communications Usage Trend Survey"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00339
(Data collection)

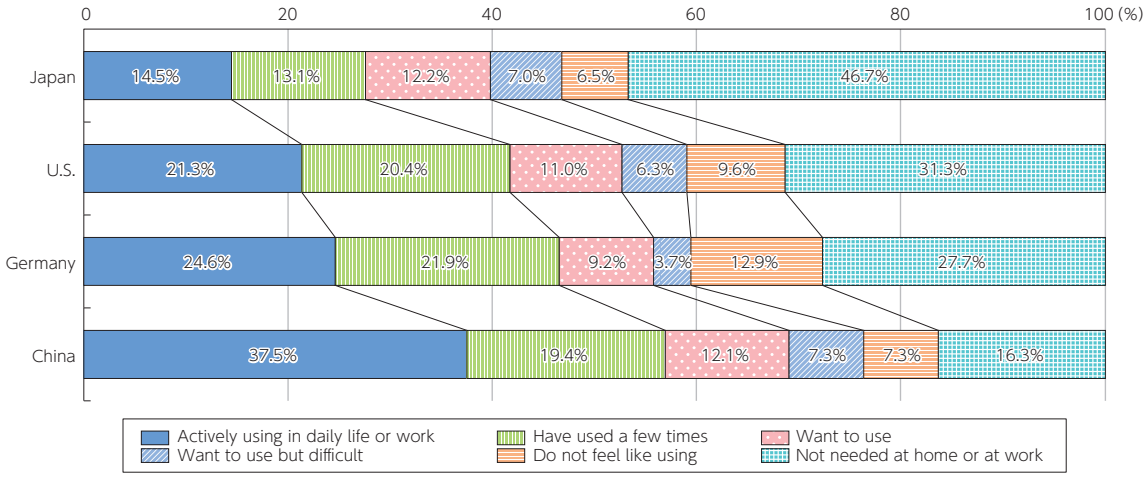
#### B Utilization of telework and online meetings (individual and international comparison)

A survey was conducted among citizens of Japan, the U.S., China, and Germany regarding the utilization of telework and online meetings (hereinafter referred to as "telework, etc.").

The percentage of respondents who answered that they "use telework, etc. actively in their daily life and work" slightly decreased compared with the previous year in the three countries other than Japan, suggesting that this may be due to the social trend of people returning to offices (**Figure 2-1-11-23**). In Japan, the most common reason cited for the difficulty in implementing telework, etc. was the "lack of services they want to use in the company" at 36.0%.

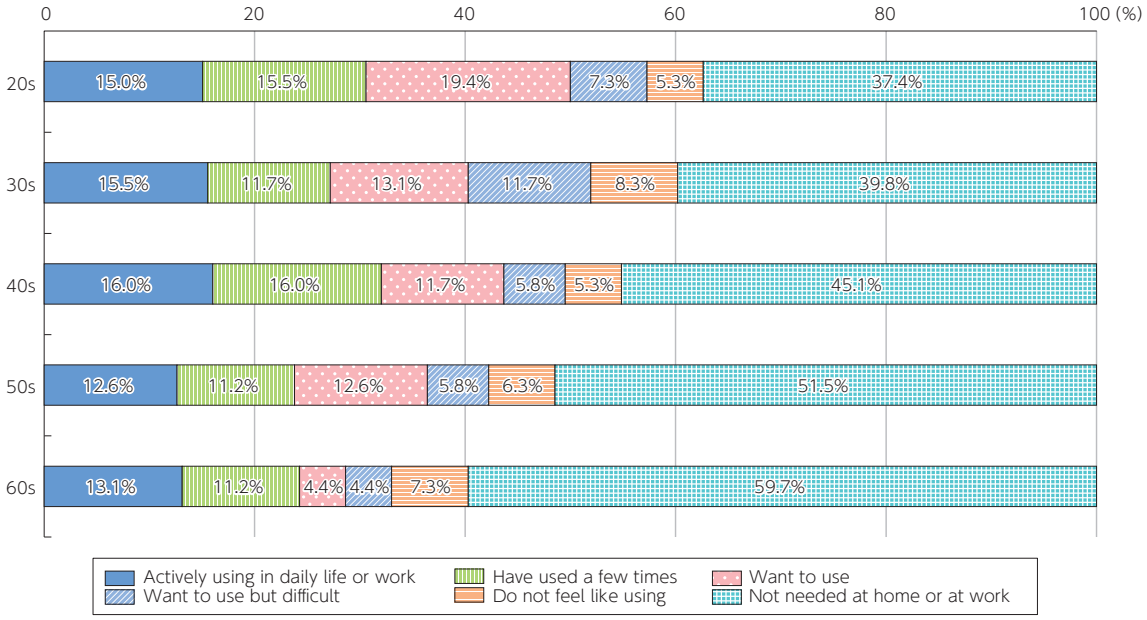
When examining the utilization of telework, etc. in Japan by age group, the highest utilization was among those in their 40s, followed by those in their 20s and 30s, with 32.0% in their 40s. Additionally, a high percentage of respondents in their 20s expressed that they "want to use telework, etc. in the future," indicating their strong willingness to use telework, etc. On the other hand, the percentage of respondents who answered that telework, etc. is "not necessary in their daily life and work" increased with age, with 37.4% in their 20s and 59.7% in their 60s (**Figure 2-1-11-24**).

**Figure 2-1-11-23 Usage of telework and online meetings (international comparison)**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

**Figure 2-1-11-24 Usage of telework and online meetings (Japan, by age)**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

**Figure (related data) Reasons why people don't use telework or online meetings**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00342
(Data collection)

## 3. Trends in digital usage in administration

**(1) Usage of electronic administrative services (electronic applications, electronic tax filing, electronic notifications)**

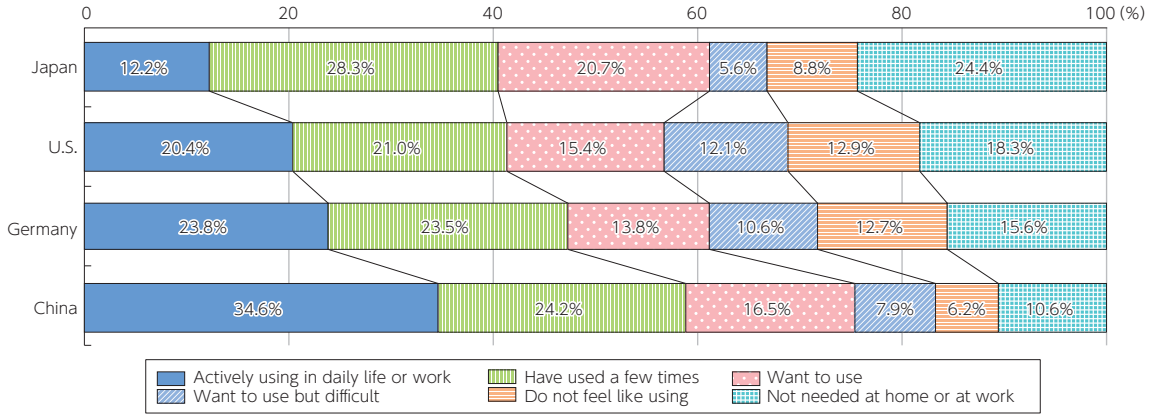
Regarding the usage of electronic administrative services (electronic applications, electronic tax filing, electronic notifications), about 41% of people in Japan had used these services, which was roughly at the same level as in the previous survey (approximately 41%)[12]. It was also roughly the same as the usage level in the U.S (**Figure 2-1-11-25**). The main reasons for not using these services included "security concerns," "not knowing how to use the services, devices and applications required for these services," and "lack of desired ser-

[12] The 2024 White Paper on Information and Communications in Japan. MIC (2024) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

vices."

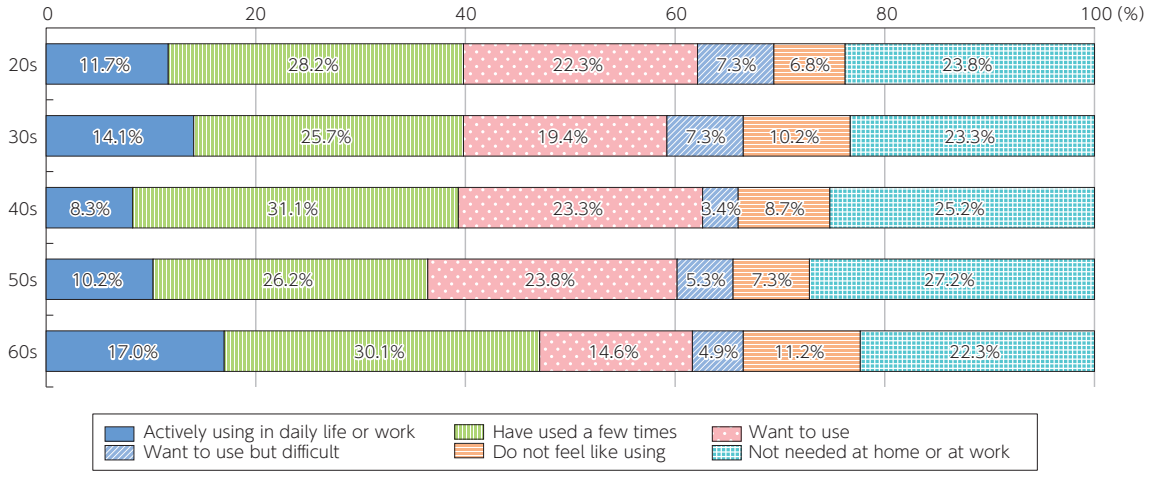
When examining the usage of electronic administrative services in Japan by age group, the percentage of people who have used these services was relatively high among those in their 60s compared with other age groups. (**Figure 2-1-11-26**).

**Figure 2-1-11-25 Usage of digital administrative services (by country)**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

**Figure 2-1-11-26 Usage of digital administrative services (Japan, by age)**




(Source) MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

**Figure (related data) Reasons why people do not use public digital services (by country)**
Source: MIC (2025) "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00345
(Data collection)

### (2) Promotion of digital government in Japan

#### A International indicators

Below is an overview of Japan's position in the world regarding digitalization in the public sector based on international indicators.

(A) United Nations Department of Economic and Social Affairs (UNDESA) "World E-Government Ranking"

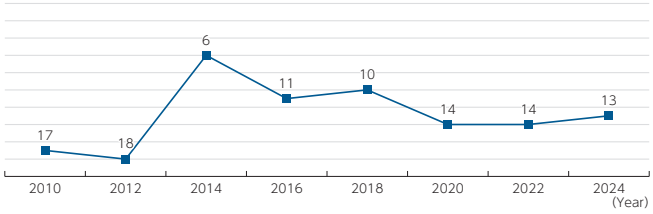
The UNDESA e-government survey aims to improve transparency and accountability in public policy through ICT and promote citizens' participation in public policy in the UN member states. It has been conducted since 2003 and biennially since 2008. The survey ranks countries based on the average of three indicators: Online Service Index, Human Capital Index, and Telecommunications Infrastructure Index, to calculate the E-Government Development Index (EGDI).

In the 2024 World E-Government Ranking, Denmark continued to rank first as it did in the previous survey (2022), followed by Estonia, Singapore, the Republic of Korea, and Iceland. Japan ranked 13th, up one rank from the previous survey (2022), and its score also increased since the previous survey (**Figure 2-1-11-27**).

For individual indicators, Japan's scores improved in

all indicators: Online Service Index (0.9094→0.9427), Human Capital Index (0.8765→0.9117), and Telecommunications Infrastructure Index (0.9147→0.9509).

**Figure 2-1-11-27 Changes in Japan's ranking in the UN (UNDESA) "World E-Government Ranking"**




(Source) UN E-Government Surveys

(B) Waseda University "World Digital Government Ranking"

The Waseda University Institute of e-Government has been publishing the "World Digital Government Ranking" annually since 2005, evaluating the progress of digital government promotion in 66 ICT-advanced countries from multiple perspectives, using 10 main indicators (35 sub-indicators). The top five countries were Singapore, the UK, Denmark, the U.S., and the Republic of Korea. Denmark, which had held the top spot for three consecutive years, fell to third place, while Singapore returned to the top spot for the first time in seven years. In the last year's survey, Japan fell out of the top 10 for the first time since the survey began, and it remained in 11th place this year. In light of Japan's declining birthrate, aging population, and declining population, the following issues were pointed out as actions that should be taken now: reducing administrative and financial costs and improving efficiency by promoting public-private partnerships and innovation through the use of digital technology, and making proactive and optimal investments in digitalization.

**Figure (related data) Changes of the rank of Japan in Waseda University "World Digital Government Ranking"**
Source: Institute of Digital Government in Waseda University
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00347
(Data collection)

### B Development of data linkage and authentication infrastructure

(A) My Number Card

As of the end of February 2025, the number of My Number Cards held by the population (calculated by subtracting cards abolished due to death or expiration from the total number issued) reached 78.0%. As of the end of January 2025, approximately 81.53 million cards were registered in total as health insurance cards, with a registration rate of 84.1% relative to the total number of issued My Number Cards. Regarding the registration of public money receiving accounts, as of the end of January 2025, the cumulative number of registrations was approximately 63.46 million, with a registration rate of 65.5% relative to the total number of issued My Number Cards.

**Figure (related data) Changes in the status of adoption of My Number Card**
Source: Prepared based on MIC "The Status of Issuance of My Number Card"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00348
(Data collection)

**Figure (related data) Changes in the registration status of My Number Card as health insurance cards**
Source: Prepared based on Digital Agency "Dashboard on the adoption of My Number Card" (data obtained on January 31, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00349
(Data collection)

**Figure (related data) Changes in public fund receipt account registrations of My Number Card**
Source: Prepared based on Digital Agency "Dashboard on the adoption of My Number Card" (data obtained on January 31, 2025)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00350
(Data collection)

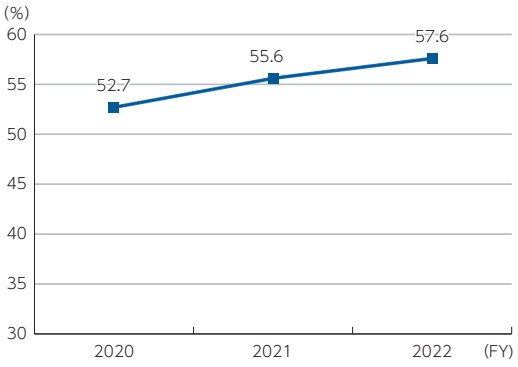
### C Digitalization efforts in local governments

#### (A) Current status of online procedures

Online usage of procedures that local governments should prioritize for online implementation under the "Priority Plan for Realizing a Digital Society" is as follows (**Figure 2-1-11-28**).

**Figure 2-1-11-28 Changes in the online usage of procedures that local governments should prioritize for digitalization**

| FY | Total number of procedures per year (10,000) | Number of procedures used online (10,000) | Online usage rate (%) |
|---|---|---|---|
| 2020 | 47,032 | 24,781 | 52.7 |
| 2021 | 50,257 | 27,926 | 55.6 |
| 2022 | 49,909 | 28,735 | 57.6 |




*1 Online usage for FY2020 was calculated based on a resurvey of the 59 procedures that local governments should prioritize for online implementation as listed in the "Priority Policy Program for Realizing Digital Society" (approved by the Cabinet on June 7, 2022). From FY2021 onwards, the survey continues to conduct the survey on the procedures that local governments should prioritize for online implementation as listed in the "Priority Policy Program for Realizing Digital Society."

*2 Online usage rate (%) = Number of procedures used online / total number of procedures per year ×100
The total number of procedures per year is a national estimate based on the total number of procedures and the population for organizations that have already gone online for these procedures.
The number of procedures used online is estimated in the same way as the total number of procedures per year, in order to more precisely calculate the online usage rate.

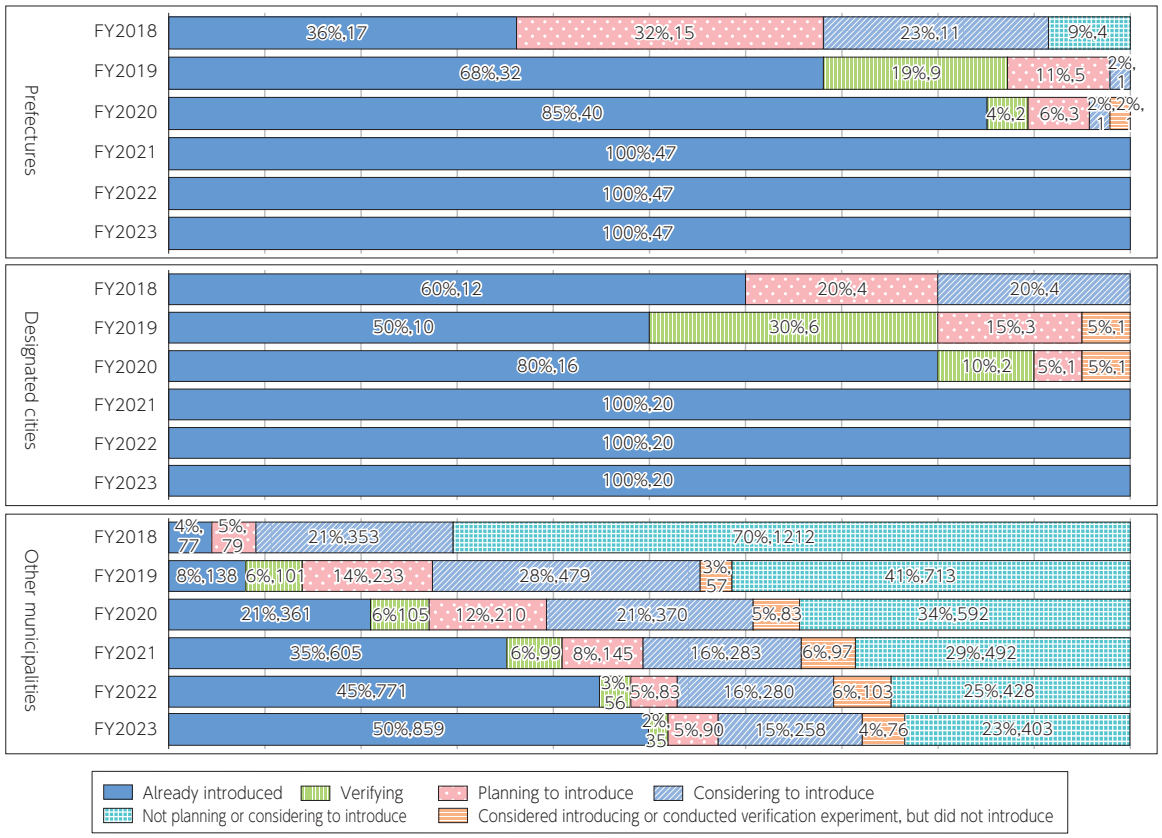
(Source) Prepared based on MIC "Overview of Promotion of DX and Use of Information by Local Governments: Summary of FY2023 Survey on Promotion of Use of Administrative Information by Local Governments"[13]

#### (B) Promotion of AI and RPA utilization

As of FY2021, 100% of prefectures and designated cities had introduced AI. Among other municipalities, 50% had introduced AI as of FY2023, and including those in the process of verification, planning to introduce, or considering to introduce, about 72% of local governments are working towards AI introduction (**Figure 2-1-11-29**). By function, the three functions of voice recognition, character recognition, and chatbot responses have been introduced at the highest rates across prefectures, designated cities, and other municipalities. Other functions, although still small in number, have continued to increase.

[13] https://www.soumu.go.jp/denshijiti/060213_02.html

**Figure 2-1-11-29 Status of introduction of AI in local governments**



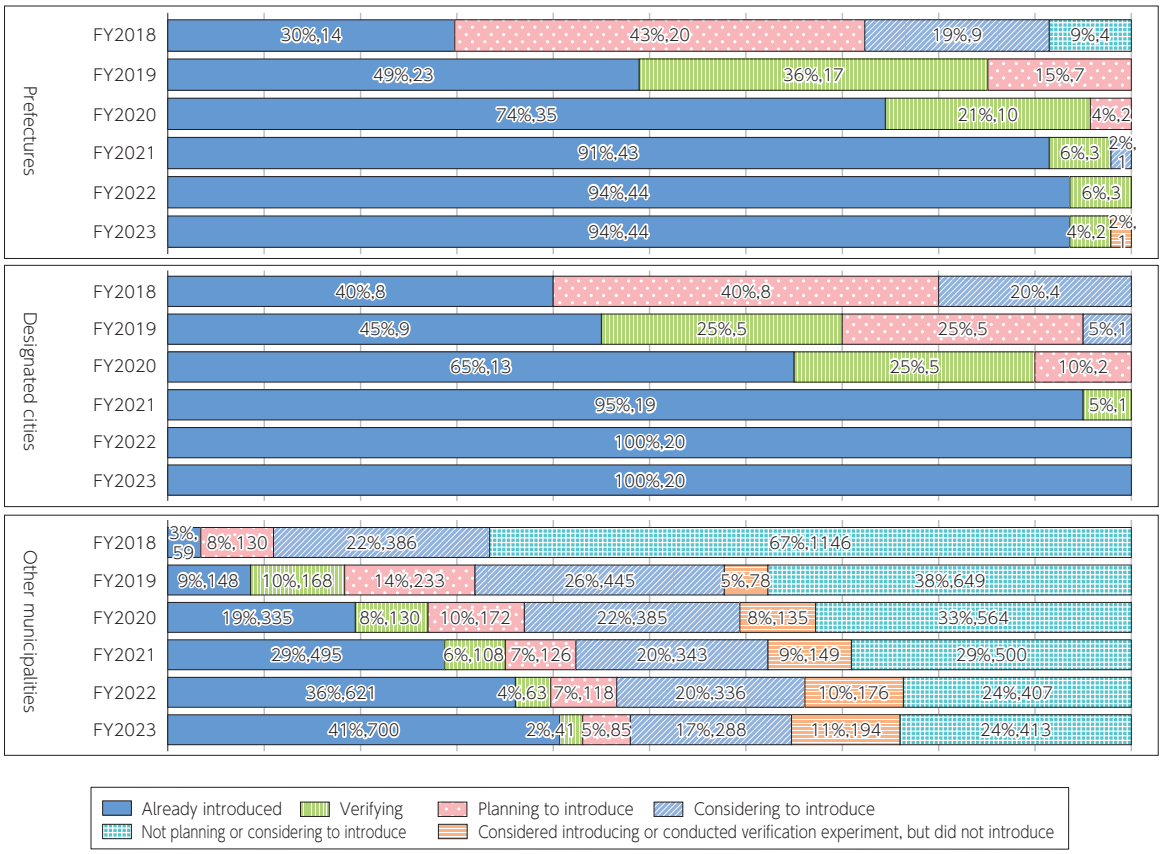

(Source) MIC "Promotion of Utilization of AI and RPA in Local Governments"[14]

**Figure (related data) Status of introduction of AI in local governments (by AI function)**
Source: MIC "Promotion of Utilization of AI and RPA in Local Governments"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00353
(Data collection)

Additionally, the number of organizations that had introduced RPA increased to 94% for prefectures and 100% for designated cities as of FY2023. For other municipalities, the introduction rate stood at 41%, but when including those in the process of verification, planning to introduce, or considering to introduce, approximately 65% of local governments are working towards RPA adoption **(Figure 2-1-11-30)**. By sector, RPA was most commonly introduced in "Finance, Accounting, and Treasury," followed by "Child Welfare and Childcare," "Health and Medical Care," and "Organization and Personnel (including administrative reforms)."

[14] https://www.soumu.go.jp/main_content/000934146.pdf

**Figure 2-1-11-30 Status of introduction of RPA in local governments**



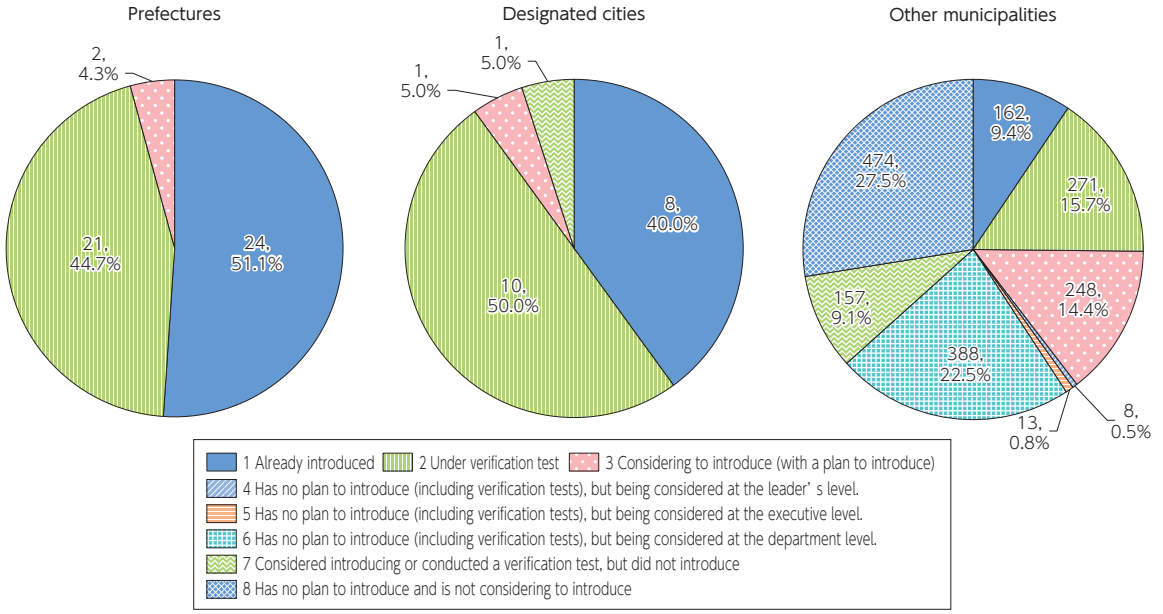

(Source) MIC "Promotion of Utilization of AI and RPA in Local Governments"[15]

**Figure (related data) Status of introduction of RPA in local governments (by RPA field)**
Source: MIC "Promotion of Utilization of AI and RPA in Local Governments"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00355
(Data collection)

As of the end of 2023, 51.1% of prefectures, 40.0% of designated cities, and 9.4% of other municipalities had introduced generative AI **(Figure 2-1-11-31)**.

[15] https://www.soumu.go.jp/main_content/000934146.pdf

**Figure 2-1-11-31 Status of introduction of generative AI in local governments (as of December 31, 2023)**




(Source) MIC "Introduction of Generative AI in Local Governments"[16]

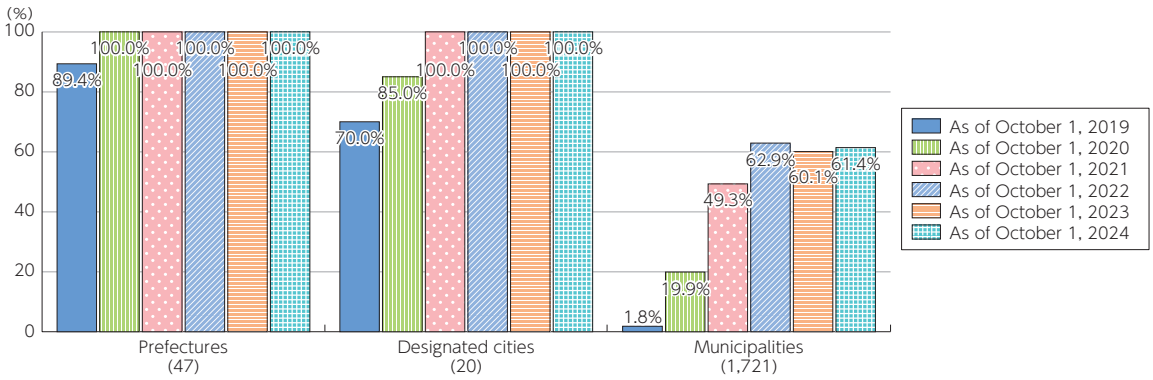
**Figure (related data) Examples of generative AI introduction in local governments (Including Verification Tests) (as of December 31, 2023)**
Source: MIC "Introduction of Generative AI in Local Governments"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00357
(Data collection)

(C) Status of telework implementation for staff

As of October 2024, all prefectures and designated cities had implemented telework. Among municipalities, the implementation rate was 61.4% as of October 2024, versus 60.1% as of October 2023 **(Figure 2-1-11-32)**.

Organizations that had introduced telework identified the following significance and benefits: improvement of the work-life balance of employees; realization of flexible and diverse working styles; effective use of time; and infection control measures. On the other hand, organizations that had not introduced telework cited the following reasons: many employees are engaged in front-line and field work that is not suited for teleworking; it is costly to introduce telework; and it is difficult to manage employee labor.

**Figure 2-1-11-32 Status of telework implementation for staff**




(Source) Prepared based on MIC "Survey on Telework Initiatives by Local Governments[17]

[16] https://www.soumu.go.jp/main_content/000956953.pdf
[17] MIC "Survey on Telework Initiatives by Local Governments" (October 1, 2019, October 1, 2020, October 1, 2021, October 1, 2022, October 1, 2023, October 1, 2024) (https://www.soumu.go.jp/main_content/001005074.pdf)

# Column Digital Utilization Trends in the 2024 Noto Peninsula Earthquake

## 1. Survey on ICT usage in the disaster-affected areas of the 2024 Noto Peninsula Earthquake

From November 2024 to March 2025, the MIC conducted a survey of affected people (on an individual basis)[1] and interviews with local governments, etc. (on an organization basis)[2] (hereinafter referred to as the "Survey of Disaster-Affected Areas") to clarify how information and communication tools were utilized, as well as related issue, among residents of the disaster-affected areas as well as local governments, businesses, and organizations, etc. involved in the disaster response and reconstruction efforts following the earthquake that struck the Noto region of Ishikawa Prefecture in January 2024 (hereinafter referred to as the "Noto Peninsula Earthquake"). The results were compared with those of the survey on the Kumamoto Earthquake that occurred in April 2016[3] and a nationwide survey on the Noto Peninsula Earthquake conducted in March 2024 (hereinafter referred to as the "Nationwide Survey")[4] to analyze the characteristics of ICT usage and related issues in the disaster-affected areas of the Noto Peninsula Earthquake.

## 2. Use of ICT media immediately after the earthquake

Compared with the methods used to gather information and confirm people's safety immediately after the main shock of the Kumamoto Earthquake that occurred on April 16, 2016 (during the first few hours after the earthquake), the use of mobile phones, mobile email, and AM radio decreased, while the use of terrestrial broadcasting (television) showed a high percentage of usage **(Figure 1)**. One possible reason for the high usage of terrestrial broadcasting during the Noto Peninsula Earthquake is that while the main shock of the Kumamoto Earthquake occurred at around 1:30 a.m., the Noto Peninsula Earthquake struck at around 4:00 p.m. on New Year's Day. Therefore, it is possible that a higher percentage of people were watching television just before the earthquake, or were able to turn it on immediately after the earthquake, compared with the Kumamoto Earthquake. Furthermore, there was an overall increase in the use of Internet-based services, such as disaster-prevention apps, Internet-based safety confirmation services, and social media platforms such as X (formerly Twitter). This suggests that, with the widespread use of smartphones and other digital tools, people used a wide range of methods to gather information and confirm people's safety via the Internet.

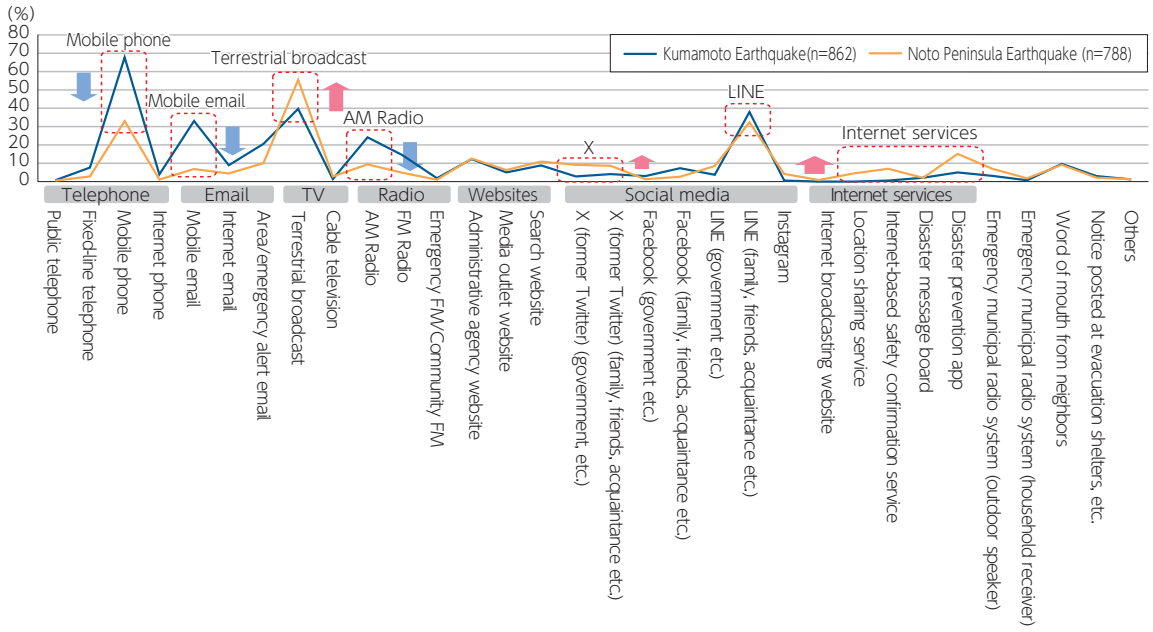
[1] Survey Period: November 2024 – February 2025
Method: A web-based survey was conducted for individuals registered as web survey participants, as well as a survey for those who had agreed to participate in interviews.
Respondents: Individuals who resided in the following areas at the time of the Noto Peninsula Earthquake, as well as those who were staying in Area A, which suffered particularly severe damage (a total of 1,092 people).
Area A: Anamizu Town, Uchinada Town, Shika Town, Suzu City, Nanao City, Noto Town, and Wajima City in Ishikawa Prefecture, and Himi City in Toyama Prefecture
Area B: Kanazawa City, Nakanoto Town, and Hakui City
Area C: Kaga City, Kahoku City, Komatsu City, Tsubata Town, Nomi City, and Hodatsushimizu Town

[2] Survey Period: December 2024 – March 2025
Respondents: Interviews were conducted with 57 organizations, including local governments in Ishikawa Prefecture that suffered particularly severe damage from the Noto Peninsula Earthquake, as well as local governments, businesses, hospitals, agricultural and fishery cooperatives, commerce and industry associations, and non-profit organizations located in Kanazawa City, which accepted a large number of secondary evacuees and served as a hub for external support and disaster response activities.

[3] MIC Press Release (April 13, 2017) "Survey Results on the State of Information and Communications in the Kumamoto Earthquake" (https://www.soumu.go.jp/menu_news/s-news/01tsushin02_02000108.html)

[4] A nationwide web-based survey was conducted for registered participants in March 2024. Responses were evenly distributed by gender (male/female) and age group (20s, 30s, 40s, 50s, and 60s and above), and a total of 2,060 responses were received.

**Figure 1: Methods used immediately after the earthquake (multiple answers allowed)**

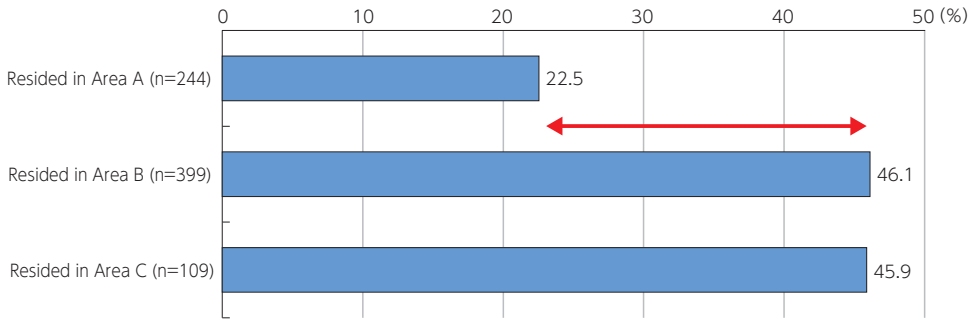



(Source) MIC "Survey on Digital Utilization Trends in the 2024 Noto Peninsula Earthquake"

## 3. Usage rate of television broadcasting by area of residence

Looking at the percentage of people who first used television broadcasting[5] immediately after the earthquake by area of their residence, the figure was 22.5% for people who lived in areas that suffered particularly severe damage (Anamizu Town, Uchinada Town, Shika Town, Suzu City, Nanao City, Noto Town, and Wajima City in Ishikawa Prefecture, as well as Himi City in Toyama Prefecture; hereinafter referred to as "Area A"). This was significantly lower than the corresponding percentage (approximately 45%) observed in other surveyed areas (Areas B and C[6]) **(Figure 2)**. Also, when comparing the percentages of respondents who "considered television broadcasting to be useful before the earthquake" with those who "actually used television broadcasting at the time of the earthquake" by area, the values for the two options were similar in Areas B and C, whereas the percentage of those who "actually used television broadcasting at the time of the earthquake" was lower in Area A **(Figure 3)**. This suggests that in Area A, where damage from the earthquake was particularly severe, many affected residents were unable to access television broadcasting immediately after the earthquake.

**Figure 2: Percentage of respondents who first used television broadcasting (by area of residence)**



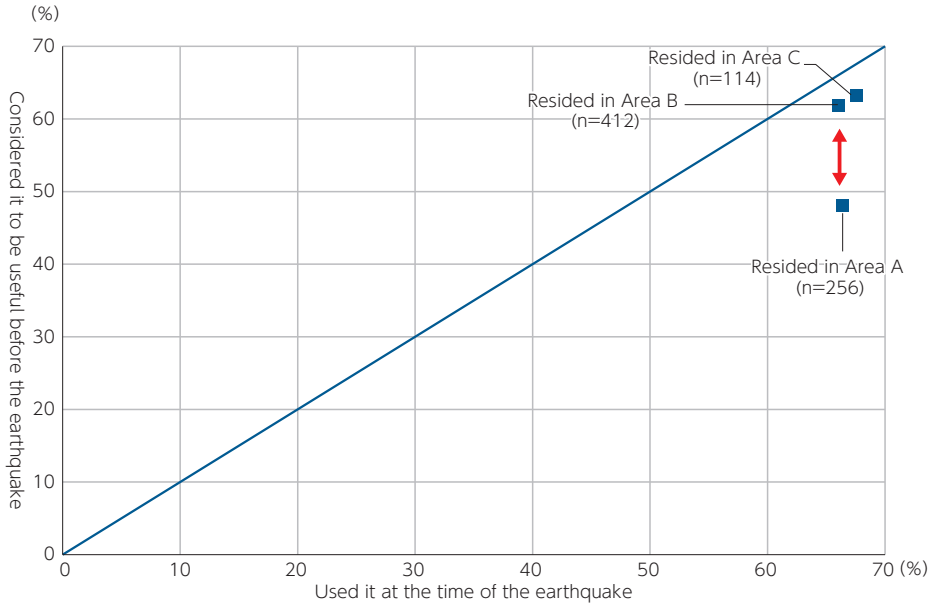

Note: Respondents of these questions are survey respondents who "gathered information and checked the safety of others at the time of the earthquake".

(Source) MIC "Survey on Digital Utilization Trends in the 2024 Noto Peninsula Earthquake"

[5] In this context, "television broadcasting" includes terrestrial broadcasting, simulcast streaming of TV programs, catch-up/on-demand streaming of TV programs, satellite broadcasting, and cable television broadcasting. Among the 289 respondents who selected "television broadcasting" in Figure 3, the number of those who selected "catch-up/on-demand streaming of TV programs" was zero, and those selected "simulcast streaming of TV programs" was seven. Together they only account for approximately 2% of the total, indicating that the overwhelming majority of respondents obtained information through conventional "television devices."

[6] Area B: Kanazawa City, Nakanoto Town, and Hakui City
Area C: Kaga City, Kahoku City, Komatsu City, Tsubata Town, Nomi City, and Hodatsushimizu Town

**Figure 3: Relationship between the percentage of respondents who considered television broadcasting to be useful before the earthquake and the percentage of those who used it at the time of the earthquake (by area of residence)**




(Source) MIC "Survey on Digital Utilization Trends in the 2024 Noto Peninsula Earthquake"

The results of the Survey of Disaster-Affected Areas highlight the importance of television broadcasting as an information-gathering tool during disasters for residents of the affected areas. However, the results also suggest that in areas that suffered particularly severe damage, people were unable to obtain information through television broadcasting, although it had been recognized as a useful tool for gathering information during disasters.

During the Noto Peninsula Earthquake, television broadcasts were interrupted due to power outages and disconnections in transmission lines. In order to deliver comprehensive information to affected residents during disasters in a reliable manner, it is necessary to facilitate the provision of disaster-related information through various communication channels and to further strengthen the resilience of broadcast networks.

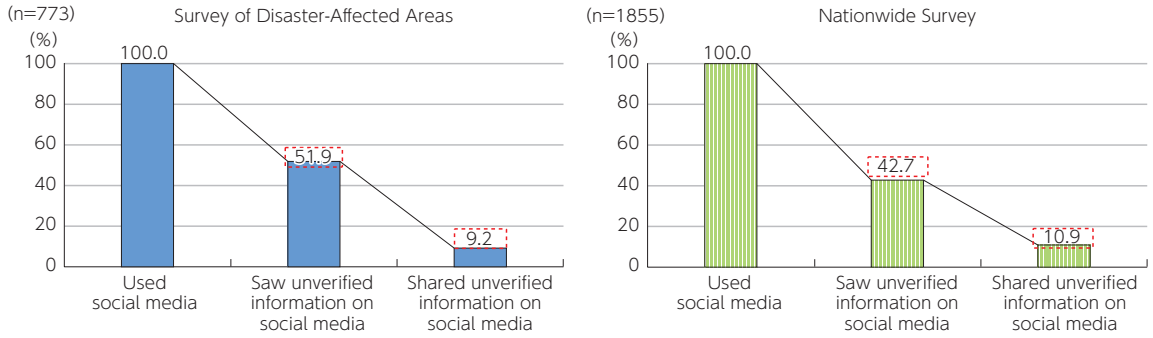
## 4. Impact of unverified information posted on social media

With respect to ICT usage during the Noto Peninsula Earthquake and the Kumamoto Earthquake, a major difference between the two is that the use of smartphones and social media had spread across a wide range of generations at the time of the Noto Peninsula Earthquake. The Nationwide Survey confirmed that unverified information was circulated and spread on social media platforms, and the Survey of Disaster-Affected Areas also confirmed instances where unverified information was circulated and spread on social media, and that such information affected disaster people in disaster-affected areas, including temporary visitors, as well as on local governments and other organizations.

### (1) Awareness and spread of unverified information on social media

51.9% of respondents who used social media encountered unverified information related to the Noto Peninsula Earthquake on social media, and 9.2% of respondents said they had shared the information they saw on social media. Compared with the Nationwide Survey, the percentage of respondents who encountered unverified information on social media was higher in the Survey of Disaster-Affected Areas. This suggests that residents of affected areas were more likely to encounter unverified information related to the earthquake on social media **(Figure 4)**.

**Figure 4: Awareness and spread of unverified information on social media**




Note: Respondents of these questions are survey respondents who "used at least one type of social media".

(Source) MIC "Survey on Digital Utilization Trends in the 2024 Noto Peninsula Earthquake"

Looking at the percentage of respondents who encountered unverified information by information type and social media platform, X was the highest in both the Survey of Disaster-Affected Areas and the Nationwide Survey, with little difference between the two surveys. However, a notable characteristic of the respondents of the Survey of Disaster-Affected Areas, when compared with those of the Nationwide Survey, was that the overall percentage of respondents who encountered unverified information on X was relatively lower, while the percentage of those who encountered such information on LINE was higher. In particular, the percentage of respondents who saw posts related to public safety on LINE was significantly higher in the Survey of Disaster-Affected Areas.

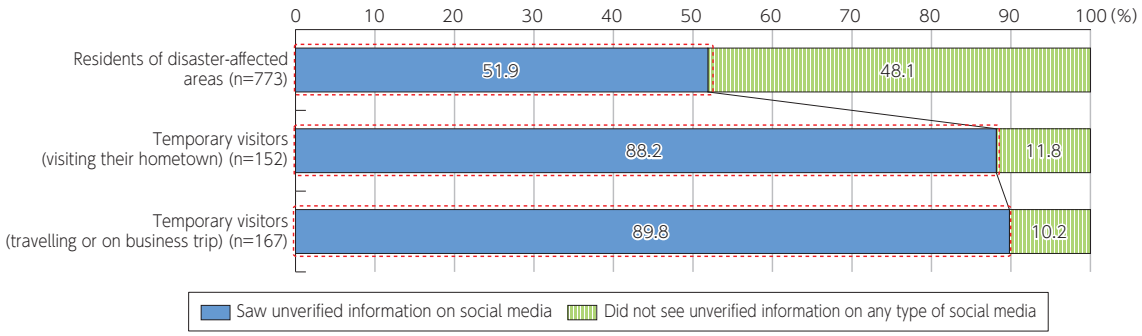
#### (2) Impact of unverified information posted on social media

It was also confirmed through the interviews that there were cases where dis-/mis-information was shared and circulated via LINE in the disaster-affected areas of the Noto Peninsula Earthquake, including through LINE's open chat function within local community groups. This suggests that while LINE was actively used for information sharing in the disaster-affected areas, it also became a route through which unverified information could easily circulate. Furthermore, the interviews revealed that in areas that suffered particularly severe damage, local governments, etc. received inquiries requesting emergency dispatches based on unverified information on persons in need of rescue that was circulated on social media. However, in many cases, when rescue personnel arrived at the scene, no one was found to be in need of rescue. This shows that unverified information on social media also affected the rescue operations of local governments.

#### (3) Comparison between residents and temporary visitors in the disaster-affected areas

Given that the earthquake occurred on New Year's Day, the target of the Survey of Disaster-Affected Areas included not only residents of the disaster-affected areas but also "temporary visitors" in Area A, such as people who were visiting their hometowns for the holidays or travelers in the area. Among social media users, the percentage of those who encountered unverified information was approximately 50% among local residents. On the other hand, the corresponding percentage among temporary visitors was extremely high at around 90% **(Figure 5)**. By social media platform, both groups most frequently encountered unverified information on X, but among temporary visitors, the percentage of people who encountered such information on LINE was as high as on XLINE was used as frequently as X, indicating a different trend from that of local residents **(Figure 6)**.

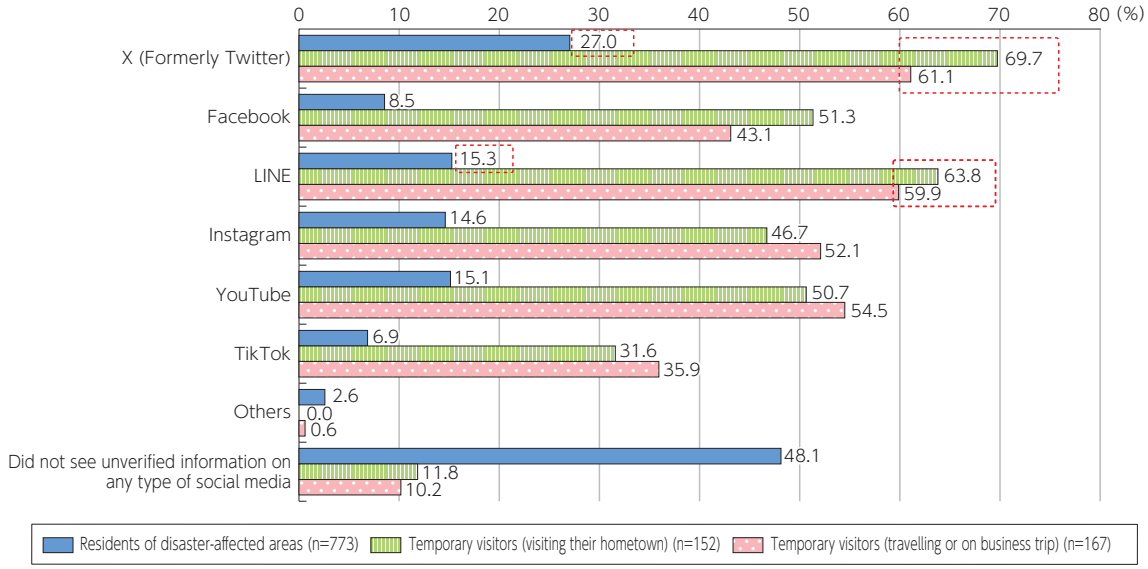
**Figure 5: Awareness of unverified information (single answer; by location of residence/visit)**




Note: Respondents of these questions are survey respondents who "used at least one type of social media".

(Source) MIC "Survey on Digital Utilization Trends in the 2024 Noto Peninsula Earthquake"

**Figure 6: Awareness of unverified information (multiple answers allowed; by location of residence/visit and type of social media)**

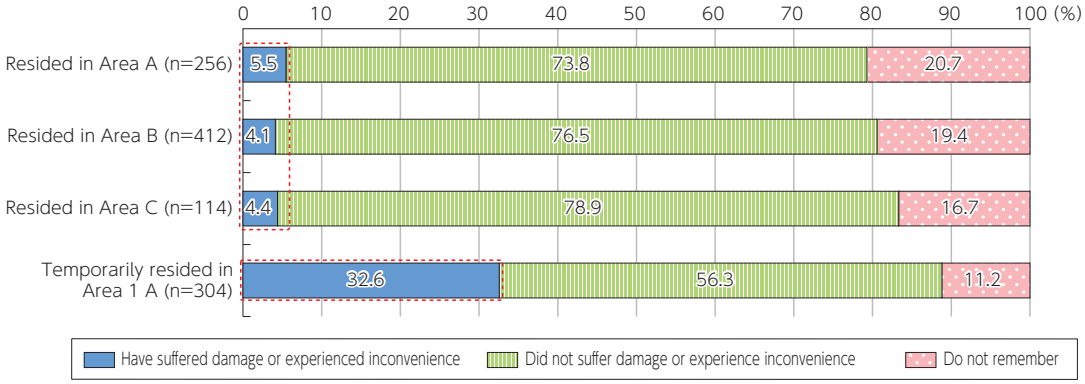



Note: Respondents of these questions are survey respondents who "used at least one type of social media".

(Source) MIC "Survey on Digital Utilization Trends in the 2024 Noto Peninsula Earthquake"

The percentage of respondents who had actually suffered damage or experienced inconvenience from dis-/mis-information related to the earthquake was 32.6% among temporary visitors, compared with about 5% among local residents **(Figure 7)**. Possible reasons for this are: 1) temporary visitors placed greater reliance on social media as an information source during the disaster, thereby increasing their exposure to dis-/mis-information; and 2) they had difficulty obtaining reliable information because they were unfamiliar with the area, making them more susceptible to unverified information on social media.

**Figure 7: Experience of suffering damage or being inconvenienced by dis-/mis-information (single answer; by location of residence/visit)**




(Source) MIC "Survey on Digital Utilization Trends in the 2024 Noto Peninsula Earthquake"

The results of this survey confirm that, even in the awareness of affected residents, unverified information was circulated and spread on social media during the Noto Peninsula Earthquake. The results also revealed that the impact of such information was greater on temporary visitors, who tend to have less access to information during disasters, and that unverified information also affected the actual rescue operations of local governments, etc. Going forward, addressing dis-/mis-information on social media during disasters remains an important issue.

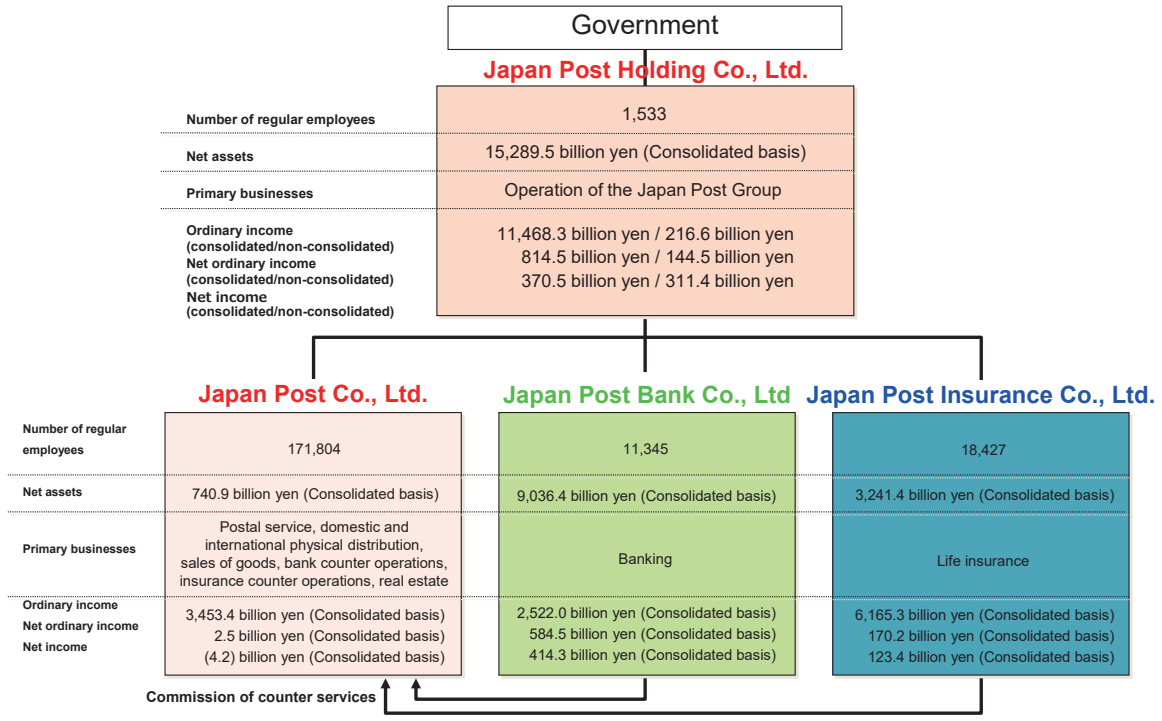
# Section 12 Trends in postal service and correspondence delivery business

## 1. Postal service

### (1) Japan Post Group

Since October 1, 2012, the Japan Post Group has been operating under a four-company structure with Japan Post Holding as the holding company. (**Figure 2-1-12-1**). Japan Post Holdings holds 100% of the issued shares of Japan Post as well as 50.04% of the voting rights of Japan Post Bank and 49.8% of the voting rights of Japan Post Insurance (as of the end of March 2025).

**Figure 2-1-12-1 Japan Post Group organization chart**




*1 The "net income" of each company is the net income attributable to parent company shareholders.

(Source) Prepared based on financial results for the period ending March 2025 and Japan Post Group Integrated Report 2024 (disclosure report)

Japan Post Group's consolidated financial results for FY2024 show ordinary income of approximately 11 trillion yen and net income of 370.5 billion yen **(Figure 2-1-12-2)**.

**Figure 2-1-12-2 Japan Post Group management status**

(100 million yen)

| Fiscal year | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Ordinary income | 119,501 | 117,204 | 112,647 | 111,385 | 119,821 | 114,683 |
| Net ordinary income | 8,644 | 9,141 | 9,914 | 6,576 | 6,683 | 8,145 |
| Net income | 4,837 | 4,182 | 5,016 | 4,310 | 2,686 | 3,705 |

(Source) Prepared based on Japan Post Holdings "Financial Highlights"

### (2) Japan Post Co., Ltd.

#### A Financial status

For FY2024, Japan Post (consolidated) reported 3,442.3 billion yen in operating income, 3.5 billion yen in net operating income, 2.5 billion yen net ordinary income, and 4.2 billion yen in net loss, indicating an increase in revenue and a decrease in profit.

By business segment, the postal and domestic logistics business recorded 2,080.8 billion yen in operating income, 2,119.2 billion yen in operating expenses, and 38.3 billion yen in net operating loss, an improvement of 30.4 billion yen compared with the previous fiscal year. The post office business recorded 1,008.7 billion yen in operating income, 985.5 billion yen in operating expens-

es, and 23.1 billion yen in net operating income, a decrease of 25.3 billion yen[1] compared to the previous fiscal year (**Figure 2-1-12-3**).

**Figure 2-1-12-3 Changes in net operating income (loss) of Japan Post (consolidated)**

(100 million yen)

| Fiscal year | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Postal and Domestic Logistics Business | 1,475 | 1,237 | 1,022 | 328 | △688 | △383 |
| Post Office Business | 445 | 377 | 245 | 493 | 729 | 231 |
| Real Estate Business | – | – | – | – | – | 139 |
| International Logistics Business | △ 86 | 35 | 287 | 107 | 95 | 133 |
| Japan Post (consolidated) | 1,790 | 1,550 | 1,482 | 837 | 63 | 35 |

* Starting from the fiscal year ending March 2025, the business segment classification was changed, and the results of the new "real estate business segment" are disclosed.

(Source) Prepared based on Japan Post Holdings "Financial Highlights"

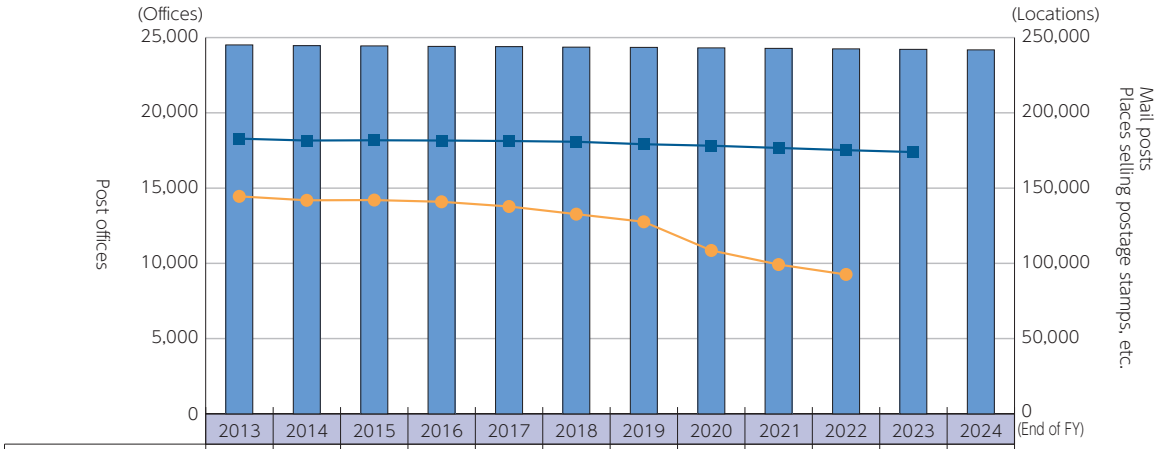
In addition, the postal business of Japan Post recorded net operating loss of 89.6 billion yen for FY2023.

**Figure (related data) Income and expenditure of the postal business**
Source: Prepared based on Japan Post "Status of Income and Expenditure of the Postal Business"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00369
(Data collection)

### B Number of postal facilities

As of the end of FY2024, the number of postal offices stood at 24,185, remaining stable **(Figure 2-1-12-4)**.

**Figure 2-1-12-4 Changes in the number of facilities related to postal services**




| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Post offices | 24,511 | 24,470 | 24,452 | 24,421 | 24,395 | 24,367 | 24,341 | 24,311 | 24,284 | 24,251 | 24,223 | 24,185 |
| Mail posts | 182,839 | 181,521 | 181,692 | 181,523 | 181,221 | 180,774 | 179,129 | 178,211 | 176,683 | 175,145 | 173,935 | — |
| Places selling postage stamps, etc. and places selling revenue stamps | 144,504 | 141,888 | 142,104 | 140,881 | 137,790 | 132,613 | 127,633 | 108,624 | 99,244 | 92,578 | — | — |

(Source) Prepared based on Japan Post Group Integrated Report 2024 (disclosure report) and "Information on the number of postal offices (open data)" on the website of Japan Post

This includes 20,133 directly managed post offices (including branch offices and temporarily closed post offices) and 4,052 simplified post offices (including temporarily closed simplified post offices).

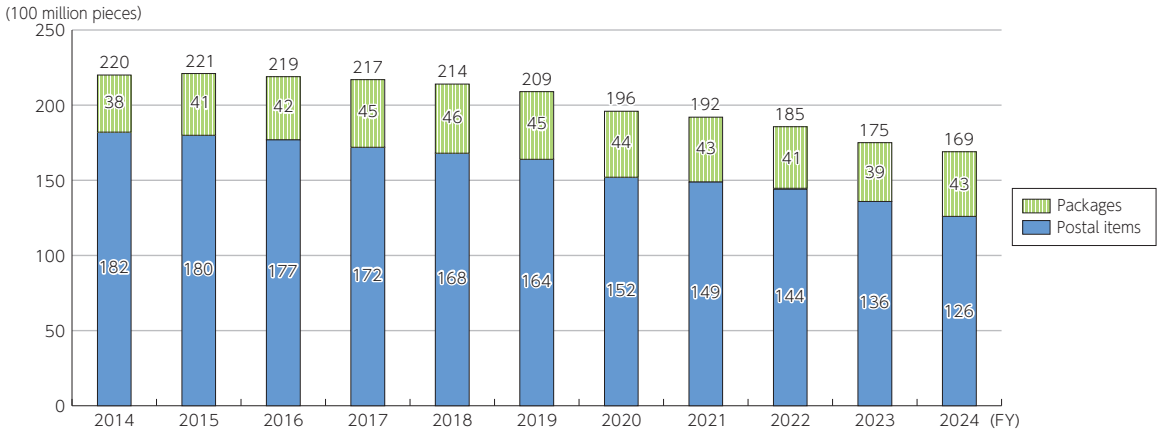
**Figure (related data) Breakdown of the number of post offices (as of the end of FY2024)**
Source: Prepared based on "Information on the number of postal offices (open data)" on the website of Japan Post
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00371
(Data collection)

[1] The difference from operating profit of the post office business in FY2023 after the reclassification to align with the change in the business segment classification from FY2024

**C Volume of accepted postal items**

The total volume of accepted postal items for FY2024 was 16.9 billion pieces **(Figure 2-1-12-5)**.

**Figure 2-1-12-5 Changes in the total number of postal items accepted**




* Following the privatization of postal services, Yu-Pack and Yu-Mail are now provided as packages as defined by the Motor Truck Transportation Business Act, etc., and not as parcels as defined by the Postal Act.

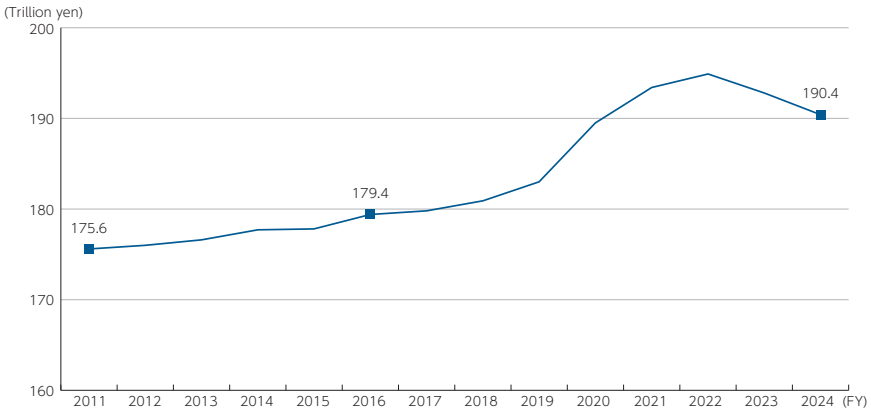
(Source) Prepared based on Japan Post "Number of Accepted Postal Items" for each FY

**(3) Japan Post Bank Co., Ltd.**

Japan Post Bank operates through its directly managed branches (233 branches) and delegates banking agency operations to post offices (approximately 20,000 offices).

The balance of deposits at Japan Post Bank, including postal savings from the government-owned era, was 190.4 trillion yen at the end of FY2024, a decrease of 69.6 trillion yen (26.8%) from the peak of 260.0 trillion yen at the end of FY1999 **(Figure 2-1-12-6)**.

**Figure 2-1-12-6 Changes in the balance of deposits of Japan Post Bank**




* The figure is the sum of savings before and after postal service privatization.

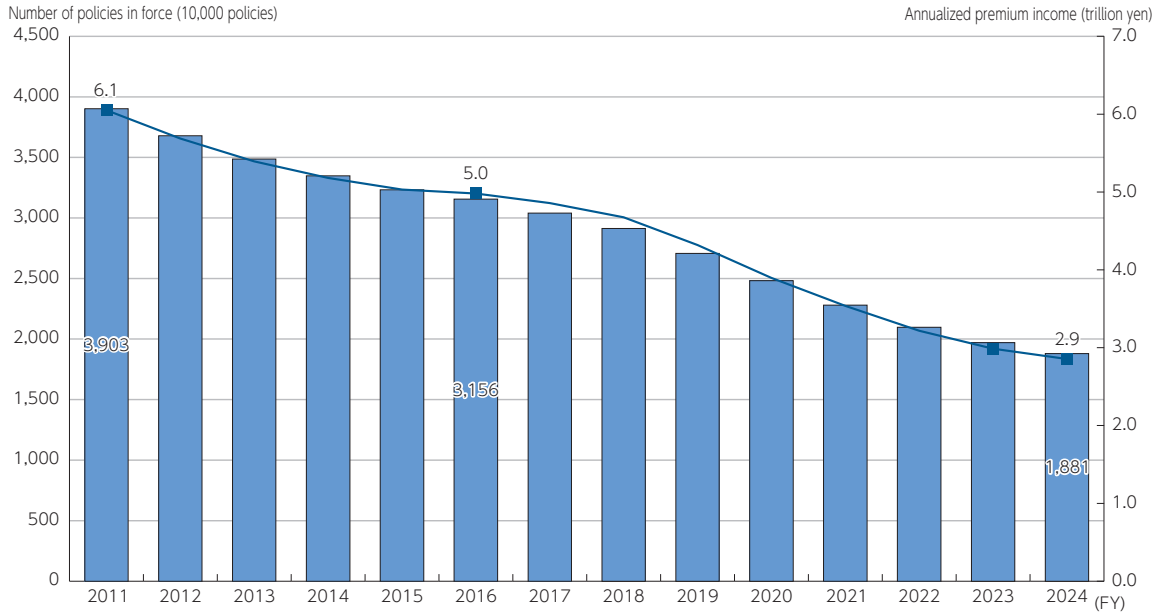
(Source) Prepared based on Japan Post Bank Annual Securities Report

**(4) Japan Post Insurance Co., Ltd.**

Japan Post Insurance operates through its branches (82 branches) and delegates insurance solicitation operations to post offices (approximately 20,000 offices).

The number of policies in force, including postal life insurance from the government-owned era, was 18.81 million at the end of FY2024, a decrease of 65.51 million (77.7%) from the peak of 84.32 million at the end of FY1996. The annualized premium income was 2.9 trillion yen at the end of FY2024, a decrease of 4.8 trillion yen (62.3%) compared with the end of FY2008 (7.7 trillion yen) **(Figure 2-1-12-7)**.

**Figure 2-1-12-7 Changes in the number of policies in force and annualized premium income of Japan Post Insurance**



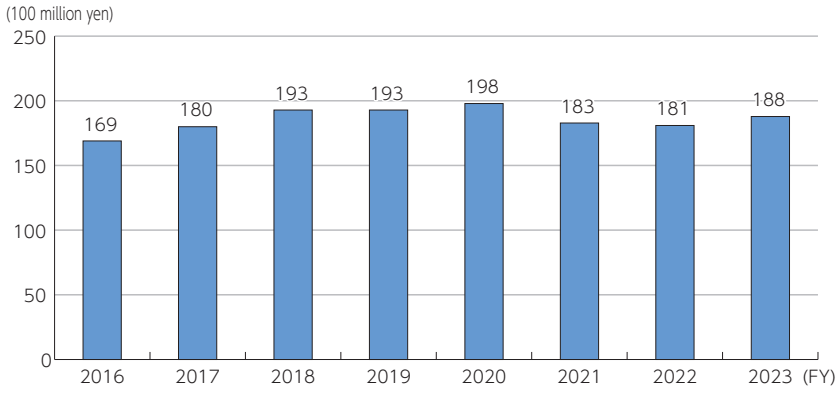

(Source) Prepared based on Japan Post Insurance Securities Report

## 2. Correspondence delivery service

### (1) Sales of correspondence delivery business

The sales of the specified correspondence delivery business for FY2023 were 18.8 billion yen, an increase of 3.9% from the previous fiscal year (**Figure 2-1-12-8**).

**Figure 2-1-12-8 Changes in the sales of correspondence delivery service operators**




### (2) Number of correspondence delivery service providers

Since the enforcement of the Act on Correspondence Delivery by Private Business Operators (Act No. 99 of 2002) in April 2003, there have been no new entrants into the general correspondence delivery business[2], but as of the end of FY2024, 623 providers have entered the specified correspondence delivery business[3]. In addition, by type of services provided, the number of entrants into the class 1 and class 3 services has been increasing.

**Figure (related data) Changes in the number of specified correspondence delivery service operators**
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00376
(Data collection)

[2] "Nationwide full-scale entry" business that can deliver all types of correspondences on condition of providing general correspondence delivery service across the country.
[3] "Specific service type" business with ingenuity. The organization must perform one of three types of specified correspondence delivery service (Class 1 to 3).

**Figure (related data) Changes in the number of business operators by type of service provided**
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00377
(Data collection)

### (3) Correspondence delivery handling performance

The number of accepted correspondence delivery items for FY2023 was 21.16 million pieces, an increase of 5.8% from the previous fiscal year.

**Figure (related data) Changes in the number of correspondences accepted**
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/html/datashu.html#f00378
(Data collection)