88

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

The global ICT market (expenditure)¹ has been on an upward trend since 2016, driven by the proliferation of smartphones and cloud services. In 2023, it is expected

to reach 657.3 trillion yen² (a 10.3% increase from the previous year³), and it is forecasted to expand to 702.1 trillion yen in 2024^4 (Figure 2-1-1-2).

 $^{^{1}}$ The ICT market includes data center systems, enterprise software, devices, ICT services, and communication services.

 $^{^{2}}$ Converted to yen using the average exchange rate for each year, and for 2024, the average exchange rate for 2023 is used (the same applies hereafter).

 $^{^{\}rm 3}$ It should be noted that 2023 was also affected by the weaker yen (the same applies hereafter).

⁴ MIC (2024) "Research on trends in domestic and international ICT markets" (the same applies hereafter).



Figure 2-1-1-2 Changes in global ICT market size (expenditure)

2. Gross Domestic Product (GDP) of the ICT industry⁶

The nominal GDP of the information and communication industry in 2022 was 54.7 trillion yen, a 1.5% increase compared to the previous year (53.9 trillion yen) (Figures 2-1-1-3, 2-1-1-4). When examining the nominal GDP trends by sector within the information and communication 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(2024) "Survey on Economic Analysis of ICT in FY2023"

⁵ https://www.statista.com/statistics/268938/global-it-spending-by-segment/

⁶ The ICT industry has nine areas: 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.

89



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

⁽Source) MIC(2024) "Survey on Economic Analysis of ICT in FY2023"





(Source) MIC(2024) "Survey on Economic Analysis of ICT in FY2023"

3. IT investment⁷

In 2022, private sector IT investment in Japan amounted to 15.8 trillion yen (2015 year prices), a 0.4% increase from the previous year. Software (custom development and packaged software) accounted for 9.7 trillion yen, nearly 60% of the total. The ratio of information investment to total private sector capital investment was 17.9% (a 0.2 percentage point decrease from the previous year), indicating that IT investment holds a significant position within capital investment (Figure 2-1-1-6).

Comparing the trends in IT investment between Japan and the U.S. IT investment showed a rapid recovery after the 2008-2009 Lehman Shock, while Japan's IT investment, although less impacted immediately after the Lehman Shock, has shown a more gradual recovery compared to the U.S. (Figure 2-1-1-7).

⁷ Here the term refers to investment in information and communications capital goods (computers and attachments, 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.

Chapter 1



Figure 2-1-1-6 Changes in IT investment in Japan

(Source) MIC(2024) "Survey on Economic Analysis of ICT in FY2023"



Figure 2-1-1-7 Comparison of IT 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(2024) "Survey on Economic Analysis of ICT in FY2023"

4. Exports and imports in the ICT field

In 2022, the nominal value of exports and imports of goods and services was 107.3 trillion yen for exports and 152.8 trillion yen for imports. Among these, ICT goods and services⁸ accounted for 13.9 trillion yen in exports (13.0% of total exports) and 23.1 trillion yen in imports (15.1% of total imports). The trade deficit for ICT goods

was 5.6 trillion yen (a 45.6% increase from the previous year), and the trade deficit for ICT services was 3.6 trillion yen (a 10.6% increase from the previous year) (Figure 2-1-1-8).

Examining the trends in ICT goods and services exports and imports, ICT services have consistently

⁸ In the table of 77 endogenous sectors, ICT goods and services refers to 1 to 43 and general goods and services refers to 44 to 77 (see in Annotation 4 of Appendix in the 2023 White Paper on Information and Communications in Japan). ICT goods includes communications devices such as personal computers and mobile phones, electronic components such as integrated circuits, televisions and radios, etc. and ICT services includes fixed and mobile telecommunications services, broadcasting services, software businesses, newspapers and publications, etc.

Chapter 1

92

shown a trade deficit since 2005. On the other hand, ICT goods, which had a trade surplus in 2005, have shown a trend of increasing imports and decreasing exports, re-

sulting in a trade deficit in recent years. ICT goods account for nearly 70% of both export and import values (Figure 2-1-1-9).

Figure 2-1-1-8 Changes in the value of import and exports of goods and services (nominal)



(Source) Prepared based on MIC "ICT Inter-Industry Table" (for each FY)



(Trillion yen) 18.0 155 16.0 14.0 12. 12.0 11.4 1-1-1 107 10 9.9 10.0 8.8 87 8. 8.0 7.7 8.0 6.7 7.7 5.8 6.0 6.2 4.0 5.9 4.0 3/ 2.9 2.3 19 2.0 3.2 0.0 0.9 2019 2020 2022 (Year) 2005 2011 2015 2018 2021 ICT goods (Import) ICT goods (Export) ICT services (Import) ICT services (Export)

* There are different blanks in the data from 2005 to 2018 so trends are shown sashed lines.

(Source) Prepared based on MIC "ICT Inter-Industry Table" (for each FY)

The balance of digital-related services has been in deficit in recent years, with a deficit of 5.3 trillion yen in 2023⁹. Among these, "Communication, Computer, and Information Services," which include fees for cloud ser-

vices and online meeting systems, have the largest deficit with Singapore (341.4 billion yen), followed by the Netherlands (307.0 billion yen) and the U.S. (230.4 billion yen).

⁹ Here, it refers to computer services, copyright fees, and management/consulting services. Calculated by the MIC from the Ministry of Finance's balance of payments statistics.



Figure (related data) Balance of digital-related services by country (top 3 countries) Source: Prepared based on the Ministry of Finance's balance of payments statistics URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00110 (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

In 2020, the U.S. maintained the top position in research and development expenditure at 76.9738 trillion yen. Following the U.S. are 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 Source: Japan Science and Technology Agency, Research and Development Strategy Center "Overview of Research and Development Report (2023)" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00114 (Data collection)

B Situation of research and development expenditure in our country

In FY2022, the total amount of research and development expenditure in our country (the sum of research expenditure by business enterprises, non-profit institutions and public organizations, universities and colleges) was 20.704 trillion yen, with the R&D expenditures of business enterprises amounting to 15.1306 trillion yen. Among the R&D expenditures of business enterprises, the R&D expenditures in the information and communications industry¹⁰ was 3.6433 trillion yen (24.1%) (Figure 2-1-1-10), and it has shown a trend of decrease or stagnation in recent years (Figure 2-1-1-11).

Figure 2-1-1-10 Percentage of R&D expenditures of business enterprises (FY2022)



(Source) Prepared based on MIC "2023 Survey of Research and Development"11

¹¹ https://www.stat.go.jp/data/kagaku/index.html

¹⁰ 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 services incidental to the Internet and other ICT businesses).



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

(2) Situation of persons employed in research and development

A Trends in the number of researchers in major countries

The number of researchers in major countries¹³ is increasing. In 2022, the number of researchers in Japan was 705,000, ranking third in size after China (1.866 million in 2018) and the U.S. (1.493 million in 2020). Look-

ing at the latest values for other countries in descending order, the Republic of Korea (471,000 in 2021), Germany (460,000 in 2021), France (340,000 in 2021), and the UK (296,000 in 2017).



Figure (related data) Changes in the number of researches in major countries Source: National Institute of Science and Technology Policy in the MEXT "Science and Technology Indicators 2023" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00125 (Data collection)

B Number of researchers in our country

At the end of FY2022, the number of researchers in our country (the total number of researchers in business enterprises, non-profit institutions and public organizations, universities and colleges) was 910,393 with the number of researchers in companies being 530,587. Among the researchers in business enterprises, the number of researchers in the information and communication industry was 153,854 (29.0%), showing a decreasing trend in recent years (Figure 2-1-1-12).



Figure 2-1-1-12 Trend in the number of researchers in business enterprises

(Source) Prepared based on MIC "Survey of Research and Development" for each FY14

¹² https://www.stat.go.jp/data/kagaku/index.html

¹³ Measured by converting research work into fulltime employment.

 $^{14}\ https://www.stat.go.jp/data/kagaku/index.html$



Figure (related data) Percentage of the number of researchers at business enterprises by industry (as of March 31, 2023) Source: Prepared based on MIC "2023 Survey of Research and Development"

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00127 (Data collection)

(3) Patent situation

The number of patent applications to the U.S. was 591,000 in 2021. 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 289,000 in 2021, 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 families¹⁵ in the fields of technology 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 2-1-1-13).





(Source) National Institute of Science and Technology Policy in the MEXT "Science and Technology Indicators 2023"



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 2023" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00129 (Data collection)

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

The ratio of research and development expenses to sales in 2022 for major domestic and international information and communication-related companies, excluding some such as IBM, remained below 10% (Figure 2-1-1-14).

For major Japanese telecommunications companies,

the ratio of research and development expenses to sales in 2022 was 2% for NTT, and less than 1% for KDDI and SoftBank, while GAFAM¹⁶, excluding Apple, had a ratio of approximately 10% to 35%, indicating an active commitment to research and development (Figure 2-1-1-15).

¹⁶ Alphabet (Google), Amazon, Meta (facebook), Apple, Microsoft

¹⁵ 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/2021/RM311_45.html



Figure 2-1-1-14 Comparison of research and development expenditure by telecommunications carriers, communications devices and IT service providers (2022)

(Source) Prepared based on the annual reports etc. by each company



Figure 2-1-1-15 Comparison of research and development expenditure between major Japanese companies and GAFAM (2022)

(Source) Prepared based on the annual reports etc. by each company

(5) Example of research and development of new technologies in the ICT field: IOWN Optical and Wireless Network fusion device

The "Innovative Optical and Wireless Network (IOWN)" concept, led by NTT, aims to create a rich society that optimizes individual and collective diversity based on all information, utilizing innovative technologies centered around light to provide high-speed, highcapacity communication and vast computing resources beyond the limitations of existing infrastructure, including network and information processing platforms, including terminals.

The optical-electronic fusion technology in the IOWN concept is a technology that integrates circuits handling electrical signals and circuits handling optical signals,

96

particularly important for high-speed transfer of large amounts of data in server-to-server communication and internal computer communication. By integrating electronic and optical devices into a single system, opticalelectronic fusion devices can improve data transfer speeds and energy efficiency, making them essential in the IOWN concept. The optical-electronic fusion devices developed in IOWN 2.0 achieve optical connections between boards using tile-type optical engines, promoting low-latency and low-power consumption in All-Photonics Network (APN). Furthermore, the optical-electronic fusion devices developed in IOWN 3.0 enable optical connections between packages by placing the optical-electronic fusion parts next to the silicon (die) inside the package, allowing further miniaturization and low-power consumption of boards. IOWN 2.0 realizes optical connections between boards, IOWN 3.0 realizes optical connections between chips, and IOWN 4.0 is expected to achieve optical connections within chips. By FY2025, board connection devices for IOWN 2.0, by FY2028, chip-to-chip connection devices for IOWN 3.0, and from 2032 onwards, chip internal opticalization for IOWN 4.0 are expected to be achieved, aiming to realize new devices with 100 times the power efficiency (**Figure 2-1-1-16**)¹⁷.





(Source) NTT (2023) "IOWN Technology Report 2023"

 $^{\rm 17}$ https://www.rd.ntt/download/NTT_IOWN_TR2023_J.pdf $~({\rm accessed \ on \ December \ 22, \ 2023})$

Section 2 Trends in the telecommunication field

1. Trends in the domestic and overseas telecommunications market

The number of fixed broadband service subscriptions worldwide¹ has been on the rise since 2005 in all regions (**Figure 2-1-2-1**). Particularly, the Asia-Pacific region has seen a significant increase since 2015, surpassing 850 million in 2023, with an average annual growth rate of 14.0% from 2005 to 2023. The second-largest number of subscribers is in North and South America, with an average annual growth rate of 8.1%, followed by Europe with 7.7%.

The number of mobile phone subscriptions² has also

been increasing in all regions. The Asia-Pacific region has the highest number of subscriptions, reaching 4.93 billion in 2023, with an average annual growth rate of 10.4% from 2005 to 2023. Following this, the regions with the most subscribers in descending order are North and South America (5.2% annual growth rate), Africa (15.0%), Europe (2.1%), the Arab region (10.2%), and the CIS (5.7%), with Africa experiencing the most rapid expansion in mobile phone subscriptions (**Figure 2-1-2-2**).





* ITU statistics. Fixed-broadband subscriptions are listed. Fixed broadband refers to high-speed connections that provide a transmission speed of 256kbps or higher in either the upstream or downstream direction, or both. High-speed connections include cable modems, DSL, fiber optics, satellite communications, fixed wireless access, and WiMAX, but do not include the number of data communication contracts using mobile networks (cellular systems).

(Source) ITU³



Figure 2-1-2-2 Changes in the number of mobile phone subscriptions (by region)

* ITU statistics. Mobile-cellular subscriptions are listed. The number of contracts includes postpaid and prepaid contracts. However, in the case of prepaid contracts, only those used for a certain period (e.g., 3 months) are included. Data cards and USB modems are not included.

(Source) ITU⁴

¹ Statistics from the ITU. Fixed-broadband subscriptions are shown. Fixed broadband refers to high-speed lines providing a communication speed of 256 kbps or faster for either or both uplink and downlink. High-speed lines include cable modems, DSL, optical fiber and satellite communications, fixed wireless access and WiMAX, etc., but do not include mobile network (cellular system) based data communications subscriptions.

² Statistics from the ITU. Mobile-cellular subscriptions are shown. The number includes deferred-payment subscriptions and prepaid subscriptions. Prepaid subscriptions are included only when the service was used for a fixed period of time (e.g., three months). Data card and USB modem subscriptions are not included.

³ https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

⁴ https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

2. Current status of the telecommunications field in Japan

(1) Market size

The total revenue of the telecommunications industry for FY2022 is estimated to be approximately 15 trillion yen. Breaking it down, data transmission (both fixed and mobile) accounts for about 9.3 trillion yen (62.4%), and voice transmission (both fixed and mobile) accounts for about 4.4 trillion yen (29.5%) (Figure 2-1-2-3).



Trillion yen

*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.

(Source) Prepared based on MIC "2023 Basic Survey on the Information and Communications Industry"⁵

Fixed data transmissio 2.8 Trillion yen 18.6%

(2) Number of carriers

As of the end of FY2023, the number of telecommunications carriers is 25,534 (338 registered carriers and 25,196 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
Number of telecommunication carriers	18,177	19,079	19,818	20,947	21,913	23,111	24,272	25,534

(Source) Information and Communications Statistics Databese

(3) Infrastructure development status

As of the end of March 2023, the national coverage rate for fiber optic broadband services (household cov-

erage rate) is 99.84% (Figure 2-1-2-5).

6 https://www.soumu.go.jp/johotsusintokei/field/tsuushin04.html





Fiber optic broadband service coverage rate by prefecture

*Based on the basic resident register, etc., the number of the households that can use optical fiber in the areas as estimated based on carrier information on a certain assumption was divided by the number of total households (rounded off to two decimal places).



(Source) Survey on Broadband Infrastructure Coverage Rate at End of FY20227

According to the OECD, as of June 2023, the proportion of fiber optics in Japan's fixed broadband is the second highest among member countries, indicating that Japan's digital infrastructure is highly developed on an international scale.



Figure (related data) Percentage of optical fiber in fixed broadband in the OECD member countries Source: OECD Broadband statistics. 1.10. Percentage of fibre connections in total fixed broadband, June 2023 URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00141 (Data collection)

Additionally, as of the end of March 2023, the nationwide 5G population coverage rate in Japan is 96.6%, and all prefectures have exceeded 80% (Figure 2-1-2-6).

Figure 2-1-2-6 Japan's 5G coverage as percentage of population (as of end of March 2023)



7 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 our country 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 an 18.1% increase compared to the same month of the previous year as of November 2023. The total download traffic for mobile communication also continues to increase, with a 19.6% increase compared to the same month of the previous year as of November 2023 (Figure 2-1-2-7).





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

*3 Prior 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 2023)" (measured in March, June, Sept, and Dec)

(Source) MIC (2024) "Results of Aggregating Internet Traffic in Japan (for November 2023) "8

(5) The status of use of broadband

As of the end of December 2023, the number of fixed broadband subscriptions⁹ was 46.59 million (a 1.3% increase from the same period of the previous year). Among the subscriptions for mobile ultra-high-speed broadband¹⁰, the number of 3.9-4th generation mobile phones (LTE) was 120.88 million (a 7.1% decrease from

the same period of the previous year), 5th generation mobile phones was 86.51 million (an increase of 23.35 million from the same period of the previous year), and BWA was 86.82 million (a 4.7% increase from the same period of the previous year) (Figure 2-1-2-8).

8 https://www.soumu.go.jp/main_content/000929698.pdf

⁹ The number of fixed-line broadband subscription is the sum of the FTTH, CATV (limited to coaxial, HFC), DSL and FWA subscriptions.

¹⁰ This is the number of LTE, BWA and 5G subscriptions, and does not include 3G or PHS subscriptions.

^{*2} Including some corporations



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 FY2023 (End of December)) "

(6) Satellite communications

Satellite communications utilize both geostationary satellites12 and non-geostationary satellites13 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.

13:005

827

12,088

216

2022

2023 (End of year)



Figure (related data) Major geostationary satellites used as communication services in Japan (as of end of FY2023) URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00149 (Data collection)



102

Figure (related data) Major non-geostationary satellites used as communication services in Japan (as of end of FY2023)

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00150 (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 service14, 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) and 0ABJ- IP phone services has been showing steady growth. As of the end of December 2023, the number of mobile communication contracts is approximately 15.8 times that of fixed communication contracts (Figure 2-1-2-9).

Furthermore, as of the end of December 2023, the market share of mobile communication contracts by operator is as follows: NTT DOCOMO at 34.9% (a decrease of 1.2 percentage points from the same period of the previous year, including those provided to MVNO, the share becomes 40.7%), KDDI Group at 26.8% (a decrease of 0.2 percentage points, 30.5%), SoftBank at 20.4% (a decrease of 0.5 percentage points, 25.9%), Rakuten Mobile at 2.6% (an increase of 0.4 percentage points), and MVNO at 15.2% (an increase of 1.4 percentage points) (Figure 2-1-2-10).

¹¹ https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000238.html

¹² 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

¹³ These satellites orbit at lower altitudes than geostationary satellites. Due to their lower orbit, they have lower transmission delays compared to 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.

¹⁴ Non-NTT telephone services are subscribed telephone services by telecommunications carries 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 FY2023, data up to the end of December was used, so care must be taken when comparing over time.

*2 Mobile communications is the sum of mobile phones, PHS and BWA.

*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 method for the adjusted subscription numbers before the fourth quarter of the FY2014 and after the fourth quarter of the FY2015.

(Source) Prepared based on MIC "Publication of Quarterly Data on the Number of Subscriptions and Share of Telecommunications Services (Q3 of FY2023 (End of December))



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

*1 "After intra-group transaction adjustments" mea ns 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 The share of the KDDI Group included KDDI Okinawa Cellular and UQ Communications.

*3 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.

*4 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 based on MIC "Publication of Quarterly Data on the Number of Subscriptions and Share of Telecommunications Services (Q3 of FY2023 (End of December))"

(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 2024, the smartphone (4G, for the leading MNO, for new contracts) fees in Tokyo are

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, are also at a median level.

Figure (related data) International comparison of mobile phone charges by mode (FY2023) Source: MIC "FY2023 Survey on Domestic-Overseas Price Difference of Telecommunication Service" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00161 (Data collection)



Figure (related data) International comparison of fixed telephone charges based on individual charges (FY2023) Source: MIC "FY2023 Survey on Domestic-Overseas Price Difference of Telecommunication Service" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00162 (Data collection)

(9) Status of occurrence of telecommunications service accidents

In FY2022, there were 7,500 reported accidents requiring quarterly reports, of which 10 were classified as serious accidents¹⁵. This represents an increasing trend since FY2019 (Figure 2-1-2-11).



(Source) MIC "Accidents in Telecommunications Services (FY2022) "16

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

A Complaints and Consultations Regarding Telecommunications Services

In FY2023, the number of complaints and consultations regarding telecommunications services received by the MIC was 13,348, which represents a decrease from the previous fiscal year (Figure 2-1-2-12). Additionally, when looking at the content 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).

¹⁵ 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." ¹⁶ https://www.soumu.go.jp/menu_news/s-news/01kiban05_02000302.html

^{*} 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

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 2022 and March 2023)



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

(Source) MIC "Regular Monitoring Meetings on the Implementation Status of Consumer Protection Rules (15th 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 6,463 consultations in FY2023 (Fig**ure 2-1-2-14).** The top five companies for the number of consultations in FY2023 were X (formerly Twitter), Google, Meta, LINE Yahoo, and 5ch (**Figure 2-1-2-15**).



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

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

* Breakdown of the number of consultations (work): By business operator/service (n=7,161) <FY2023> * Number of consultations (work): 6,463 cases



Business opera	Number of requests	Percentage					
X (Forma	ıly Twitter)	1,438	20.1%				
		629					
	Search	230					
Google (total)	map	204	8.8%				
((0(0))	YouTube	164					
	Others	31					
		566					
Meta	Instagram	422	7.00/				
(total)	Facebook	139	7.9%				
	Whatsapp	5					
5 CI	173	2.4%					
Ba	169	2.4%					
		215	3.0%				
	LINE (total)	146	2.0%				
LINE Yahoo!* (total)	Yahoo! (total)	69					
	Yahoo! search	18	1.0%				
	Yahoo! (Others)	51					
Lived	oor Blog	105	1.5%				
Tanuki bu	95	1.3%					
Til	92	1.3%					
FC2	63	0.9%					
Business operator/se	rvices other than above	2,921	40.8%				
Others/	695	9.7%					

- * "LINE Yahoo! (total)" is the sum of the number of "LINE (total)" and "Yahoo! (total)" including the one before merger of LINE and Yahoo! on October 1, 2023.
- *1 It is a total number of consultations (work), and counseling centers do not determine whether or not individual consultations constitute a violation of rights.
- *2 The number of work (6,463 cases) and the total number of graph above (7,161 cases) are not coincident because there is a case in which multiple services are answered.
- *3 It is not strictly compiled statistical information because there are cases where the same service is answered multiple times.
- *4 Some use their own domains, so the actual domain may not be known.

3. New trends in the communications field

(1) Web3

Web3 refers to a decentralized network environment or the concept of the internet based on blockchain technology. It is also used as a general term for technologies such as blockchain and NFTs. According to A.T. Kearney, the global Web3 market is expected to grow from 5 trillion yen in 2021 to 67 trillion yen in 2027, approximately 13 times larger. The domestic market is expected to grow from about 0.1 trillion yen in 2021 to about 2.4 trillion yen in 2027, more than 20 times larger.

The market size here refers to revenue from Web3-



Figure (related data) Size of market related to Web3

Source: Prepared based on the A.T. Kearney "Dramatically Changing Web3 Market"¹⁸ URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00171 (Data collection)

(2) NTN (Non-Terrestrial Network)

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

(Figure 2-1-2-16).

ing NFT shoes, for example¹⁷.

NTN is also expected to be utilized for expanding 5G coverage, with the 5G NTN market size predicted to grow from 4.9 billion dollars in 2023 to 8.8 billion dollars in 2026 (Figure 2-1-2-17).

related businesses, including: (1) protocols (businesses

utilizing blockchain infrastructure itself, transaction fees

for cryptocurrencies, etc.); (2) applications (businesses

utilizing blockchain, in-game purchases in blockchain

games, etc.); and (3) content and IP (value of brands and

animations attached to protocols and applications, block-

chain games using NBA trading cards, etc.). Regarding

the practical application of Web3, the number of large

companies utilizing NFTs is increasing, with Asics sell-



17 https://corp.asics.com/jp/press/article/2021-07-13-1

18 https://www.jp.kearney.com/issue-papers-perspectives/web3-market-growth-scenario

¹⁹ https://www.docomo.ne.jp/info/news_release/2022/01/17_01.html

Figure 2-1-2-17 Estimated global market size of 5G NTN



(Source) TrendForce²⁰

Regarding HAPS, preparations such as the development of wireless equipment and aircraft are being made by mobile phone operators for its introduction as a mobile phone base station, with practical services expected to start in 2026.

In terms of satellite communications, the provision of communication services through "Satellite Constellations" that operate numerous non-geostationary satellites integrally is becoming active, especially among Western companies. For example, SpaceX's satellite communication service "Starlink" enables high-speed, large-capacity communication and has over 3 million users worldwide as of May 2024. Japanese companies are developing domestic services through investments and business partnerships with these companies. Additionally, with the increase in communication speed, satellite communications are being used for broadband services and as backhaul for mobile base stations.



Figure (related data) Change in speed of "Starlink"

Source: IJJ Engineers Blog (IIJ) URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00174 (Data collection)

²⁰ https://www.trendforce.com/presscenter/news/20230413-11642.html

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 broadcaster, including both broadcasting and non-broadcasting income, decreased from the FY2021, amounting to 3.6845 trillion yen in FY2022, a 0.8% decrease from the previous fiscal year.

Breaking it down, the total revenue of private basic terrestrial broadcasters was 2.1623 trillion yen (a 0.4% decrease from the previous fiscal year), the total revenue of private satellite broadcasters was 337 billion yen (a 1.4% decrease from the previous fiscal year), the total revenue of cable television operators was 488 billion yen (a 2.2% decrease from the previous fiscal year), and NHK's operating revenue was 697.2 billion yen (a 1.1% 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 Caluculated based on operating revenues reated 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 operatoes are registered general broadcasters (limited to commercial corporations) that conduct independent broadcasting using cable telecommunications equipment (with both excluding operatoes using the IP multicast method).

*3 NHK's value is ordinary business income.

(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 2023 amounted to 1.7234 trillion yen, with 1.6095 trillion yen related to television broadcasting and 113.9 billion yen related to radio broadcasting¹.



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/r06/html/datashu.html#f00178 (Data collection)

¹ Regarding the entire advertising market, refer to "2 Advertising" in this Section 2.

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

B Financial status of private broadcasters

Private basic terrestrial broadcasters (with an operating profit margin of 4.9% in FY2022), private satellite broadcasters (6.6% in the same period), and cable television operators (8.5% in the same period) all continued to secure profits in FY2022, following FY2021 (Figure 2-1-3-2).





* 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 FY2023, the breakdown of the number of private broadcasters is as follows: 537 companies for private basic terrestrial broadcasters (including 342 companies conducting community broadcasting) and 41 private satellite broadcasters (Figure 2-1-3-3).

End of FY			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
		Television	VHF	16	0.2							05	0.5	05	0.6	06	00
		(single operation)	UHF	77	93	93	94	94	98	94	94	95	95	95	96	96	96
		Medium-wave (AM) broadcasting	13	13	13	14	14	14	14	14	15	15	15	16	16	16	
	Terrestrial	Radio broadcasting	Ultrashort wave (FM) broadcasting	298	307	319	332	338	350	356	369	377	384	384	388	390	393
Ter		operation)	Community broadcasting of the above	246	255	268	281	287	299	304	317	325	332	334	338	339	342
			Short wave	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		Television/rac	Television/radio broadcasting (combined operation)		34	34	33	33	33	33	33	32	32	32	31	31	31
		Text broadcasting (single operation)		1	1	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
			Subtotal		449	461	475	481	500	502	515	526	533	529	534	534	537
	Satellite	Desis satallita	BS broadcasting		20	20	20	20	20	19	19	22	22	20	22	21	21
Sa		broadcasting	110 degrees east longitude CS broadcasting	13	13	22	23	23	23	23	20	20	20	20	20	20	20
		General satell	General satellite broadcasting		82	65	45	7	5	4	4	4	4	4	4	4	3
			Subtotal		108	92	72	46	44	41	39	41	41	39	42	42	41
Cable television	General cable broadcasting pertaining to registration (limited to operatoes of independent broadcasting)	Broadcasting using former authorized facilities (limited to operators of independent broadcasting)	502														
		Broadcasting using former cable services under the former Act Concerning Broadcast on Telecommu- nications Services	26	26		539	520	510	508	504	492	471	464	464	456		
		IP multicast broadcasting of the above	5	5	4	3	3	3	5	5	5	5	5	4	3	-	
	Subtotal		528	556	545	539	520	510	508	504	492	471	464	464	456	_	

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

*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 combined 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 combine more than two 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 telecommunication facilities under the Broadcast Act are included (regarding IP multicast broadcasting, up to FY2010, it is included in former broadcasting using cable services, and from FY2011 it is 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 FY2023, 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 FY2023) URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00181 (Data collection)

B Terrestrial radio broadcasting

For AM broadcasting, 47 private basic terrestrial broadcasters (as of the end of FY2023) are conducting broadcasts.

For FM broadcasting, 393 private basic terrestrial broadcasters (as of the end of FY2023) are conducting broadcasts. Among these, there are 342 community broadcasters, which generally target specific areas within a single municipality.

For shortwave broadcasting, one private basic terrestrial broadcasting (as of the end of FY2023) is conducting broadcasts.

² https://www.soumu.go.jp/main_content/000504511.pdf

111

As of the end of FY2023, there are no operators conducting V-Low multimedia broadcasting, which utilizes

D Satellite broadcasting

(A) Basic satellite broadcasting

For BS broadcasting, NHK, the Open University of Japan, and private broadcasters (21 companies as of the end of FY2023) are conducting broadcasts using artificial satellites operated by Broadcasting Satellite System Corporation, with 9 of these companies conducting

(B) General satellite broadcasting

For general satellite broadcasting, private broadcasters (3 companies as of the end of FY2023) are conduct-

E Cable television

As of the end of FY2022, there were 456 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 the frequency band of 99MHz-108MHz made available by the digitalization of terrestrial television broadcasting.

4K/8K satellite broadcasting. Additionally, for CS broadcasting at 110 degrees east longitude, private broadcasters (20 companies as of the end of FY2023) are conducting broadcasts using satellites operated by SKY Perfect JSAT Corporation.

ing broadcasts using satellites operated by SKY Perfect JSAT Corporation.

(with 501 or more terminals) for conducting independent broadcasting, the household penetration rate, is approximately 31.62 million households, with a household penetration rate of approximately 52.5% (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 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 FY2023, NHK's domestic broadcasting channels include 2 terrestrial television channels, 3 radio channels, and 4 satellite television channels.



112

Figure (related data) Domestic broadcasting of NHK (the end of FY2023) URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00184

(Data collection)

³ https://www.soumu.go.jp/main_content/000504511.pdf

hapter

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 television and radio international broadcasting of NHK URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00185 (Data collection)

(5) Utilization of broadcasting services

A Number of subscribers

In FY2022, the number of subscribers to broadcasting creased for other broadcasting services (Figure 2-1-3services increased for cable television, while it de-5).



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

*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 FY2022, the number of NHK receiving contracts was approximately 44.48 million. Of these, terrestrial contracts (including standard and color contracts) accounted for about 21.8 million, satellite contracts for about 22.66 million, and special contracts for about 20,000 (Figure 2-1-3-6).



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

(Source) Prepared based on NHK's materials.

(6) Ensuring the safety and reliability of broadcasting equipment

Broadcasting serves as an extremely 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 FY2022, there were 356 incidents of broadcasting interruptions, of which 33 were classified as major incidents⁴, accounting for approximately 9% 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 258, the lowest since the start of data collection in FY2011. However, the number of incidents for general cable broadcasting increased compared to FY2021, with the number of major incidents being the third highest in the past five years. 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" (FY2022)⁵

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

⁴ Accidents falling under Articles 113, 122 or 137 of the Broadcast 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."



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" (FY2022)⁶

2. Content market

(1) Size of Japan's content market

A Market overview

The size of Japan's content market in 2022 was 12.4418 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 but experienced a slight decrease in 2022. By type of content, text-based and audio-based content showed an increasing trend (Figure 2-1-3-10).



Figure 2-1-3-9 Breakdown of the Japanese content market (2022)

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

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

⁷ Rather than aggregation 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 2-1-3-10 Changes in size of the Japanese content market (by content type)



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

B Status of multi-use

The size of the primary distribution market in 2022 was 9.3887 trillion yen, accounting for about 75% of the total market. The breakdown of the primary distribution market is as follows: video-based content at 5.5033 trillion yen, text-based content at 3.1694 trillion yen, and audio-based content at 716 billion yen.

On the other hand, the size of the multi-use market was 3.0531 trillion yen, showing an increase from the previous year. The breakdown is as follows: video-based content at 1.7612 trillion yen, text-based content at 1.1387 trillion yen, and audio-based content at 153.3 billion yen.



Figure (related data) Breakdown of primary distribution market (2022)

Source: MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00192 (Data collection)



Figure (related data) Breakdown of multi-use market (2022)

Source: MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00193 (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 mobile phones, was 5.7199 trillion yen. In terms of market composition by type of content, video-based content accounted for 58%, text-based content for 33.1%, and audio-based content for 8.9%. has been on an increasing trend in recent years. By type of content, video-based content has been increasing due to the growth of movies and internet originals, while text-based content has also been increasing due to the growth of books, comics, and internet originals, contributing to the expansion of the communication-based content market.

The size of the communication-based content market



Figure (related data) Breakdown of the communication content market (2022)

Source: MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00194 (Data collection)



Figure (related data) Changes in the size of the telecommunications 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/r06/html/datashu.html#f00195 (Data collection)

(2) Advertising

116

Looking at the global advertising market, digital advertising is expected to reach 415.5 billion dollars in 2023 (a 6.3% increase from the previous year), expand-

ing its share to 57.7% of total advertising expenditure (Figure 2-1-3-11). Japan's digital advertising market continues to grow. In 2023, internet advertising reached

3.333 trillion yen, while advertising in the four mass media⁸ continued to decline to 2.3161 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 forecast in global advertising expenditures by media type

(Source) Prepared based on Dentsu Group "Global AdvertisementSpend Growth Rate Forecast (2023-2026)"9



Figure 2-1-3-12 Changes in advertising expenditure by media in Japan¹⁰

(Source) Prepared based on Dentsu "Advertising expenditure in Japan (each year)"11



Figure (related data) Changes in global total advertising expenditure

Source: Dentsu Group "Global Advertisement Spend Growth Rate Forecast (2023-2026)" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00198 (Data collection)

8 Television media, newspapers, magazines and radio.

- ⁹ https://www.group.dentsu.com/jp/news/release/001091.html * Figures for the Russian market are excluded.
- 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.
- $^{11}\ https://www.dentsu.co.jp/knowledge/ad_cost/index.html$

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

The export value of broadcast content from Japan continued to increase in FY 2022, reaching 75.62 billion yen (Figure 2-1-3-13). Amid the growth of video distribution services, the proportion of internet distribution rights has increased, while the rights for program broadcasting and video production have decreased.



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 operatoes, 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/r06/html/datashu.html#f00200 (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/r06/html/datashu.html#f00201 (Data collection)

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 Plan¹" 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).





Spectrum	Wave length	Characteristics
Very low	10 to	Propagating along ground surface, waves of this spectrum can go over low hills. Being capable of
frequency	100km	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	100 to	Capable of propagating through reflection off the E-layer of the ionosphere that is formed at the height of
frequency	1000m	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, butare capable of reachingthe 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, butare capable of reachingthe 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	1to 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	0.1mm to	The spectrum has nature similar tolight. It is rarely used for communication but used for radio telescopes
high frequency	1mm	for astronomical observation as is the case of Extremely high frequency.

¹ 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 FY2023, the number of radio stations (excluding radio stations that do not require licenses, such as wireless LAN terminals) was 321.63 million (an increase of 5.2% from the previous fiscal year). Among these, the number of land mobile stations such as mobile phone terminals was 318.11 million (an increase of 5.3% from the previous fiscal year), accounting for 98.9% of the total number of radio stations. Additionally, the number of simple radio stations also increased to 1.5 million (an increase of 4.9% from the previous fiscal year) (Figure 2-1-4-2).



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

*1 Land mobile station: A radio station (such as a mobile phone devices) operated while moving on land or stopped 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 vehicles².

In FY2023, the number of interference and obstruction reports was 2,331, a decrease of 101 cases (4.2% decrease) from the previous fiscal year. Among these, the number of cases of interference with important radio communications increased by 6 cases (1.6% increase) to 391 cases compared to the previous fiscal year. The total number of measures for such interference and obstruction in FY2023, including previously unaddressed cases, was 2,468 (Figure 2-1-4-3).

Furthermore, the number of appearances of unauthorized radio stations in FY2023 decreased by 649 cases (14.5% decrease) to 3,832 cases compared to the previous year. The total number of measures in FY2023, including previously unaddressed cases, decreased by 216 cases (19.7% decrease) to 882 cases compared to the previous year. The breakdown of the total number of measures includes 63 prosecutions (7.1%) and 819 directives (92.9%) **(Figure 2-1-4-4)**.

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



² Regarding obstructions to important radio communications, in FY2010, DEURAS established a 24-hour system for receiving obstruction reports and have 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.

Chapter 1



Number of unlicensed radio stations found		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	(FY)
Stations found	Unlicensed personal radio stations	2,081	2,788	865	784	265	245	99	40	28	25	32	3	7	
	Unlicensed amateur stations	1,367	1,803	2,225	1,592	1,291	1,229	1,749	1,253	1,739	2,959	2,126	1,831	2,028	
	Unlicensed citizens band radio	538	342	642	404	375	478	414	443	477	2,594	5,035	958	472	
	Others	4,917	3,648	3,369	4,541	3,221	2,489	2,508	2,958	4,293	1,187	1,341	1,689	1,325	
	Total	8,903	8,581	7,101	7,321	5,152	4,441	4,770	4,694	6,537	6,765	8,534	4,481	3,832	
Number of actions against unlicensed radio stations															
Number of actions	Prosecution	249	231	228	215	230	168	168	208	189	62	49	94	63	
	Guidance	2,247	3,038	1,764	1,465	2,156	1,196	1,300	1,136	1,058	581	752	1,004	819	
	Total	2,496	3,269	1,992	1,680	2,386	1,364	1,468	1,344	1,247	643	801	1,098	882	

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

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, reaching 16.8348 trillion yen in 2023 (a 9.8% increase 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. However, it turned downward again in 2021, reaching 626.1 billion yen in 2023 (a 6.0% decrease from the previous year)¹ (Figure 2-1-5-2). The breakdown indicates a decrease in telephone application devices² and switches due to the shift from fixed-line phones to mobile and IP phones. Currently, wireless application devices³ and other wireless communication equipment⁴ constitute the largest segments. The production of base station communication equipment has shown significant fluctuations, experiencing a downturn after the completion of 4G investments in 2016 but increasing again from 2020, only to decrease in 2022. Network connection equipment⁵ used for IP communication started to increase in 2019, decreased from 2021 to 2022, and increased again in 2023. Carrier equipment⁶, mainly digital transmission devices, increased from 2019 but turned downward in 2021, only to increase again in 2023.





(Source) Omdia

¹ The production value of other terrestrial mobile communication equipment (part of the production value of other wireless communication equipment) has been undisclosed since 2023, which has had an impact.

² Key telephone system and interphones

³ Maritime/aeronautical radars, wireless location measuring devices, telemeter/telecontrol apparatus, etc.

⁴ Satellite/terrestrial fixed communications equipment, maritime/aeronautical communications equipment, transceivers, etc.

⁵ Routers, hubs, gateways, etc.

⁶ Digital transmission devices, power line carrier devices, CATV carrier devices, optical transmission devices, etc.


Figure 2-1-5-2 Changes in the value of Japan's network equipment production



(2) Market trends by equipment type

A 5G base stations

The global market size (shipment value) for 5G base stations (macro cells) in 2023 was 4.1184 trillion yen (a 3.3% increase from the previous year), while in Japan, it was 315.7 billion yen (a 4.0% increase from the previous year^s) (Figure 2-1-5-3). Although both markets are expected to peak gradually, they are anticipated to maintain high levels. In 2023, the global market share (shipment value) for 5G base stations (macro cells) was led by Huawei (28.0%), followed by Ericsson (24.1%) and

Nokia (19.3%). 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 2022, indicating potential competitiveness for Beyond 5G (Figure 2-1-5-4).





(Source) Omdia

7 https://www.meti.go.jp/statistics/tyo/seidou/index.html

124

⁸ In dollar terms, the market was down 2.7% from the previous year.

Chapter 1

Figure 2-1-5-4 Share of global electronic components market (in terms of sales) (2022)



(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/r06/html/datashu.html#f00210 (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/r06/html/datashu.html#f00211 (Data collection)

B Macro cell base stations (including 5G)

In 2023, the global market share based on shipment value was led by Huawei (31.3%), followed by Ericsson

(24.3%) and Nokia (19.5%), with Japanese companies collectively holding a 2.3% share **(Figure 2-1-5-5)**.





(Source) Omdia

C Enterprise routers

In 2023, the global market share based on shipment value was led by Cisco (70.4%), followed by H3C (10.7%) and Ekinops (2.7%).

In the Japanese market, the shipment value share in 2023 was led by Cisco (28.1%), followed by NEC (25.4%) and Yamaha (21.4%).



Figure (related data) Global enterprise router market share

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00213 (Data collection)



Figure (related data) Japanese enterprise router market share

Source: Omdia URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00214 (Data collection)

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

(1) Market size

The global shipment value of information terminals had been on an upward trend since 2016, but it decreased in 2023 to 76.4787 trillion yen (a 17.1% decrease from the previous year)⁹ (Figure 2-1-5-6). The breakdown shows that smartphones and PCs are the main contributors.

The production value of information terminals in Japan had been declining until 2017, but it started to increase from 2018. However, it turned to a decline again from 2020, and in 2023, it increased to 1.0385 trillion yen (an 11% increase from the previous year) (Figure 2-1-5-7). The breakdown shows that mobile phones and PHS¹⁰ were significant until the mid-2010s, but they have since shrunk, and now desktop PCs, laptop PCs, and information terminals¹¹ are the main contributors.

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



* Tablets have been counted since 2017.

(Source) Omdia

⁹ In dollar terms, the market was down 22.4% from the previous year.

¹⁰ Since 2019, the value of mobile phone and PHS production is no longer disclosed, so the values for radio communications equipment (including satellite communications equipment) are 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.

¹¹ External memories, printers, monitors, etc. Information kiosk terminal devices are excluded because their production was not disclosed in some years.



Figure 2-1-5-7 Changes in the value of Japanese information device production



(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)**. In Japan, the shipment volume of 5G-compatible smartphones was 28.6 million units in 2022 (a 63.2% increase from the previous year). It is predicted that 5G-compatible smartphones will account for 100% of the market from 2024 onwards, expanding to 31.01 million units by FY2028 (Figure 2-1-5-9).



Figure 2-1-5-8 Changes and forecast of global shipment volume of smartphones and 5G smartphones

*1 It is based on makers' shipment volume

*2 Shipment volume of 5G smartphones is an inner number of the one of smartphone.

*3 The data in 2023 is estimated, and the one after 2024 is predicted.

(Source) Yano Research Institute Ltd. "Global Research on the Number of Mobile Phone Service Subscriptions and Shipment Volume of Smartphones" (2023) (published on March 27, 2024)

127

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



B 4K and 8K televisions

The domestic shipment volume of 4K-compatible televisions (50 inches and above) was 2.71 million units in 2022 (an 11.6% decrease from the previous year), and the shipment volume of new 4K8K satellite broadcastcompatible televisions was 2.87 million units in 2022 (an 8.5% decrease from the previous year). Both categories turned to a decline in 2022 (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 it turned to a decline in 2023, reaching 7.65 million units (a 38.9% decrease from the previous year).

"VR (Virtual Reality)", "AR (Augmented Reality)", and "MR (Mixed Reality)") compatible HMDs and smart glasses was 380,000 units in 2022, and it is predicted to increase to 1.02 million units by 2025.

In Japan, the shipment volume of XR (which includes



URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00221 (Data collection)

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

In Japan, there has been a trade deficit since 2010, and in 2021, due to the spread of the novel coronavirus infection and the advancement of digitalization in various countries, the export value of ICT equipment and terminals¹³ in Japan increased to 8.131 trillion yen in 2022 (a 12.0% increase from the previous year). However, the import value increased to 13.3158 trillion yen (a 20.1% increase from the previous year), resulting in a trade deficit of 5.3027 trillion yen (a 35.0% increase from the previous year). In 2022, the U.S. had a trade deficit of 36.3068 trillion yen (a 31.4% increase from the previous year), while China had a trade surplus of 27.9165 trillion yen (a 15.1% increase from the previous year) (Figure 2-1-5-11).



(Source) UNCTAD "UNCTAD STAT"14



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/r06/html/datashu.html#f00223 (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/r06/html/datashu.html#f00224 (Data collection)

¹³ Computers, communications equipment, consumer electronics, electronic components, etc.

14 https://unctadstat.unctad.org/EN/Index.html

4. Trends in the semiconductor¹⁵ market

The global semiconductor market (shipment value) has been on the rise since 2015, reaching 13.3537 trillion yen in 2023 (a 6.4% increase from the previous year)¹⁶. Looking at the breakdown, discrete semiconductors are the most abundant. The sectors that have seen significant growth in recent years are image sensors and MCUs, with the former being dominated by Japanese companies (Sony Semiconductor Solutions) with a 52.0%

share.

Japan's semiconductor market (shipment value) had been declining since 2018, but it turned to an increase from 2021, only to decrease again in 2023 to 997.9 billion yen (a 1.6% 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/r06/html/datashu.html#f00225 (Data collection)



Figure (related data) Changes in global imaging sensor market share (value of shipments in 2022) Source:Omdia

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00226 (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/r06/html/datashu.html#f00227 (Data collection)

¹⁵ 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.

¹⁶ In dollar terms, the market was down 0.4% from the previous year.

1. Market trends

In 2024, looking at the market capitalization of major players in the global ICT-related market, Microsoft, which was ranked second in 2023, surpassed Apple to take the top spot, as it accelerated its AI strategy through a partnership with the U.S.-based Open AI, fueling expectations for demand in generative AI. NVIDIA also made significant progress, rising to third place, buoyed by strong performance and anticipated expansion in demand for semiconductor-related products in the generative AI space. Other companies, such as Taiwan Semiconductor Manufacturing, involved in the semiconductor sector, are being positively evaluated in the stock market (Figure 2-1-6-1).

> Market capitalization (100 million dollars)

> > 31,420

26,380 23,750 18,670 18,660 12,820

6.350

6,260

5.650

4,440

3,960

3,470 3,440 2,970 2,890

2023 2024								
Company name	Major business	Country or region	Market capitalization (100 million dollars)		Company name	Major business	Country or region	
Apple	Hardware, software, services	US	25,470	t	Microsoft	Cloud service	US	
Microsoft	Cloud service	US	20,890	Ļ	Apple	Hardware, software, services	US	
Alphabet/Google	Search engine	US	13,030	t	NVIDIA	Semiconductor	US	
Amazon.com	Cloud service, e-commerce	US	10,270		Amazon.com	Cloud service, e-commerce	US	
NVIDIA	Semiconductor	US	6,650	ļ ↓	Alphabet/Google	Search engine	US	
Meta Platforms/ Facebook	SNS	US	5,370		Meta Platforms/ Facebook	SNS	US	
Tencent	SNS	China	4,690	T t	Taiwan Semiconductor Manufacturing	Semiconductor	Taiwan	
Visa	Payment	US	4,600	t	Broadcom	Hardware, semiconductor	US	
Taiwan Semiconductor Manufacturing	Semiconductor	Taiwan	4,530	Ļ	Visa	Payment	US	
Mastercard	Payment	US	3,440		Mastercard	Payment	US	
Samsung Electronics	Hardware	The Republic of Korea	3,280		Samsung Electronics	Hardware	The Republic of Korea	
Broadcom	Hardware, semiconductor	US	2,610	t	Oracle	Cloud service	US	
Alibaba	e-commerce	China	2,570	Ļ	Tencent	SNS	China	
Oracle	Cloud service	US	2,450	new	Salesforce	Cloud service	US	
Cisco Systems	Hardware, security	US	2,100	new	Advanced Micro Devices (AMD)	Semiconductor	US	

Figure 2-1-6-1 Changes on the top 15 companies by market capitalization in the diobal ICT mark	Figure 2-1-6-1	Changes on the to	o 15 companies b	v market capitalization in t	he global ICT market
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The figures for 2023 are as of March 31, 2023, and the ones for 2024 are as of March 27, 2024.

(Source) *Aquired from Wright Investors' Service, Inc¹

Comparing the 2022 revenues of major platforms in Japan, the U.S., and China², Amazon leads with 514 billion dollars, marking a 2.9-fold increase from 2017 (**Figure 2-1-6-2**). Alibaba from China has experienced a significant growth of 5.4 times compared to 2017, with

revenues of 126.9 billion dollars. On the other hand, Japanese companies, with smaller scales, show comparatively lower growth: Rakuten at 1.7 times, Z Holdings at 1.6 times, Sony at 1.2 times, and Fujitsu at 0.8 times.

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

² Sales of Japanese and Chinese companies were converted to dollars by using the average rate of the respective year.

Chapter 1



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

2. Trends in major platform providers

The major platform companies in the U.S. and China are leveraging their respective strengths to focus on new areas and businesses, including generative AI and the metaverse. In particular, multiple platforms are investing in the development of generative AI, and 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 with major platform providers in the U.S. and China

<the u.s.=""></the>							
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.	Google is enhancing its services by integrating conversational AI "Gemini" (formerly known as Bard) with Google Search, Gmail, YouTube, and other platforms.				
E-commerce	Amazon	It is one of the largest e-commerce operator in the world, with a huge economic sphere centered on cloud services (AWS).	AWS is advancing the use of generative AI in its strong areas, such as generative AI-related services on AWS and shopping assistant AI.				
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.	It is advancing the deployment of generative AI across our entire business, including AI chatbot "Meta AI" and various social networking services.				
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.	It is expanding its business with the iPhone at its core, and the future developments of the XR market will be closely watched to see if the MR headset "Apple Vision Pro" can revitalize it.				
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.	It is focusing on leveraging generative AI, expanding partnerships with OpenAI, and aiming to introduce generative AI services in various scenarios.				

< China >

Key areas	Company	Business overview and areas	New areas and businesses
Advertising, search	Baidu	It is the largest search engine operator in China. The company is focusing on collaboration with various business areas along with AI technology development by abundant data obtained by searching service.	In August 2023, the generative AI service "ERNIE Bot" was publicly released, aiming not only to enhance its own products but also to build an ecosystem by providing AI technology to various companies.
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.	In March 2023, the company announced its plan to split its business into six segments. Amidst the slowdown in domestic e-commerce growth, it is focusing on cross-border e-commerce, public cloud, and AI businesses.
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".	In September 2023, it released in-house developed large-scale language model "Kongen" and are focusing on implementing AI into own services, as well as dedicating efforts to the development of image and video generation AI.
Communications devices, terminals	Huawei	It is a leading global communications device vendor with operations in the following areas: ICT infrastructure, device, cloud service and digital energy.	The 5G smartphones released in August 2023 have been performing well, and the company is focusing on expanding its device business while also venturing into the EV sector, aiming for business diversification.

(Source) Prepared based on published materials by each company



Figure (related data) Sales of major platform providers in the U.S. and China by business Source: Prepared based on financial results material released by each company

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00251 (Data collection)

1. Social media service

The number of social media users worldwide¹ is expected to increase from 4.9 billion in 2023 to 6.05 billion by 2028 (Figure 2-1-7-1). Social media is being used not only for communication purposes but also for watching video content and live commerce. Additionally, metaverse social media, which allows communication within the metaverse space, is becoming popular, especially among young people. It is anticipated that there will be increased integration and convergence among various social media services in the future.

In Japan, the number of social media users is expected

to increase from 105.8 million in 2023 to 113.6 million by 2028 (Figure 2-1-7-2). Social media is evolving from a communication tool primarily for young people to one used by all age groups, and it is expected to see a gradual increase in the future. While platforms like Facebook, Instagram, and X (formerly Twitter) remain mainstream, many new services are emerging that differentiate themselves from mainstream services through features such as posts that disappear after a certain time, time-restricted posting, and the inability to edit photos or add text.





(Source) Statista²

Figure 2-1-7-2 Changes and forecast in the number of social media users in Japan



* The Number of people who periodically use social media sites and applications at least once a month,

(Source) Statista³

2. E-commerce

134

The global EC market sales continue to show an increasing trend, with an estimated expansion to 812.6 trillion yen in 2023 (a 16.4% increase from the previous year). The average annual growth rates from 2024 to 2028 vary

by country, with the U.S. and India showing high rates, followed by Brazil, China, and Russia. Japan and various European countries (the UK, France, Germany) are predicted to have growth rates of around 6 to 8%.

¹ The people using social media sites and applications at least once a month.

² https://www.statista.com/outlook/amo/advertising/social-media-advertising/worldwide

³ https://www.statista.com/statistics/278994/number-of-social-network-users-in-japan/



Figure (related data) Changes and forecast in sales in the global EC market Source: eMarketer(cited from Statista) URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00254 (Data collection)



Figure (related data) Growth rate of EC market by country (2024 to 2027) Source: Statista "Statista Digital Market Insights" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00255 (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 81.7% as of December 2023. On the other hand, Bing's share is expanding, reaching double digits at 10.5% as of December 2023. Microsoft's browser "Edge" sets Bing as the default search service, contributing to the expansion of Bing's share. In Japan, as of January 2024, Google holds the highest share, accounting for over 70% in both personal computers and smartphones and tablets. Additionally, Bing's share exceeds 15% on personal computers, while Yahoo! holds a share of around 17% on smartphones and tablets, indicating differences in trends by device.



Figure (related data) Changes in global market share of search engines (desktop) Source: StatCounter(cited from Statista)

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00258 (Data collection)



Figure (related data) Changes in global market share of search engines (mobile) Source: StatCounter(cited from Statista) URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00259 (Data collection)



Figure (related data) Market share of searching engines in Japan Source: StatCounter(cited from Statista)

(Data collection) (DRL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00260

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 the novel coronavirus. It is predicted that the total market size will reach 24.3752 trillion yen in 2023, marking a 27.7% increase from the previous year.



Figure (related data) Changes and forecast in size of global video streaming, music streaming and e-book market Source: Omdia, Statista URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00261

(Data collection)

In Japan, the video streaming market is expected to reach 574 billion yen (an 8.2% increase from the previous year), the music streaming market 116.5 billion yen (an 11.0% increase), and the e-book market 535.1 billion yen (a 6.7% increase) in 2023 (Figure 2-1-7-3). These markets are all experiencing growth trends similar to those seen globally.

135

Figure 2-1-7-3 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 (2024-2028) Report"⁴, the Recording Industry Association of Japan "Japan's Recording Industry 2024"⁵ and the Research Institute for Publications (2024) "Publishing Monthly Reports"⁶

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

(1) Alternative data

With the advancement of digitalization, there has been an increase in data to support decision-making. This includes not only traditional data such as company financial information, press releases, IR information, and public statistics, but also non-traditional data like POS data, location information, satellite images, and social media data. The background factors include the digitization of real-world data, the development of AI technology, and the growing need to quickly grasp the current situation.

The market size for alternative data is expected to expand from 2.7 billion dollars in 2021 to 143.3 billion dollars in 2030, a fifty-fold increase (Figure 2-1-7-4).



Figure 2-1-7-4 Market size of the global alternative data

(Source) Institute for International Monetary Affairs7

The advantages of using alternative data include "Differentiation from Existing Data", "Complementarity with Existing Data", and "Promptness". It is believed that companies are seeking to differentiate themselves from others and enhance their decision-making by supplementing traditional data with information that can only be obtained through alternative data (Figure 2-1-7-5).

136

⁴ https://gem-standard.com/columns/789

⁵ https://www.riaj.or.jp/f/pdf/issue/industry/RIAJ2024.pdf

⁶ https://shuppankagaku.com/wp/wp-content/uploads/2024/01/ニュースリリース2401.pdf

⁷ https://www.iima.or.jp/files/items/3510/File/MIYAGAWA_1109.pdf



Figure 2-1-7-5 Advantages of the use of alternative data

(Source) Japan Alternative Data Accelerator Association "Alternative Data FACTBOOK" (Overview)⁸

(2) Metaverse

The global metaverse market is forecasted to expand from 46.1 billion dollars in 2022 to 507.8 billion dollars by 2030 (Figure 2-1-7-6). 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. The market, which is just beginning to take off, is expected to expand about tenfold in less than ten years, holding significant growth potential as one of the use cases for 5G and Beyond 5G.

The Japanese metaverse market (including metaverse platforms, non-platform content and infrastructure, and XR (VR, AR, MR) devices used in metaverse services) is expected to reach 285.1 billion yen in FY2023, a 107% increase from the previous fiscal year, and expand to 2 trillion yen by FY2027 (Figure 2-1-7-7). The initial enthusiastic boom for the metaverse has settled, and business development is expected to proceed on a more grounded basis. From a market perspective, it is anticipated that the corporate market (exhibitions, training, retail, etc.) will first utilize the metaverse as a next-generation platform, forming markets for human resource development and related equipment and services, followed by the full-scale consumer market.

⁸ https://alternativedata.or.jp/wp-content/uploads/2023/11/JADAA_Factbook202311_outline.pdf



Figure 2-1-7-6 Transition and forecast in the size of the global metaverse market

Figure 2-1-7-7 Transition and forecast in the size of the Japan's metaverse market



*1 The total market size is the sum of metaverse platforms, non-platforms (contents, infrastructures etc.), and XR (VR,AR,MR) equipments. Platforms and non-platforms is calculated on a sales, and XR equipment is calculated on a sales price basis.

*2 It applies to the enterprise (corporate) metaverse and consumer metaverse, and excludes game-only metaverse services.

*3 FY2023 is prospect. After FY2024 is prediction.

(Source) Yano Research Institute Ltd., "Metaverse Market Survey in Japan (2023) " (published on August 30, 2023)

(3) Digital twin

A digital twin is a technology that constructs a twin in a digital virtual space based on data collected from the real world, allowing for various simulations. By recreating cities, cars, people, products, and equipment with digital twins, it becomes possible to repeatedly conduct tests that are difficult to perform in the real world, such as traffic prediction, behavior simulation, manufacturing site monitoring, and durability testing.

According to SDKI, the global digital twin market is expected to grow from 9.9 billion dollars in 2022 to 625.5 billion dollars by 2035, which is a 63 times increase (Figure 2-1-7-8).

⁹ https://www.statista.com/outlook/amo/metaverse/worldwide







(Source) Prepared based on SDKI "Market Survey on Digital Twin" $^{\prime\prime}$

¹⁰ https://www.sdki.jp/reports/digital-twin-market/107636

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 5,381 as of March 2024. Even when combining the total number of data centers in European countries (Germany, the UK, France, the Netherlands, Italy, Poland, and Spain), it amounts to approximately 2,100, highlighting the concentration in the U.S. Japan has 219 data centers, which is less than 5% of the number in the U.S. systems, which saw a decline in 2020 due to construction delays and supply chain disruptions caused by the COVID-19 pandemic, has been on an increasing trend since then. It is expected to reach 34.1 trillion yen in 2023 (a 14.4% increase from the previous year) and expand to 36.7 trillion yen in 2024 (Figure 2-1-8-1).

The market size (sales) for data center services in Japan was 2.0938 trillion yen in 2022 and is projected to reach 4.1862 trillion yen by 2027 (Figure 2-1-8-2).







(Source) Gartner (cited from Statista)¹





2022–2027 Revenue (Billion Yen) with Growth (%)

(Source) IDC Japan, July 2023 "Domestic Data Center Service Market Prediction 2023-2027" (JPJ49897923)



Figure (related data) Share of global large-scale data center market by region (data capacity) Source: Synergy "Virginia Still Has More Hyperscale Data Center Capacity Than Either Europe or China" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00277 (Data collection)

¹ https://www.statista.com/statistics/268938/global-it-spending-by-segment/

2. Cloud services

The global expenditure on public cloud services is expected to increase to 563.6 billion dollars in 2023 (Figure 2-1-8-3). This is attributed to the essential nature of cloud services in conducting business operations and the widespread adoption of new technologies, particularly AI. Regarding AI, its application across various industries is anticipated, but effective implementation will require customization (algorithms, costs, sovereignty, privacy, sustainability, etc.), making the use of cloud services crucial. The share of international expenditure on cloud infrastructure services² continues to be dominat-

ed by Amazon, Microsoft, and Google, in that order, collectively accounting for nearly 70% of the market. As of the fourth quarter of 2023, Amazon held approximately 31%, Microsoft 24%, and Google 11%, with the expansion of Microsoft and Google's market share being particularly notable in recent years (**Figure 2-1-8-4**). The market continues to be toward oligopolization, and it is considered important for cloud providers outside the top three to focus on specific areas or seek collaboration with major players to gain market share.



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

(Source) Gartner (cited from Statista)³



² Total of IaaS, PaaS and hosted private cloud.

⁴ https://www.srgresearch.com/articles/cloud-market-gets-its-mojo-back-q4-increase-in-cloud-spending-reaches-new-highs

2024 White Paper on Information and Communications in Japan Part II

³ https://www.statista.com/statistics/273818/global-revenue-generated-with-cloud-computing-since-2009/

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142

The Japanese public cloud services market⁵ is expected to achieve significant growth, reaching 3.1355 trillion yen in 2023, a 25.8% increase compared to the previous year (Figure 2-1-8-5).

Amazon, Azure by Microsoft, and GCP by Google) are particularly notable. Specifically, AWS accounts for more than half of the companies using PaaS/IaaS, showing an increase of over 10 percentage points compared to the previous year.

Additionally, in Japan's PaaS and IaaS markets, the high utilization rates of major cloud services (AWS by

Figure 2-1-8-5 Changes and forecast in the size of the public cloud service market in Japan (expenditure)

2023-2028 Revenue (Billion Yen) with Growth (%) (Billion (%) Total: Yen) 7,000 6,514.6 25 6,000 20 2 028.8 5,000 1,868.0 Total: 1.712.2 15 4.000 3,135.5 1,552.7 1,624.6 1,324.1 1,404.8 3,000 1,070.3 10 1 259.5 854.6 2,000 680.6 538.0 2,861.2 5 2,612.9 2 324.9 1.000 2.005.8 1,670.1 1,337.9 0 0 2023 2024 2025 2026 2027 2028 SaaS Paas laaS -Total growth (%)

(Source) IDC Japan, February 2024 "Domestic Public Cloud Service Market Prediction 2024-2028" (JPJ50706624)⁶



Figure (related data) Use rate of AWS, Azure, GCP in PaaS/laaS users

Source: MM Research Institute, Ltd. "Research Survey on Demand Trend of Domestic Cloud Services" (as of June 2022) URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00281 (Data collection)

3. Edge computing

The global edge computing market size (expenditure) is projected to expand to 232 billion dollars in 2024 and further to 350 billion dollars by 2027 (Figure 2-1-8-6).

In Japan, the edge computing market size (expenditure) is estimated to reach 1.6 trillion yen in 2024 and is expected to grow to 2.3 trillion yen by 2027 (Figure 2-1-8-7).

Major use cases include smart factories, remote control of machinery and robots, high-definition video transmission, virtual space services via AR/VR, autonomous driving, gaming, and the metaverse. Given the low latency benefits of edge computing, it is anticipated to be widely used in remote operations within industries such as manufacturing and construction. While edge computing offers advantages like reduced latency, it also has limitations in terms of scale and processing capacity, which can lead to increased costs. Therefore, it is common to use edge computing selectively rather than for all applications. This suggests that edge computing is not a replacement for the cloud but rather a new application of cloud utilization. Consequently, the spread of edge computing is expected to promote new uses of cloud services. The domestic edge AI product and service market (revenue) in Japan is projected to reach 15 billion yen in FY2023. It is expected to grow at an annual rate of 27.4%, reaching a scale of 37 billion yen by FY2027.

⁵ Cloud services that specialize in IT-related functions provided to a wide range of users without special regulations or restrictions.
⁶ https://www.idc.com/getdoc.jsp?containerId=prJPJ49684222



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

(Source) IDC Worldwide Edge Spending Guide - Forecast 2024 | Feb (V1 2024)⁷

Figure 2-1-8-7 Changes and forecast in the market size of edge computing in Japan (expenditure) 2022–2027 Spending with Growth (%)



(Source) IDC "Investment in Edge Computing in the Domestic Market is Predicted to Reach 1.6 trillion yen in 2024 ~the Forecast for the Domestic Edge Infrastructure Market is Announced~" (March 22, 2024)⁸



Figure (related data) Changes and forecast in the market size of the Japanese edge AI solutions Source: Deloitte Tohmatsu MIC Research Institute "Reality and Future Prospects of Edge AI Computing Market in FY2023 (ver.3)" (February 7, 2024)

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00287 (Data collection)

⁷ https://www.idc.com/getdoc.jsp?containerId=prUS51960324

⁸ https://www.idc.com/getdoc.jsp?containerId=prJPJ51979224

1. Market overview

The global AI market size (sales) is expected to grow to 18.7148 trillion yen in 2022, a 78.4% increase from the previous year, with accelerated growth projected to continue until 2030 (Figure 2-1-9-1).

The market size for AI systems¹ in Japan (expenditure) is projected to reach 685.873 billion yen in 2023, a 34.5% increase from the previous year, and continue growing to 2.543362 trillion yen by 2028 (Figure 2-1-9-2).





(Source) Next Move Strategy Consulting (cited from Statista)²





(Source) IDC "Announced Market Prediction of Domestic AI System in 2024" (April 25, 2024)³

The societal implementation of AI is advancing, with generative AI, which creates text, images, audio, and video, gaining attention. The global generative AI market is expected to expand significantly from 67 billion dollars in 2023 to 1.304 trillion dollars by 2032. This growth is driven by the explosive adoption of generative AI tools such as Google's Bard, OpenAI's ChatGPT, and Midjourney, Inc.'s Midjourney. Generative AI can create various types of content, including text, images, audio, and video, with applications in marketing, sales, customer support, data analysis, search, education, literature, law, and more. It can also generate computer programs and designs, addressing labor shortages and improving productivity (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/statistics/1365145/artificial-intelligence-market-size/

³ https://www.idc.com/getdoc.jsp?containerId=prJPJ52070224



Figure 2-1-9-3 Changes and forecast in the size of the global generative AI market

(Source) Bloomberg (Statista)⁴

2. Trends in Al by country

AI is still in a developmental stage, with foundational research being conducted worldwide. According to AI Rankings, which publishes leading countries, companies, and universities based on the number of research papers, the top countries are the U.S., China, the UK, Germany, and Canada, with Japan ranking 11th to 12th annually.



Figure (related data) Changes of AI rankings by country (top 15) Source: Prepared based on AIRankings URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00291 (Data collection)

Investment in AI-related companies is also increasing. According to Stanford University's "Artificial Intelligence Index Report 2024," the number of AI companies that received new funding in 2023 was highest in the U.S. (897 companies), followed by China (122 companies), and Japan ranked 10th with 42 companies (Figure 2-1-9-4).



Figure 2-1-9-4 Number of newly funded AI companies by country in 2023

(Source) Stanford University "Artificial Intelligence Index Report 2024" 55

⁴ https://www.statista.com/statistics/1417151/generative-ai-revenue-worldwide/

⁵ https://aiindex.stanford.edu/wp-content/uploads/2024/04/HAI_AI-Index-Report-2024_Master.pdf

145

Section 10 Trends of cybersecurity

1. Market overview

The global market for cybersecurity is expected to remain robust, reaching 79 billion dollars in 2023, representing an 11.1% increase from the previous year (**Figure 2-1-10-1**).

As for the major players in the cybersecurity market, Cisco, Palo Alto Networks, Check Point, Symantec, and Fortinet held the top 5 market shares from 2018 to 2019. However, starting in 2020, Trellix emerged as a replacement for Symantec, and by 2022, it had captured a 3.1% share. Nevertheless, as of 2023, Microsoft and Crowd Strike had replaced Check Point and Trellix in the top 5. Additionally, the market share of the leading player, Palo Alto Networks, has been expanding in recent years.



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

(Source) Prepared based on Canalys data



Figure (related data) Major global cybersecurity companies

Source: Prepared based on Canalys data URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00294 (Data collection)

In 2022, the domestic market for information security products in Japan reached 525.454 billion yen, a 19.8% increase from the previous year. Within the security product functional market segments, the sales of security software, including endpoint security software and network security software, accounted for 81.3% of the total market at 427.42 billion yen, while security appliances, including content management, UTM, and VPN, accounted for 18.7% at 98.051 billion yen. Furthermore, the market share of information security product vendors (sales) in 2021 and 2022 was categorized into "Foreign Companies" and "Domestic Companies" for those with a share of 2% or more in the overall market. The results showed that both foreign companies held a share of over 50%, indicating that a significant portion of Japan's cybersecurity products rely on overseas sources (Figure 2-1-10-2).





(Source) IDC Japan, August 2023 "Japan IT Security Products Market Shares, 2022: Progress of Security Platform" (JPJ49213223)

2. Current status of cybersecurity

(1) The increasing threat of cybersecurity

The NICT operates the large-scale cyberattack observation network (NICTER), which has observed a total of approximately 619.7 billion packets in 2023, a 9.8-fold increase compared to 2015 (approximately 63.2 billion packets) (Figure 2-1-10-3). This indicates that a significant number of observation packets are still being received. In addition, the total observed packet count in 2023 corresponds to an observation occurring approximately every 14 seconds for each IP address. It should be noted that 2023 has recorded the highest number of observations to date, and the observation packets flying around the internet are even more active compared to 2022.

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



Furthermore, the observed communication related to cyberattacks in NICTER shows that, similar to 2022, a large number of communications targeting IoT devices were observed, accounting for about 30% of all cyberattack-related communications. Attacks on ports used by HTTP and HTTPS were also observed at a similar rate (Figure 2-1-10-4).



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

* This is an analysis of top 10 ports in what observed by NICTER in 2022 and 2023.

(Source) Prepared based on NICT "NICTER Observation Report 2023"

In 2023, there were 521 cases of violations of the Act on Prohibition of Unauthorized Computer Access (Act No. 128 of 1999, hereinafter referred to as the "Unauthorized Computer Access Prohibition Act"), which was one case fewer than 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/r06/html/datashu.html#f00300 (Data collection)

In recent years, ransomware cyberattacks have continued to affect various companies and medical institutions both domestically and internationally, leading to impacts on people's lives and the socio-economic landscape. Additionally, the resumption of "Emotet" activity was confirmed in March 2023, prompting cautionary measures from the Independent Administrative Institution Information-technology Promotion Agency, Japan (IPA) and JPCERT/CC. There have also been cases of DDoS attacks targeting websites of Japanese govern-

(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, ment agencies, local governments, and companies, affecting business continuity and raising concerns about cyberattacks for the general public.

Given this challenging situation, in April 2023, the METI, the MIC, the National Police Agency, and the National center of Incident readiness and Strategy for Cybersecurity (NISC) issued cautionary measures for the risks posed by the Golden Week holiday on cybersecurity.

according to a survey conducted by Trend Micro in 2023, the average cumulative damage caused by cyberattacks experienced by corporate organizations over the past three years was approximately 125.28 million yen.

		1		
Investigation/ analysis entity	Target area	Period coverd	Overview of economic loss	Amount of loss
Trend Micro	Japan	2023 [research period]	Average cumulative damage amount for corporate organizations that experienced damage from cyber attacks in the past three years	125.28 million yen
National Police Agency	Japan	First half of 2023	Total investigation and recovery conts associated with ransomware damage	26%: <1 million yen 19%: 1 million to <5 million yen 25%: 5 million to <10 million yen 23%: 10 million to <50 million yen 8%: \ge 50 million yen or more
FBI	The U.S.	2022	Total amount of reported damage by cybercrime incidents	10.2 billion dollars
NFIB	The UK	2023	Total amount of reported damage by cybercrimes	5.6 million pounds
Sophos	14 countries	2023	Average annual cost per organization to recover from most recent ransomware attack ト	1.82 million dollars
IBM	16 countries	2023	Global average cost of single data breach for an organization	4.45 million dollars
Cybersecurity Ventures	World	2025 [Prediction]	Cost by cybercrimes	10.5 trillion dollars
Fastl	North America, Europe, Asia, Pacific area	2023	Loss of companies which had cyberattacks	9% of income in the past 12 months

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

(Source) Prepared based on published materials

(3) Trends in wireless LAN security

According to a survey conducted by the MIC in March 2024 to understand the security awareness of wireless LAN users, the awareness of public wireless LAN is high (approximately 94%), but only about half of the respondents actually use it. The most common rea-

(4) Adoption status of sender domain authentication technologies

As of December 2023, the adoption status of sender domain authentication technologies for preventing spoofed emails in the JP domain is approximately 82.9% son for not using public wireless LAN is "Security Concerns", cited by about 70% of respondents. Among users of public wireless LAN, about 90% feel "Security Concerns", with approximately 40% expressing a "Vague Sense of Unease".

for SPF and approximately 10.2% for DMARC, both showing a slight increase.



148

Figure (related data) Status of introduction of sender domain authentication technologies for JP domains URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00307 (Data collection)

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 2023 is 97.4% for "All Mobile Devices," with "Smartphones" accounting for 90.6% of that figure. Additionally, the ownership rate for personal computers is 65.3% (Figure 2-1-11-1).



(Source) MIC "Communications Usage Trend Survey"

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

(2) Internet

A Usage status

The internet usage rate (individual) in 2023 is 86.2% (Figure 2-1-11-2). When broken down by device, the internet usage rate (individual) for "Smartphones"

(72.9%) surpasses that for "Personal Computers" (47.4%) by 25.5 percentage points.



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

1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 (Year)

(Source) MIC "Communications Usage Trend Survey"



150

Figure (related data) Devices types of Internet use (individuals)

Source: MIC "Communications Usage Trend Survey" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00311 (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 exceeds

80% for all income brackets above 4 million yen (Figure 2-1-11-4). Furthermore, by prefecture, 38 prefectures have an internet usage rate exceeding 80%, and in all prefectures, the usage rate for smartphones exceeds 50%.

² The design of the questionnaire in the 2019 survey was partially different from that in previous years, so case should be taken when comparing over the years.

Chapter 1

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



(Source) MIC "Communications Usage Trend Survey"



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



Figure (related data) Rate of Internet usage by prefecture and the status of usage by device (individuals) (2023) Source: MIC "Communications Usage Trend Survey" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00314

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00314 (Data collection)

B Concerns about internet usage

Approximately 70% of internet users feel some form of anxiety when using the internet (Figure 2-1-11-5). The specific concerns include "Leakage of Personal Information and Internet Usage History" at 89.4%, followed by "Infection by Computer Viruses" at 61.1%, and "Fraudulent Billing or Internet Scams" at 53.9% **(Figure 2-1-11-6)**.

Chapter 1

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



(Source) MIC "Communications Usage Trend Survey"





(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," "Information Search and News," and "QR Code Payments," which were higher compared to 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 (2024) "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 are 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. (87.7%), while in Japan it was about 40% (41.0%) (Figure 2-1-11-8).

When asked about their concerns, the most common

concern across all countries, including Japan, was that "registered information might be used for phone calls, 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 21.7%, higher compared to around 10% in the U.S. and Germany (Figure 2-1-11-9).



Figure 2-1-11-8 Whether or not to be aware of the provision of personal data

(Source) 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'



and Trends of Use of Digital Technologies in Japan and Abroad"

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

When asked about the conditions under which they would be willing to provide personal data to platform companies, respondents in Japan, compared to other countries, particularly chose "no concern about data leakage," "no concern about misuse of data by companies," and "protection of privacy." The increase in opportunities to provide personal data and set conditions for its use may have raised awareness among users.

Figure (related data) Conditions under which they would be willing to provide personal data μD Source: 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 URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00320 (Data collection)

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

The percentage of respondents who have used experiential entertainment services in virtual spaces³ (sum of "Use in Daily Life or Work" and "Have Used") was about 30-45% in the U.S., Germany, and China, while in Japan it was significantly lower at 9.6%. 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 65.4% in Japan, compared to 50.0% in Germany, which had the highest percentage (Figure 2-1-11-10). Looking at the usage in Japan by age group, the usage rate was highest among those in their 20s (13.6%), and the percentage of those who "Want to Try Using It in the Future" was also highest in their 20s (27.2%).



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

⁽Source) "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 interactive entertainment services in virtual spaces (by age) Source: 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 URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00322 (Data collection)



Figure (related data) Reasons why people don't use entertainment services in virtual spaces Source: 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 URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00323 (Data collection)

³ XR content (interactive 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.

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 others⁴ on the us-

(A) Average usage time⁷ and user rate⁸ 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)**.

Across all age groups, the average usage time for "Internet Usage" was the longest on both weekdays and holidays, followed by "Real-time TV Viewing." The average usage time for "Internet Usage" on holidays exceeded 200 minutes for the first time. The user rate for "Internet Usage" also exceeded that of "Real-time TV Viewing" on both weekdays and holidays. age time, time slots, purposes, and reliability of information and communication media⁵. Below is an overview of the usage time of information and communication media based on the FY2023 survey results⁶.

By age group, the average usage time for "Internet Usage" on weekdays exceeded that of "Real-time TV Viewing" for the first time among those in their 50s. 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, but compared to the previous FY2022 survey results, the user rate for those in their 40s to 60s either decreased or remained almost flat.

156

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": 1,500 men and women aged 13 to 69 (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 2023 was used for the FY2023 survey) were visited and received questionnaires based on random location quota sampling.

⁶ The FY2023 survey was conducted from December 2 to December 8, 2023

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 for major media and user ratio

<Weekday (one day)>

		Average usage time (minute) 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
	2019	161.2	20.3	126.2	8.4	12.4	81.6	19.9	85.5	26.1	7.2
	2020	163.2	20.2	168.4	8.5	13.4	81.8	19.7	87.8	25.5	7.7
All age	2021	146.0	17.8	176.8	7.2	12.2	74.4	18.6	89.6	22.1	6.2
groups	2022	135.5	18.2	175.2	6.0	8.1	73.7	17.5	90.4	19.2	6.0
	2023	135.0	16.4	194.2	5.2	7.3	71.1	15.3	91.2	16.1	5.4
	2019	69.0	14.7	167.9	0.3	4.1	61.6	19.4	92.6	2.1	1.8
	2020	73.1	12.2	224.2	1.4	2.3	59.9	14.8	90.1	2.5	1.8
10s	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
	2019	101.8	15.6	177.7	1.8	3.4	65.9	14.7	93.4	5.7	3.3
	2020	88.0	14.6	255.4	1.7	4.0	65.7	13.6	96.0	6.3	3.1
20s	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
	2019	124.2	24.5	154.1	2.2	5.0	76.7	21.9	91.9	10.5	2.2
	2020	135.4	19.3	188.6	1.9	8.4	78.2	19.4	95.0	8.8	6.0
30s	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
	2019	145.9	17.8	114.1	5.3	9.5	84.0	18.9	91.3	23.6	6.0
	2020	151.0	20.3	160.2	5.5	11.7	86.2	23.0	92.6	24.1	6.0
40s	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
	2019	201.4	22.5	114.0	12.0	18.3	92.8	21.9	84.2	38.5	12.2
	2020	195.6	23.4	130.0	11.9	26.9	91.8	20.7	85.0	39.4	13.4
50s	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
	2019	260.3	23.2	69.4	22.5	27.2	93.6	21.2	65.7	57.2	13.4
	2020	271.4	25.7	105.5	23.2	18.5	92.9	22.3	71.3	53.7	12.1
60s	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

<Holiday (one day)>

		Average usage time (minute)				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
	2019	215.9	33.0	131.5	8.5	6.4	81.2	23.3	81.0	23.5	4.6
	2020	223.3	39.6	174.9	8.3	7.6	80.5	27.6	84.6	22.8	4.7
All age	2021	193.6	26.3	176.5	7.3	7.0	75.0	21.3	86.7	19.3	4.2
groups	2022	182.9	30.2	187.3	5.6	5.5	72.2	22.7	88.5	17.7	4.1
	2023	176.8	23.6	202.5	5.0	4.1	69.3	18.0	88.2	14.7	3.0
	2019	87.4	21.3	238.5	0.1	0.0	52.8	17.6	90.1	0.7	0.0
	2020	93.9	29.8	290.8	0.9	0.0	54.9	25.4	91.5	1.4	0.0
10s	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
	2019	138.5	23.0	223.2	0.9	1.2	69.7	19.9	91.0	3.3	1.9
	2020	132.3	26.5	293.8	2.0	1.9	64.3	20.2	97.7	6.6	2.3
20s	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
	2019	168.2	31.0	149.5	2.5	2.0	78.3	23.3	90.1	9.9	2.0
	2020	198.1	45.0	191.3	1.6	7.4	77.2	31.6	91.2	5.6	3.2
30s	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
	2019	216.2	37.5	98.8	6.0	5.0	83.7	25.5	84.7	20.2	3.7
	2020	232.7	41.5	154.5	5.2	4.2	85.3	28.5	89.3	19.9	3.1
40s	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
	2019	277.5	48.0	107.9	12.9	6.6	90.3	30.6	77!3	37.4	6.5
	2020	256.5	49.8	127.8	12.5	16.3	91.6	31.4	81.5	36.6	7.7
50s	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
	2019	317.6	28.1	56.1	21.8	18.5	94.5	19.0	60.7	51.7	10.3
	2020	334.7	37.2	83.7	22.0	10.9	91.8	25.9	63.1	50.4	9.2
60s	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

(Source) MIC Institute for Information and Communications Policy "FY2023 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" across all age groups. 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.

For "obtaining reliable information about events and trends in the world," "TV" was the most used medium

across all age groups. By age group, the "Internet" was most used by those in their 20s, "TV" and the "Internet" were equally used by those in their 30s, and "TV" was most used by other age groups. "Newspapers" were used more than the "Internet" by those in their 60s.

For "obtaining information about hobbies and entertainment," the "Internet" was the most used medium across all age groups and within each age group, with the percentage of "Internet" usage being around 90% for those in their teens to 30s.



Figure 2-1-11-12 Media used by purpose

(Source) MIC Institute for Information and Communications Policy "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" (65.7%) and "look at information on social media" (44.5%) was high, while relatively fewer people relied on traditional mass media such as TV, newspapers, and news agencies (**Figure 2-1-11-13**).





⁽Source) 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

When asked whether they check the source (organization or person) of the information flowing online, the percentage of respondents in Japan who answered check (sum of "Do for Almost All News" and "Often Do") was 19.0%, lower compared to other countries (Figure 2-1-11-14).



Figure 2-1-11-14 Frequency to check the source of information (organizations and persons) (by country)

(Source) 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



Figure (related data) When to compare the news reports by multiple media (broadcasters, news media and news agency) Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00337 (Data collection)
国际运动30723	(

Figure (related data) When to check the official information announced by the government etc. Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00338 (Data collection)

Figure (related data) When to check the results of verification by experts and fact-checking organizations Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00339 (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 is Optimized (Personalized) for You," "Recommended Accounts or Content on social media may be Those that the social media Provider Wants You to See," and "Information Close to Your Opinions and Thoughts is Displayed on social media," the percentage of respondents in Japan who answered aware (sum of "Very Aware" and "Somewhat Aware") was below 50% for all items.



Figure (related data) Whether or not to recognize the personalization of information displayed in searching results and social media Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00340 (Data collection)



Figure (related data)Whether or not to recognize the cases that accounts and contents are displayed which service providers want to show Source: Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00341 (Data collection)



Figure (related data) Whether or not to recognize the cases that opinions and information are tend to be displayed which are close to themselves Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00342 (Data collection)

2. Trends in utilization in corporate activities

(1) The Status of digitalization in each country's companies

A Efforts in digitalization

160

A survey was conducted on the efforts in digitalization among companies in Japan, the U.S., Germany, and China. After excluding those who responded with "Don't Know,"¹¹ it was found that in Japan, the proportion of companies that have not implemented digitalization efforts (combining "have not implemented and considering implementation in the future" at 10.6% and "have not implemented and no plans in the future" at 39.7%) was approximately 50%, indicating a delay in promoting digitalization compared to 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 "not implemented," showing differences in the status of digitalization efforts based on company size (Figure 2-1-11-15).

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 efforts in digitalizing new business creation 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 in new business creation, but partial departmental efforts in improving customer experiences (Figure 2-1-11-16).

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



Figure 2-1-11-15 Status of initiatives to promote digitalization (comparison by country)

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

(Source) 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"



Figure (related data) Status of digitalization (Japan: comparison by company size)

Source: 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"

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00344 (Data collection)

US Japar 55.7% 21.49 22.3% 22.7% Creating New Business Improving/enhancing Customer Experiences 0.6% 26.4% 21.29 46.3% Adding High Value to Existing 30.9% 0.6% 46.6% Products/services Improving/reforming Business Processes .3% 39.4% 47.9% (such as optimizing business flows with ERP) Streamlining Operations (Such as Automation through AI/RPA) 2.3% 31.7% 45.3% Realizing New Ways of Working 1.0% 33.0% (such as telework)

Figure 2-1-11-16 Detailed initiatives to promotes digitalization (comparison by country)

	Germany				China	
Creating New Business	38.5%	35.6% 10.0 9.4%	% 1.9% 4.5%	55.3%	34.0%	5.5% 4.5%
Improving/enhancing Customer Experiences	35.3%	40.1% 4. 16.8%	2%0.6% 2.9%	36.2%	42.4% 17	7.5% 0.3% 3.6%
Adding High Value to Existing Products/services	36.2%	35.9% 5.8 17.5%	23% 23%	39.8%	41.1% 19	5.2% ^{3.2} % 0.6%
Improving/reforming Business Processes (such as optimizing business flows with ERP)	37.2%	40.5% 6. 12.9%	5%1.6% 1. <u>3</u> %	47.2%	38.8%	2:9% 10.0% 1 <u>.0</u> %
Streamlining Operations (Such as Automation through AI/RPA)	32.4%	35.6% 15.5% 9.7	6 1.9% 4 <u>.9%</u>	50.5%	34.6% 10).4% 1.0% 3.2%
Realizing New Ways of Working (such as telework)	35.9%	32.4% 15.9% 7.19	6 1.9% 5.8%	48.5%	35.6% ₁₀	3.6% .4% 1.6%
						0.570
Company-wide	Multiple de	partments 📰 Single department 🛛	Specific ta:	sks 🥅 Not er	ngaged 🛄 Don't know / N	ot sure

(Source) 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"

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," "Improving/reforming 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 (2024) "Research and study on the latest trends in information and

Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00346 (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(42.1%)," which was overwhelmingly higher compared to companies in other countries. This was followed by the "Prevalence of Analog Culture/values (29.3%)" and "Unclear Role Allocation and Scope of DX (28.3%)" (Figure 2-1-11-17).





(Source) 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"

Particularly notable in Japanese companies is the scarcity of UI/UX designers and specialists in AI/digital analytics compared to other countries. The proportion of companies indicating the "Presence of UI/UX designers" was 18.3% in Japan, while it was approximately 60-

70% in other countries. Similarly, the proportion of companies indicating the "Presence of AI/digital analytics specialists" was 18.8% in Japan, while it was approximately 60-80% in other countries (Figure 2-1-11-18).

162



Figure 2-1-11-18 Status of the specialized digital human resources

(Source) 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"



Figure (related data) Initiatives to secure digital human resources (comparison by country) Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00349 (Data collection)

Furthermore, when asked about the internalization status of system development, it was found that in Japan, 41.3% 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 85-95% of companies reported conducting development under their own leadership, showing a significant difference from Japan.

•	

Figure (related data) In-house development of systems (comparison by country) Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00350 (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. According to the 2023 Communication Usage Trend Survey conducted by the MIC, about 50% of companies have introduced telework (Figure 2-1-11-19).

hapter 1

Figure 2-1-11-19 Changes in introducing remote work



*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 Remote work performed in a location other than that the usual work place or the home, combined with personal time.

*3 Total includes entities that provided no response to introduction type.

(Source) MIC "Communications Usage Trend Survey"



Figure (related data) Purpose of introduction of teleworking Source: MIC "Communication Usage Trend Survey"

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00355 (Data collection)



Figure (related data) Issues when to introduce teleworking (multiple answers allowed) Source: Prepared based on MIC "Survey Result of Teleworking Security in FY2023" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00356 (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. in Their Daily Life and Work" slightly increased in the U.S., while it slightly decreased in Japan and Germany (Figure 2-1-11-20). In Japan, the most common reason cited for the difficulty in implementing telework, etc. was the lack of "Desired Services within the Company" at 30.5%. When examining the utilization of telework, etc. in Japan by age group, the highest utilization was among those in their 30s, followed by those in their 20s and 50s, with 39.3% in their 30s. Additionally, a high percentage of respondents in their 20s expressed a "Desire to Use Telework, etc. in the Future". 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 31.6% in their 20s and 55.8% in their 60s (Figure 2-1-11-21).



Figure 2-1-11-20 Usage of remote work and online meetings (international comparison)

(Source) 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"



Figure 2-1-11-21 Usage of remote work and online meetings (Japan, by age)

(Source) 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"



Figure (related data) Reasons why people don't use remote work or online meetings

Source: 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"

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00359 (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), only about 41% of people in Japan have experience using these services. Although this is an increase from the previous survey (about 35%)¹², it remains lower compared to the other three countries **(Figure 2-1-11-22)**. The main reasons for not using these services include "Security Concerns," "Not Know-

ing How to Use the Services or the Devices and Applications Required," and "Lack of Desired Services."

When examining the usage of electronic administrative services in Japan by age group, the percentage of people with experience using these services ranged from 34% to 44% across all age groups, showing little difference.



Figure 2-1-11-22 Usage of digital administrative services (by country)

(Source) 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"



Figure (related data) Usage of digital administrative services (Japan, by age)

Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00362 (Data collection)

Figure (related data) Reasons why people don't use public digital services (by country)

Source: 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" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00363 (Data collection)

(2) Promotion of digital government in Japan

A International indicators

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 citizen participation in public policy. 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, resulting in the E-Government Development Index

¹² The 2023 White Pater on Information and Communications in Japan. MIC, 2023 "Research and study on the latest trends in information and communication technology research and development, as well as digital utilization, both domestically and internationally"

(EGDI).

In the 2022 World E-Government Ranking, Denmark ranked first, followed by Finland, the Republic of Korea, New Zealand, and Sweden. Japan ranked 14th, the same as in the previous survey, but its score improved. Historically, Japan has ranked between 10th and 18th (Figure 2-1-11-23).

Participation Index," up from fourth in the previous survey. The e-Participation Index scores countries based on three areas: "e-information (information provision)", "e-consultation (dialogue and opinion collection)", and "e-decision-making (decision-making)". Japan received high scores in all areas: Information 0.9818, Consultation 1.0000, and Decision-making 1.0000.

In individual indicators, Japan ranked first in the "e-



Figure 2-1-11-23 Changes in Japan's ranking in the UN (UNDESA) "World E-Government Ranking"

(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 using 10 main indicators (35 sub-indicators). The top five countries were Denmark, Canada, the UK, New Zealand, and Singapore, with Denmark ranking first for three consecutive years. Japan fell out of the top 10 for the first time since the survey began, due to insufficient progress in digitalization from a citizen's perspective and administrative and financial reforms. Challenges and structural weaknesses in Japan include the negative effects of siloed administration, lack of speed, and issues with the effectiveness of the Digital Agency as a control tower. Additionally, the complexity of decision-making due to the legal separation of government and local authorities, and the widening digital and administrative disparities among prefectures and municipalities were pointed out.



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/r06/html/datashu.html#f00365 (Data collection)

B Development of data linkage and authentication infrastructure

(A) My Number Card

As of March 17, 2024, the issuance rate of My Number Cards relative to the population reached 78.5% (excluding cards invalidated due to death or expiration, the possession rate is 73.3%). As of January 21, 2024, approximately 72.07 million cards were registered as health insurance cards, with a registration rate of 73.8% relative to the total number of issued My Number Cards. Regarding the registration of public money receiving accounts, as of January 21, 2024, the cumulative number of registrations was approximately 62.65 million, with a registration rate of 64.2% relative to the total number of issued My Number Cards.



Figure (related data) Status of issuance 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/r06/html/datashu.html#f00366

(Data collection)

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Figure (related data) Changes in registration of My Number Card as health insurance cards
Source: Prepared based on Digital Agency "Dashboard on the proliferation of My Number Card" (data obtained on March 25, 2024)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00367

(Data collection)

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Figure (related data) Changes in public fund receipt account registrations
Source: Prepared based on Digital Agency "Dashboard on the proliferation of My Number Card" (data obtained on March 25, 2024)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00368
(Data collection)

C Digitalization efforts in local governments

(A) Current status of online procedures

According to the "Priority Plan for Realizing a Digital Society" (Cabinet decision on June 7, 2022), the online usage rate for 59 procedures that local governments should prioritize to digitalize promotion is as follows (Figure 2-1-11-24).



Figure 2-1-11-24 Changes in online usage 59 procedures which local governments must prioritize to digitalize

*1 Online usage for FY2020 and FY2019 was calculated based on a resurvey of the 59 procedures that local governments should prioritize in taking procesures online as listed in the "Priority Policy Program for Realizing Digital Society" (approved by the Cabinet on June 7, 2022).

*2 Online usage rate (%) = Number of procedures used online / total number of procedures per year \times 100

The total number of procedures per year is a national estimate based on the total number of procedures and the population of 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 online usage.

(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 have introduced AI. Among other municipalities, 45% have introduced AI, and including those in the process of verification, planning to introduce, or considering introduction, about 69% of local governments are working towards AI introduction (**Figure 2-1-11-25**). By function, the top three areas (voice recognition, character

recognition, chatbot responses) are being introduced across all sizes of local governments. The bottom four areas (matching, optimal solution display, image/video recognition, numerical prediction) have fewer examples of introduction even at the prefecture level, but have been consistently increasing since the survey began, except for numerical prediction.

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



Figure 2-1-11-25 Status of introduction of AI in local governments

(Source) MIC "Promotion of Utilization of AI and RPA in Local Governments" $^{\prime\prime\prime4}$



Figure (related data) Status of introduction of Al in local governments (by Al function) Source: MIC "Promotion of Utilization of Al and RPA in Local Governments" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00371 (Data collection)

Additionally, the number of organizations that have implemented RPA has increased to 94% for prefectures and 100% for designated cities. For other municipalities, the implementation rate stands at 36%, but when including those in the trial phase, planning to implement, or considering implementation, approximately 67% of local governments are working towards RPA adoption (Figure 2-1-11-26). By sector, RPA is most commonly implemented in "Finance, Accounting, and Treasury," "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

Chapter 1



(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/r06/html/datashu.html#f00373 (Data collection)

(C) Status of telework implementation for staffs

As of October 2023, all prefectures and designated cities have implemented telework. Among municipalities, the implementation rate was 62.9% as of October 2022, but slightly decreased to 60.1% as of October 2023, partly due to the reclassification of COVID-19 as a Category 5 infectious disease under the Infectious Diseases Control Law (Figure 2-1-11-27).



Figure 2-1-11-27 Status of telework implementation for staffs

(Source) Prepared based on MIC "Survey on Remote Work Initiatives by Local Government"¹⁶

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

¹⁶ MIC "Survey on Remote Work Initiatives by Local Governments" (October 1, 2019, October 1, 2020, October 1, 2021, October 1, 2022, October 1, 2023) (https://www.soumu.go.jp/main_content/000920596.pdf)

Section 12 Trends in postal service and correspondence delivery business

1. Postal service

(1) Japan Post Group

Japan Post Group has operated as a holding company structure since October 1, 2012, consisting of four companies (**Figure 2-1-12-1**). Japan Post Holdings holds 100% of the issued shares of Japan Post, as well as 61.5% of the voting rights of Japan Post Bank shares and 49.8% of the voting rights of Japan Post Insurance shares (as of the end of March 2024).

		Government					
		Jap	oan Post Holding Co., L				
	Number of regular employees		1,583				
	Net assets	15,	738.5billion yen (Consolidated basis)			
	Primary businesses		Operation of the Japan Post Group				
	Operating revenue(consolidated/non-consolidated)	1	1,982.1billion yen / 239.0billion ye	en			
	Operating profit(consolidated/non-consolidated)		668.3billion yen / 162.7billion ye	en			
	Net profit for the period(consolidated/non-consolidated)	268.6billion yen / 158.0billion yen					
Japan Post Co., Ltd. Japan Post Bank Co., Ltd Japan Post Insurance Co., Ltd							
umber of regular mployees	178,401		11,852		19,288		
et assets	771.5billion yen (Consolidated basis	;)	9,707.9billion yen (Consolidated basis)		3,395.7billion yen (Consolidated basis)		
rimary businesses	Postal service, domestic and international physical distribution, sales of goods, bank counter operations, insurance counter operations, real estate		Banking		Life insurance		
perating revenue	3,331.4billion yen (Consolidated basis) 2.1billion yen (Consolidated basis) 7,2billion yen (Consolidated basis)		2,651.7billion yen (Consolidated basis) 496.0billion yen (Consolidated basis) 356.1billion yen (Consolidated basis)		6,744.1billion yen (Consolidated basis) 161.1billion yen (Consolidated basis) 87.0billion yen (Consolidated basis)		
	mission of counter services 1						

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

*1 Number of employees (regular employees) as of September 30, 2023.

*2 The "current net profit" of each company is the current net profit attributable to parent company shareholders.

(Source) Based on financial results for the period ending March 2024 and disclosure reports (2023)

The consolidated financial results for Japan Post Group in FY2023 show an operating revenue of approximately 12 trillion yen and a net profit for the period of 26.86 billion yen (Figure 2-1-12-2).

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

						(100 million yen)
Fiscal year	2018	2019	2020	2021	2022	2023
Operating revenue	127,749	119,501	117,204	112,647	111,385	119,821
Operating profit	8,306	8,644	9,141	9,914	6,576	6,683
N et profit for the period	4,794	4,837	4,182	5,016	4,310	2,686

(Source) Based on Japan Post Holdings Co., Ltd. "Overview of Financial Results"

(2) Japan Post Co., Ltd.

A Financial status

For FY2023, Japan Post (consolidated) reported operating revenues of 3.3237 trillion yen, operating income of 6.3 billion yen, ordinary income of 2.1 billion yen, and net income of 7.2 billion yen, indicating a decrease in both revenue and profit.

By business segment, the postal and logistics busi-

ness recorded operating revenues of 1.9755 trillion yen, operating expenses of 2.0441 trillion yen, and an operating loss of 68.6 billion yen, a decrease of 101.6 billion yen compared to the previous fiscal year. The post office business recorded operating revenues of 1.1129 trillion yen, operating expenses of 1.0399 trillion yen, and an op-

(100 million ven)

erating profit of 72.9 billion yen, an increase of 23.6 billion yen compared to the previous fiscal year (Figure 2-1-12-3).

Figure 2-1-12-3 Changes in Japan Post's (consolidated) operating profit and loss

(100 million yen)							
Fiscal year	2018	2019	2020	2021	2022	2022 2023	
Postal/logistics business	1,213	1,475	1,237	1,022	328	△ 686	
P ost office business	596	445	377	245	493	729	
International logistics business	103	△ 86	35	287	107	95	
Japan Post (consolidated)	1,820	1,790	1,550	1,482	837	63	

* The segment name was changed from "financial counter service" to "post office business" during the March 2022 term.

(Source) Based on Japan Post Holdings Co., Ltd. "Overview of Financial Results"

Additionally, the postal business of Japan Post record-

ed an operating loss of 21.1 billion yen for FY2022.



Figure (related data) Postal service income and expenditure

Source: Prepared based on Japan Post Co., Ltd. "Postal Service Income and Expenditure" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00378 (Data collection)

B Number of postal facilities

As of the end of FY2023, the number of postal offices

stood at 24,223, remaining stable (Figure 2-1-12-4).



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

(Source) "Japan Post Group Disclosure Report" Based on Japan Post "Information on the number of postal offices (open data) " website

This includes 20,143 directly managed post offices (including branch offices and temporarily closed post offices) and 4,080 simplified post offices (including temporarily closed simplified post offices).



Figure (related data) Breakdown of the number of post offices (as of the end of FY2023) Source: Prepared based on Japan Post Co., Ltd. "Information on the number of postal offices (open data)" URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00380 (Data collection)

C Volume of accepted postal items

The total volume of accepted postal items for FY2023

was 17.46084 billion pieces (Figure 2-1-12-5).





* 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, 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). postal savings from the national era, was 192.8 trillion yen at the end of FY2023, a decrease of 67.2 trillion yen (25.8%) from the peak of 260.0 trillion yen at the end of FY1999 (Figure 2-1-12-6).

The balance of deposits at Japan Post Bank, including



Figure 2-1-12-6 Changes in the balance of deposits of Japan Post Bank Co., Ltd.

(Source) Prepared based on Japan Post Bank 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 simple life insurance from the national era, was 19.7 million at the end of FY2023, a decrease of 64.62 million (76.6%) from

the peak of 84.32 million at the end of FY1996. The annualized premium income was 3.0 trillion yen at the end of FY2023, a decrease of 4.7 trillion yen (61.0%) compared to the end of FY2008 (7.7 trillion yen) (Figure 2-1-12-7).





(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 FY2022 were 18.1 billion yen, a decrease of

1.1% from the previous fiscal year (Figure 2-1-12-8).



(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 business¹, but as of the end of FY2023, 596 providers have entered the specified correspondence delivery business². The number of entrants into the first-class service 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/r06/html/datashu.html#f00385 (Data collection)



Figure (related data) Changes in the number of business operators by type of service provided Source: MIC "Promotion of Utilization of AI and RPA in Local Governments"

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00386 (Data collection)

(3) Correspondence delivery handling performance

The number of accepted correspondence delivery items for FY2022 was 20 million pieces, a decrease of

0.3% from the previous fiscal year.



Figure (related data) Changes in the number of correspondences accepted URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00387 (Data collection)

¹ "Nationwide full-scale entry" business that can deliver all types of correspondences on condition of providing general correspondence delivery service across the country.

[&]quot;Specific service type" business with ingenuity. The organization must perform one of three types of specified correspondence delivery service (Class 1 to 3).