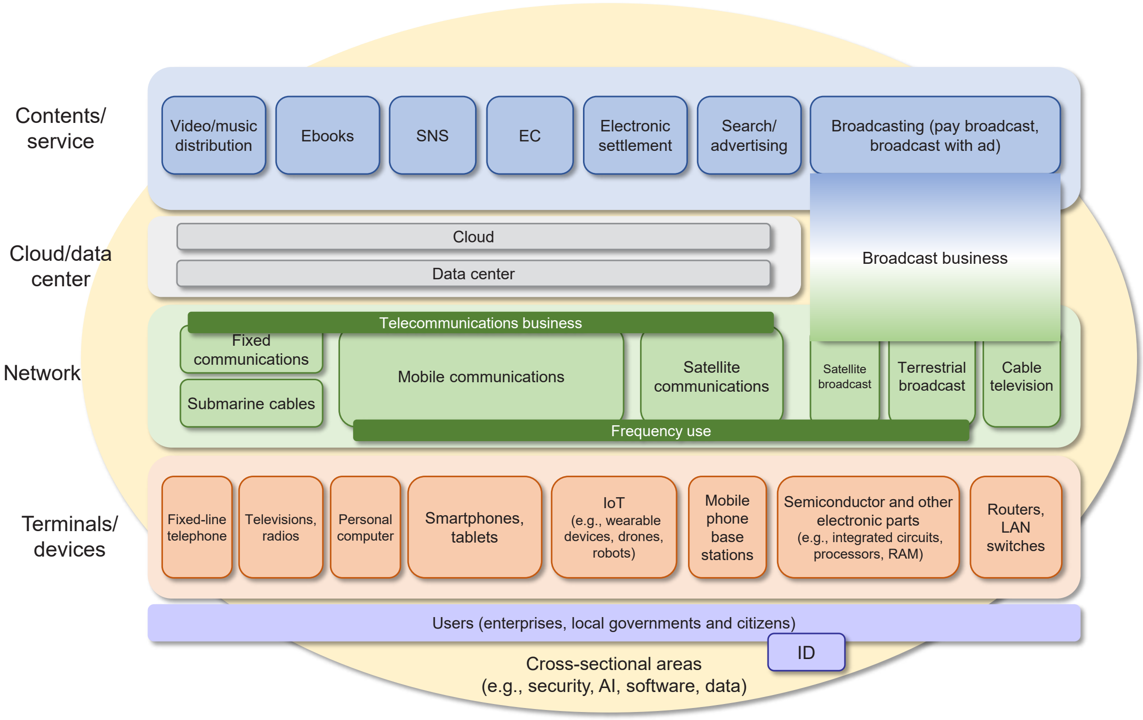
Chapter 4

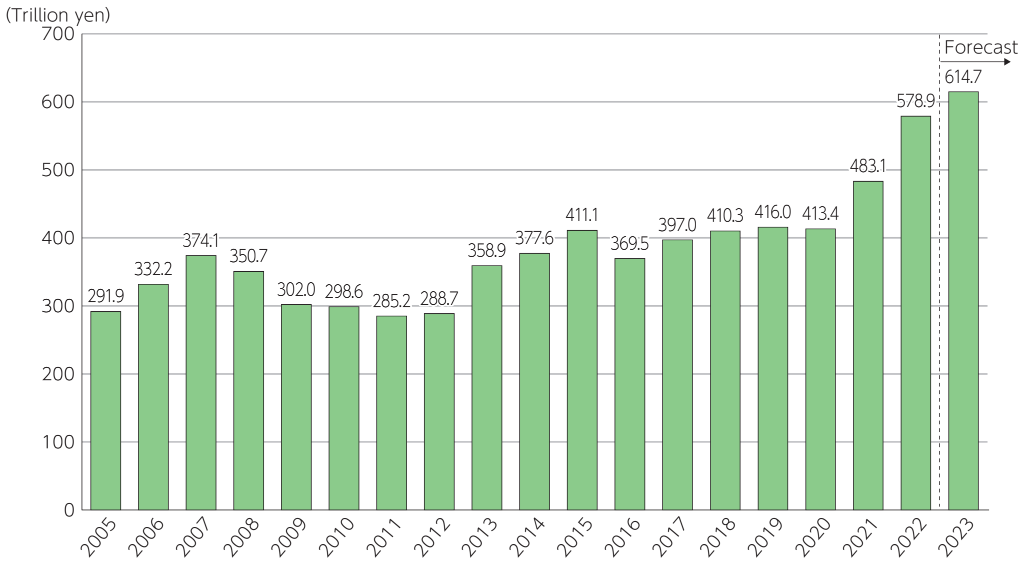
Section 1

1. Structure of the ICT market by layer (Figure4-1-1-1 in White Paper)



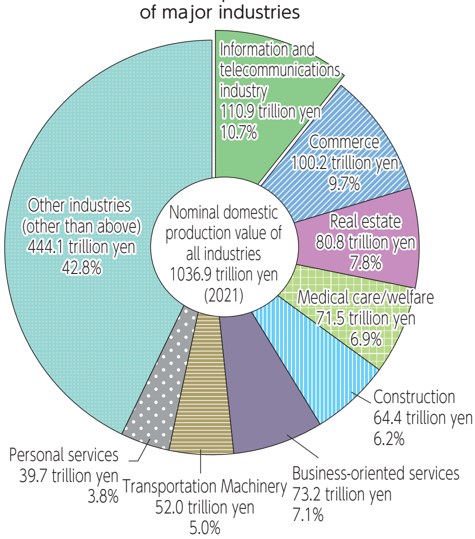
(Source) Created by MIC

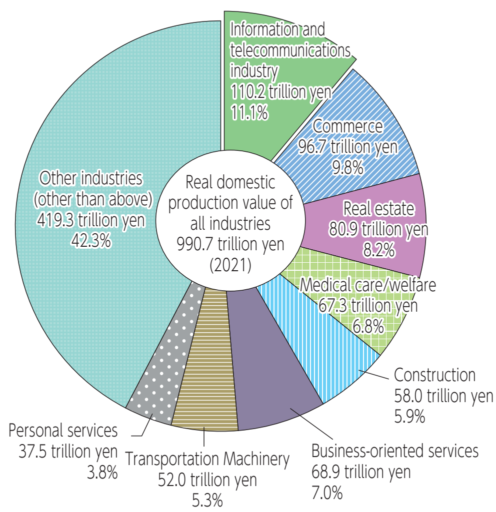
2. Changes in global ICT market size (in terms of expenditure) (Figure4-1-1-2 in White Paper)



(Source) Statista (Gartner)

3. Nominal and real domestic production values of major industries (breakdown of 2021)

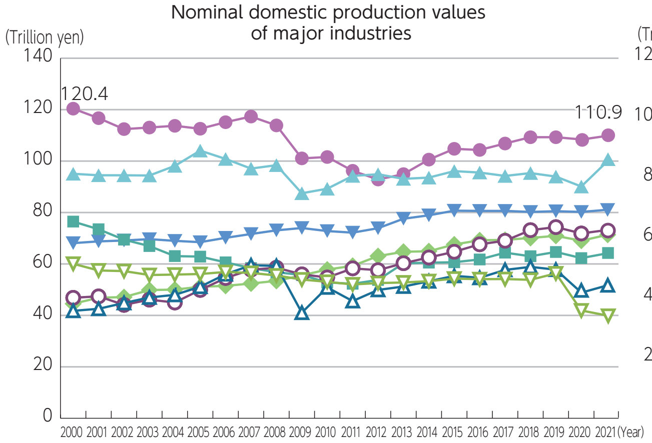


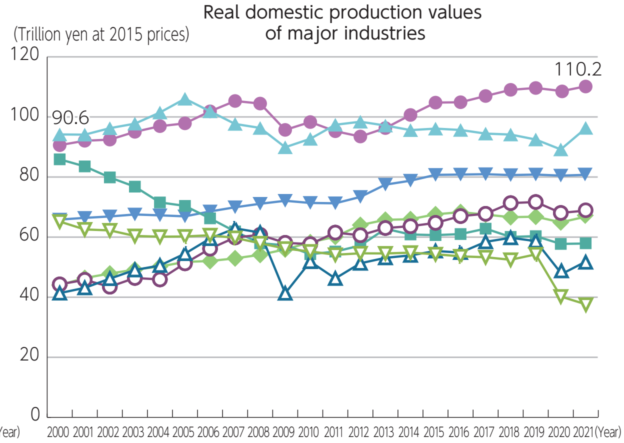


* 1 Real domestic production value is calculated using the 2015 prices.
* 2 For scope of the information and communications industry, see Annotation 3 of the Appendix.

(Source) MIC (2023), "Fiscal 2022 Survey on economic analysis of ICT"

4. Changes in domestic production value of major industries (nominal and real)

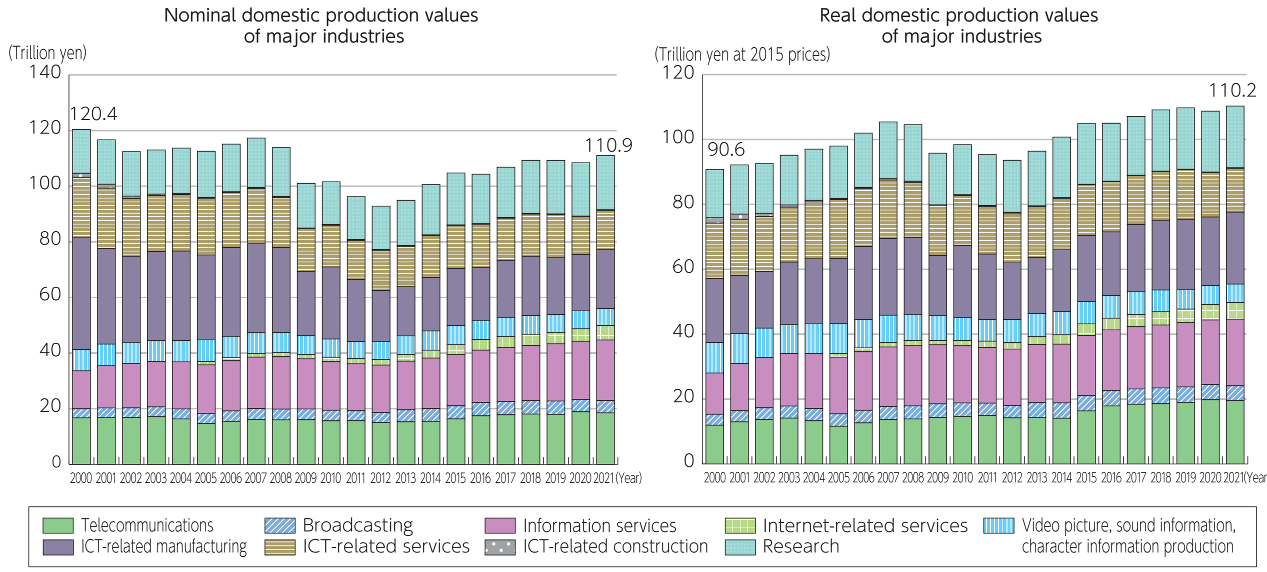




Information and telecommunications industry | Commerce | Real estate | Medical care/welfare | Construction | Business-oriented services | Transportation Machinery | Personal services

(Source) MIC (2023), "Fiscal 2022 Survey on economic analysis of ICT"

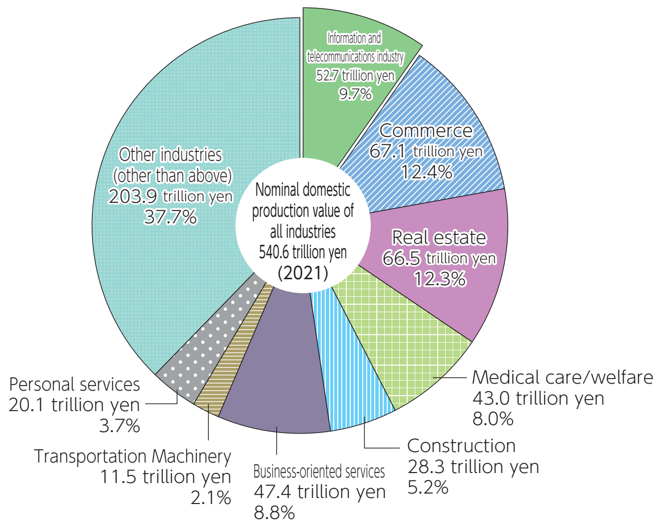
5. Changes in domestic production value of the information and communication industry (nominal and real)*



* For the details of the values, see Data 2 and Data 3 of the Appendix.

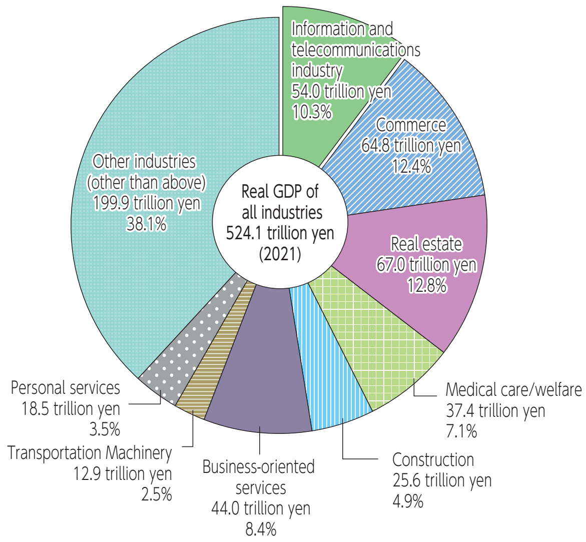
(Source) MIC (2023), "Fiscal 2022 Survey on economic analysis of ICT"

6. GDP of major industries (nominal) (Figure4-1-2-1 in White Paper)



(Source) MIC (2023) "Survey on Economic Analysis of ICT in Fiscal 2022"

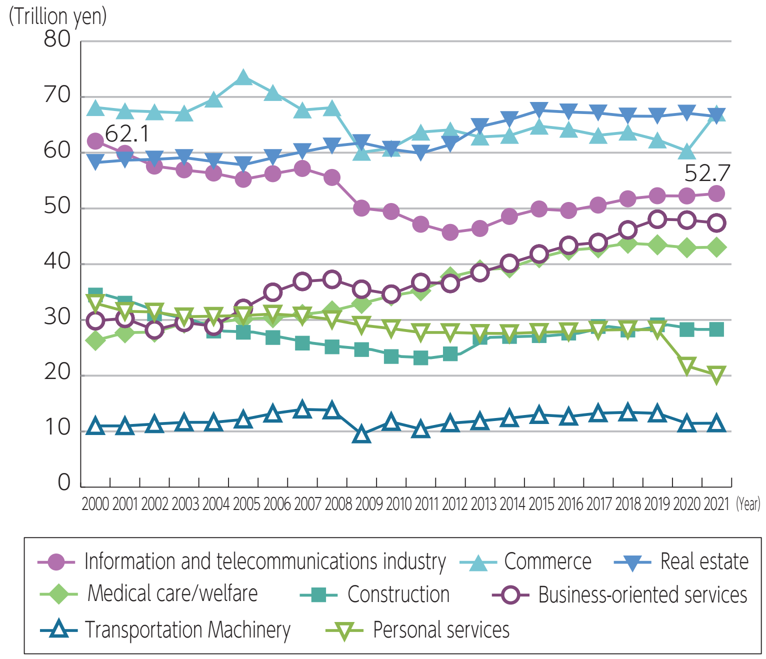
7. GDP of major industries (real)



* Real GDP converted at 2015 prices.

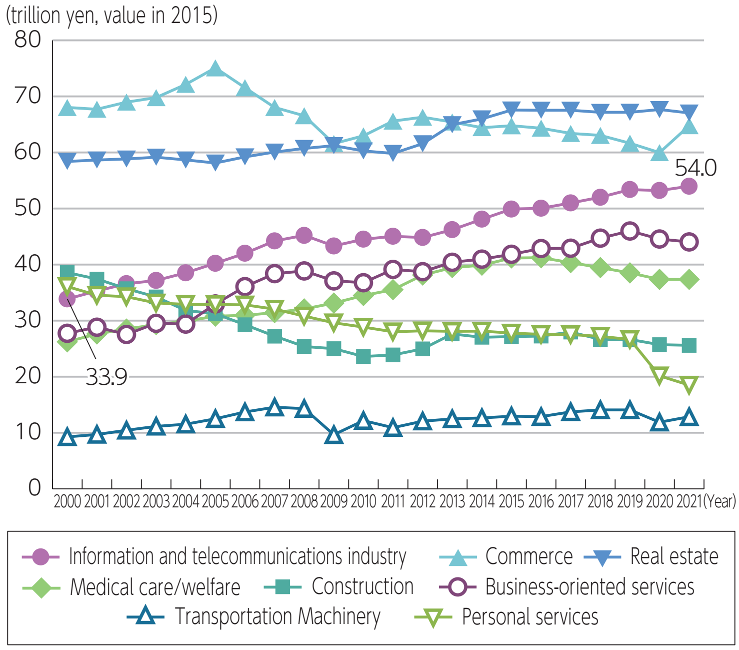
(Source) MIC (2023), "2022 Survey on economic analysis of ICT"

8. Changes in nominal GDP of major industries (Figure4-1-2-2 in White Paper)



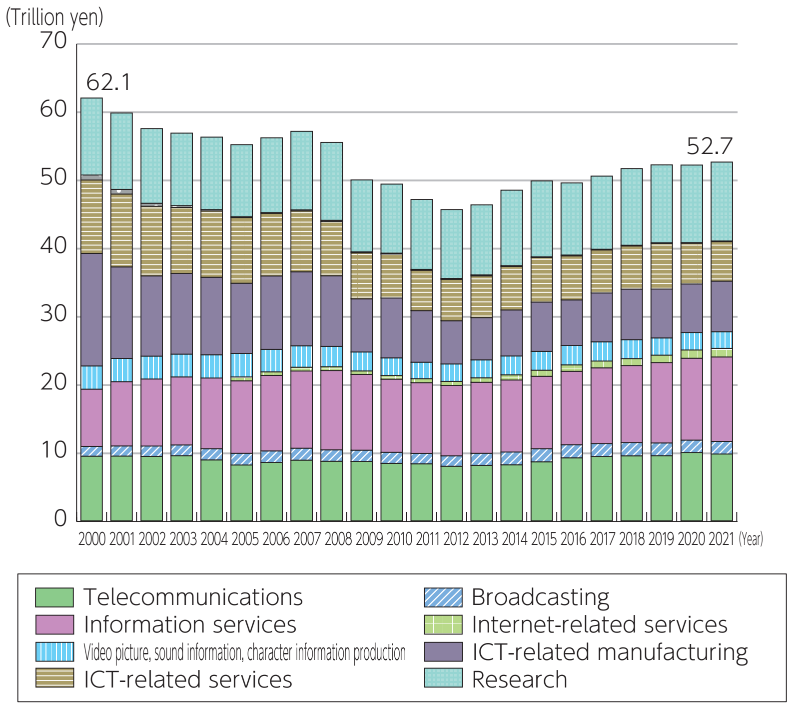
(Source) MIC (2023) "Survey on Economic Analysis of ICT in Fiscal 2022"

9. Changes in GDP of major industries (real)



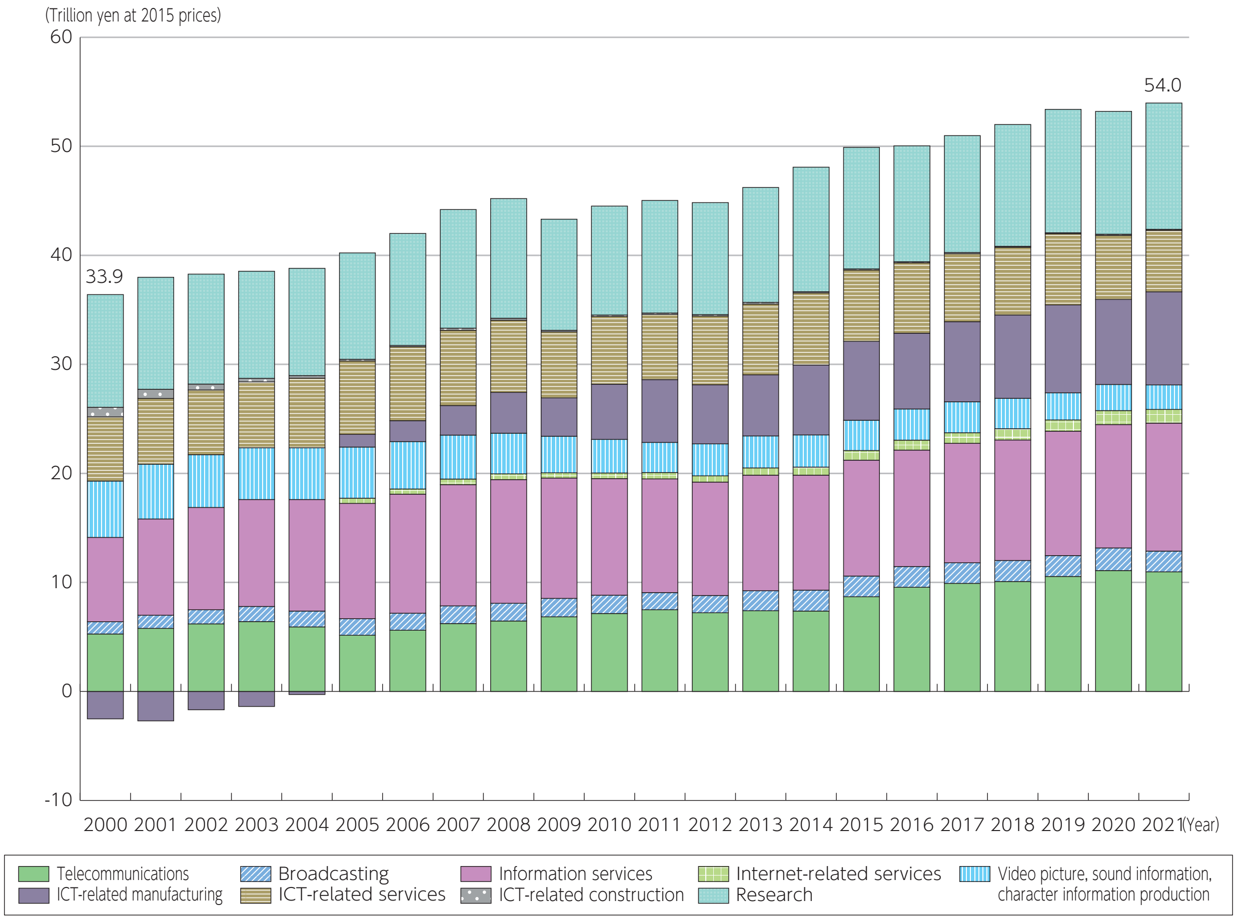
(Source) MIC (2023), "2022 Survey on economic analysis of ICT"

10. Changes in nominal GDP of the ICT industry (Figure4-1-2-3 in White Paper)



(Source) MIC (2023) "Survey on Economic Analysis of ICT in Fiscal 2022"

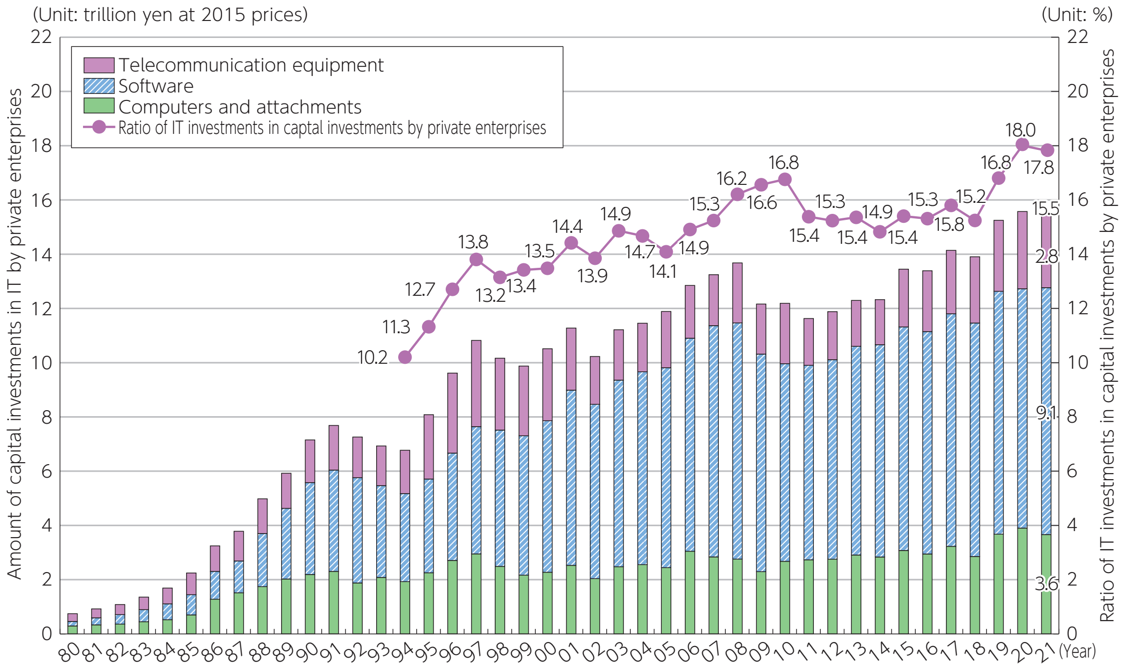
11. Changes in GDP of the information and communication industry (real)



* For the details of the values, see Data 5 of the Appendix.

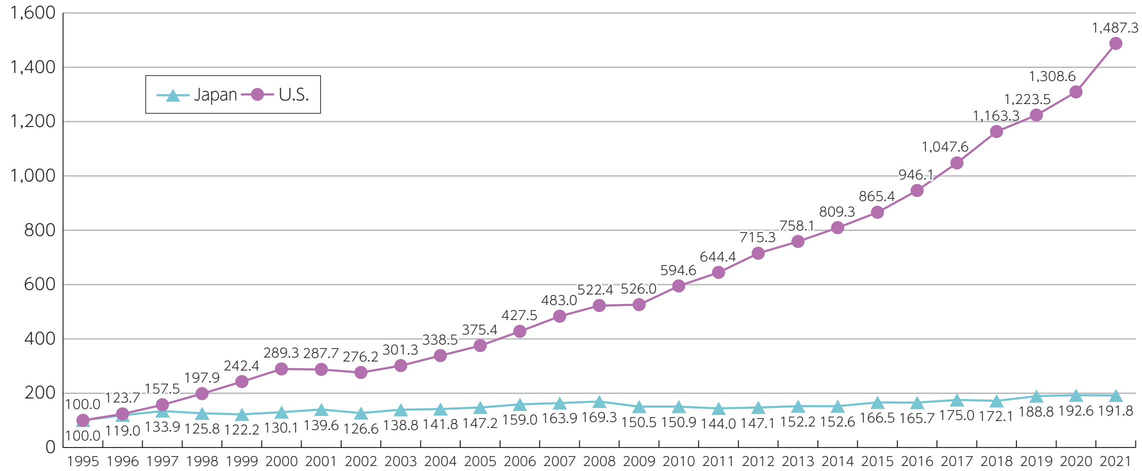
(Source) MIC (2023), "Fiscal 2022 Survey on economic analysis of ICT"

12. Changes in IT investment in Japan (Figure4-1-3-1 in White Paper)



(Source) MIC (2023) "Survey on Economic Analysis of ICT in Fiscal 2022"

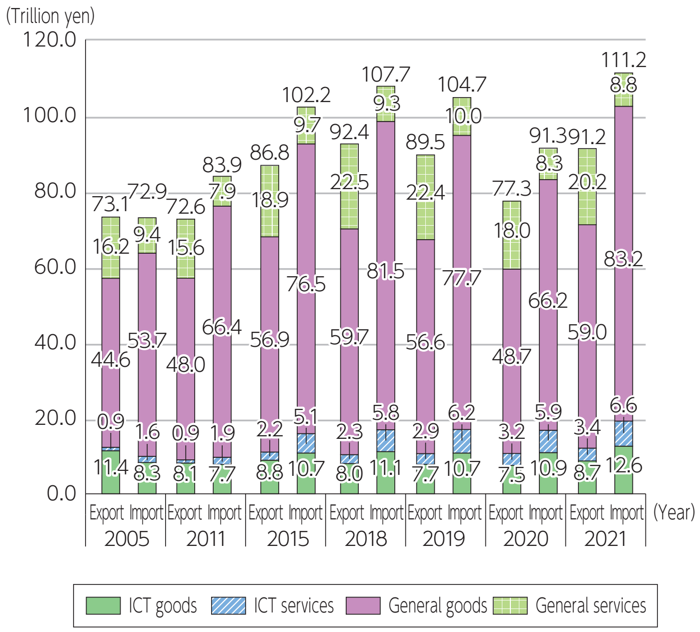
13. Comparison of IT investments in the private sector in Japan and the U.S. (Figure4-1-3-2 in White Paper)



* 1995 = indexed as 100 (Japan: 2015 price; U.S.: 2012 price)

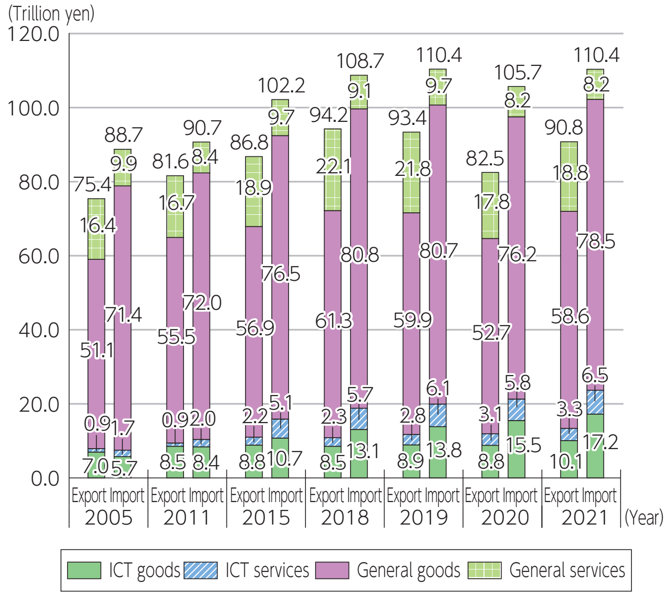
(Source) MIC (2023) "Survey on Economic Analysis of ICT in Fiscal 2022"

14. Changes in the value of imports and exports of goods and services (nominal) (Figure4-1-4-1 in White Paper)



(Source) Prepared based on the MIC "ICT Industry Linkage Table" (for each fiscal year)

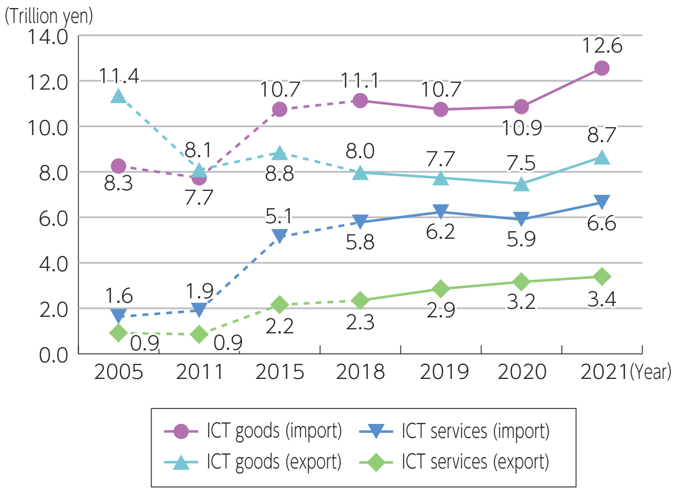
15. Changes in exports/imports of goods/services (real)



* Real value is calculated using the 2015 prices.

(Source) MIC annual "Input-Output Table of the Information Communications Industry"
https://www.soumu.go.jp/johotsusintokei/link/link03_01.html

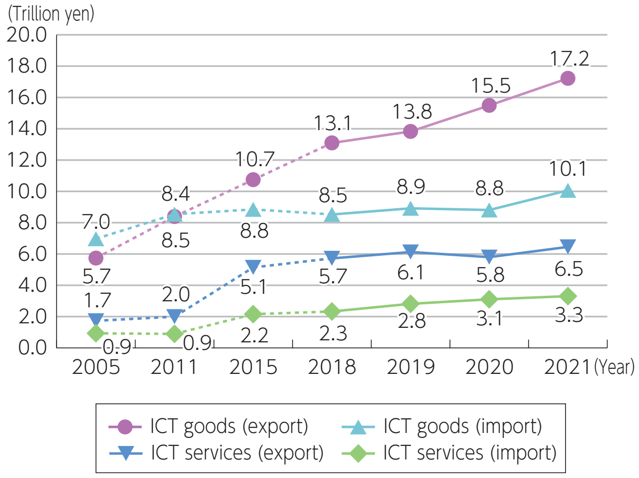
16. Changes in the value of imports and exports of ICT goods and services (nominal) (Figure4-1-4-2 in White Paper)



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

(Source) Prepared based on the MIC "ICT Industry Linkage Table" (for each fiscal year)

17. Changes in exports and imports of ICT goods/services (Real value)



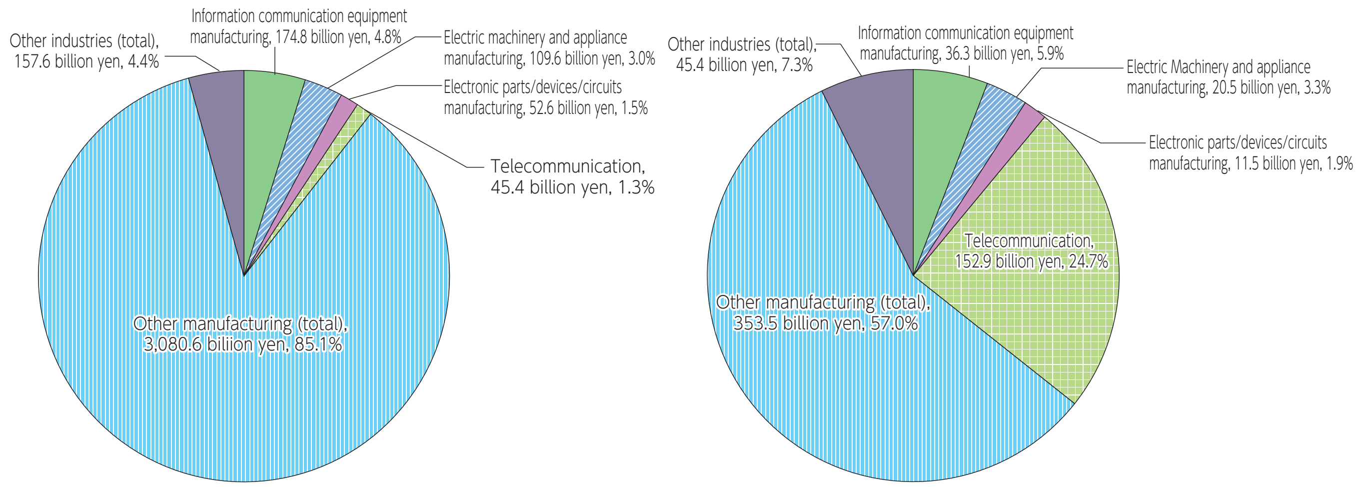
* The transition from 2005 to 2018 is indicated by a dashed line because there is a gap in the period.

(Source) MIC annual "Input-Output Table of the Information Communications Industry"
https://www.soumu.go.jp/johotsusintokei/link/link03_01.html

18. Proportion of technology trade values by industry (fiscal 2021)

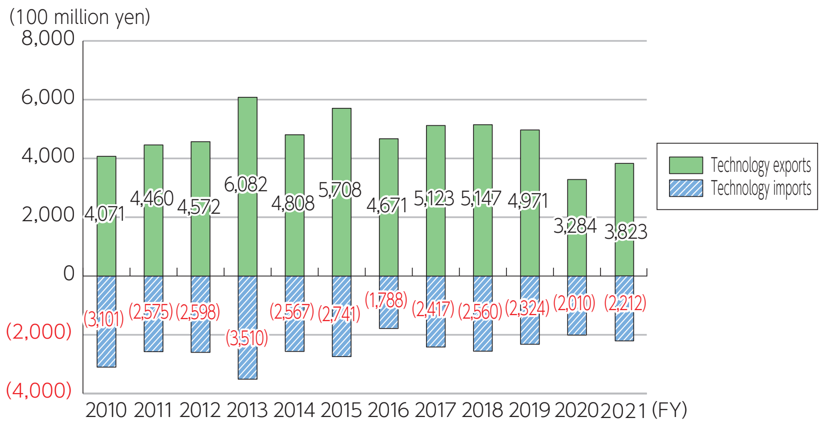
Technology exports of all industries (3.6206 trillion yen)

Technology imports of all industries
(technology imports of all industries (620.1 billion yen))



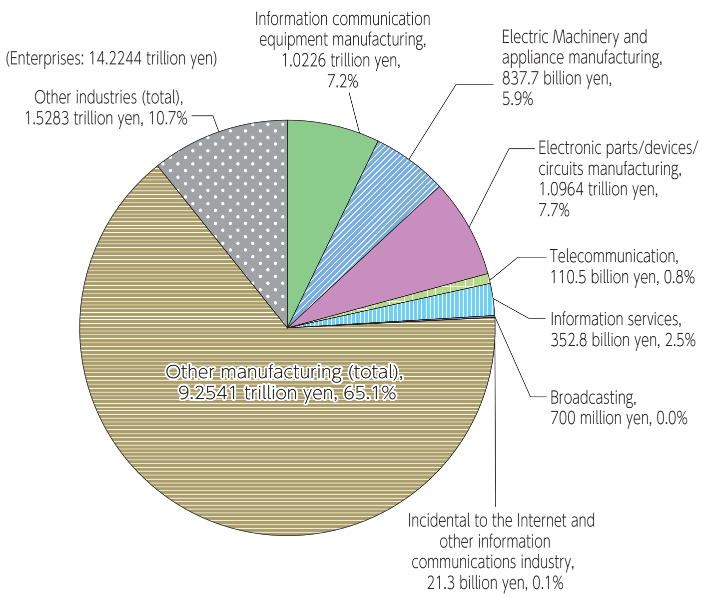
(Source) MIC, annual "Survey of Science and Technology Research"
https://www.stat.go.jp/data/kagaku/index.html

19. Changes in technology trade values of the information and communication industry



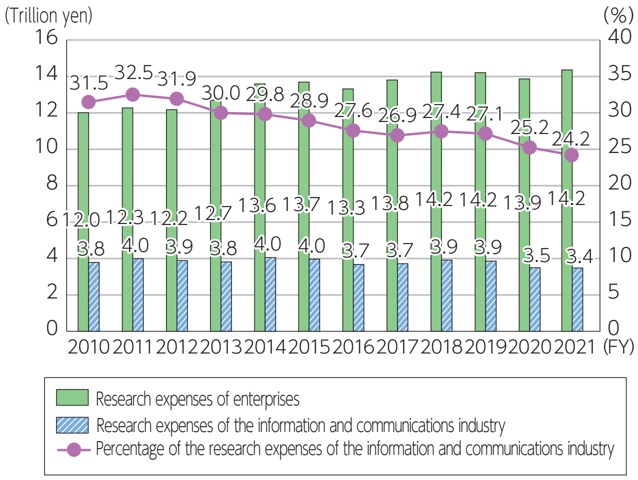
(Source) Prepared from MIC, annual "Survey of Science and Technology Research"
https://www.stat.go.jp/data/kagaku/index.html

20. Percentages of research expenditure by companies (fiscal 2021) (Figure4-1-5-1 in White Paper)



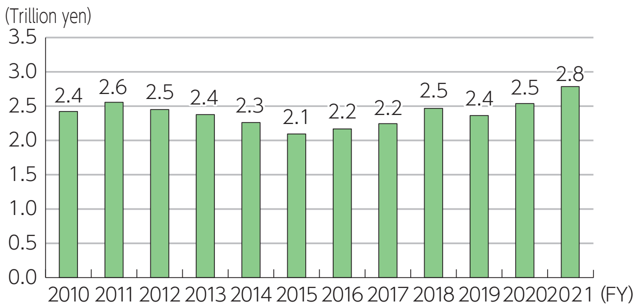
(Source) Prepared based on the MIC "2022 Science and Technology Research Survey"

21. Changes in research expenditure by companies (Figure4-1-5-2 in White Paper)



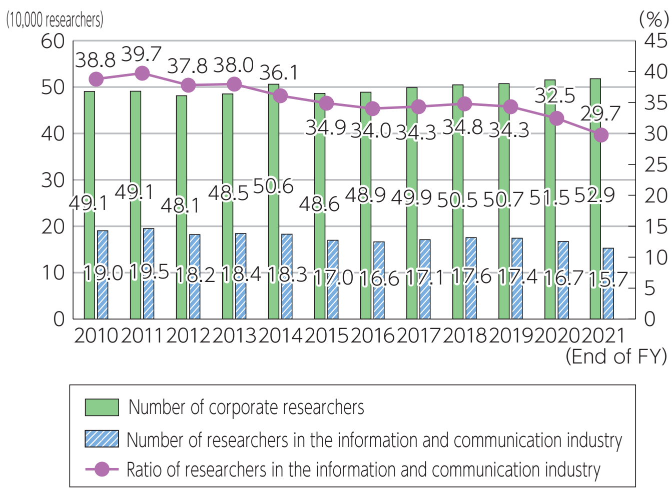
(Source) Prepared based on the MIC "Science and Technology Research Survey" for each fiscal year

22. Changes in research expenses in the information and communications sector



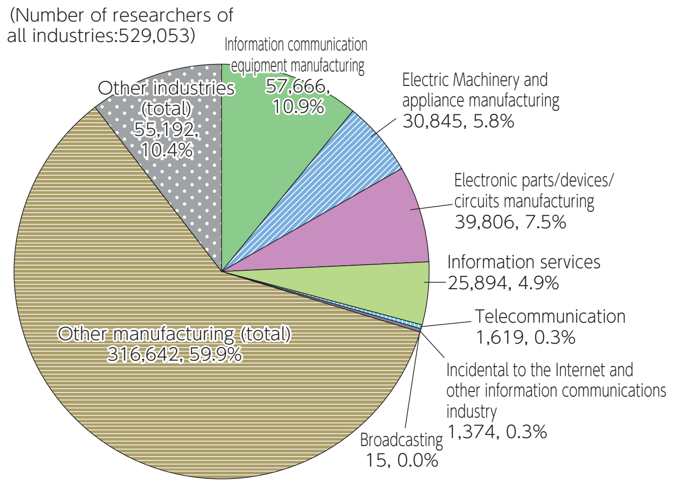
(Source) Prepared from MIC, annual "Survey of Science and Technology Research"
https://www.stat.go.jp/data/kagaku/index.html

23. Changes in the number of researchers at companies (Figure4-1-5-3 in White Paper)



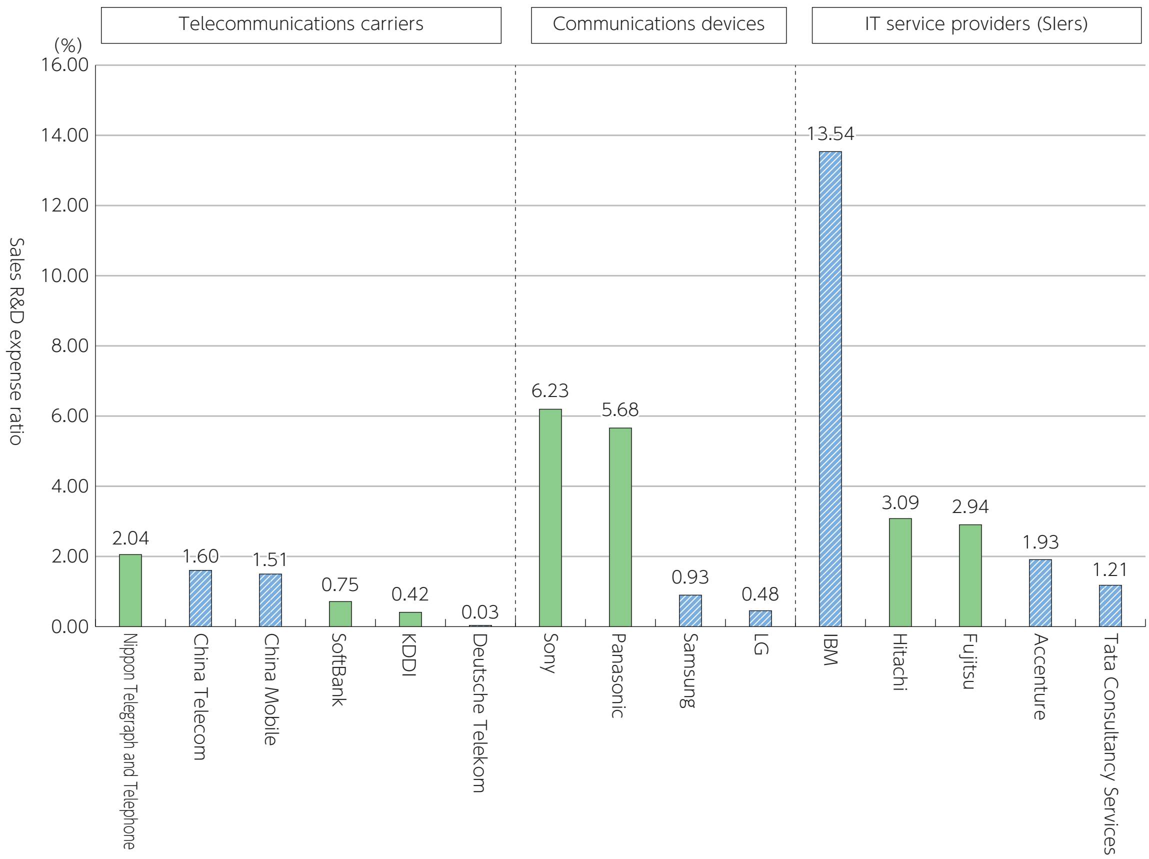
(Source) Prepared based on the MIC "Science and Technology Research Survey" for each fiscal year

24. Percentages of the number of researchers at companies by industry (as of March 31, 2022)



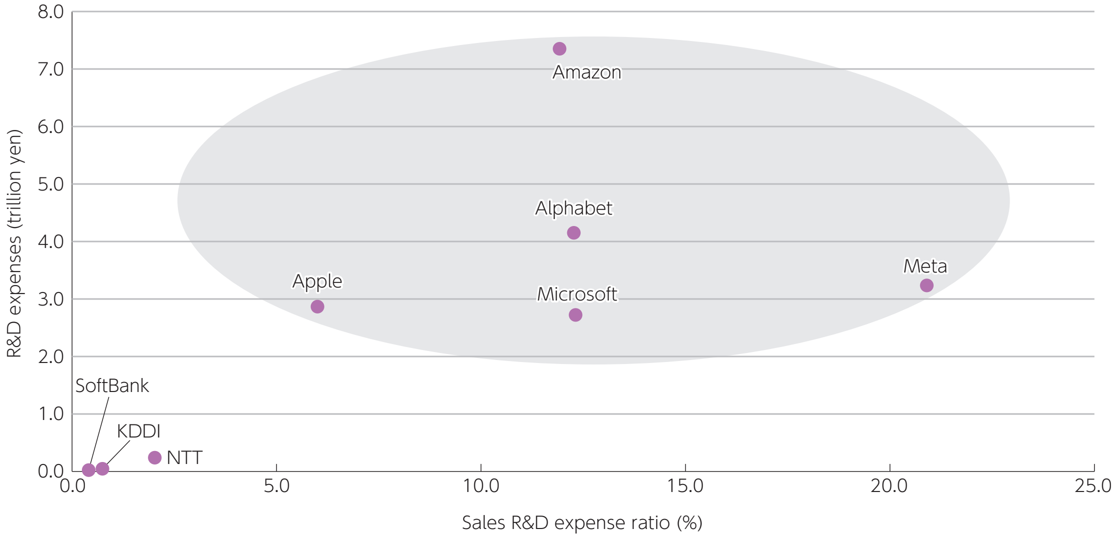
(Source) Prepared based on the MIC "2022 Science and Technology Research Survey"

25. Comparison of research and development expenditures by telecommunications carriers, communications devices and IT service providers (2021) (Figure4-1-5-5 in White Paper)



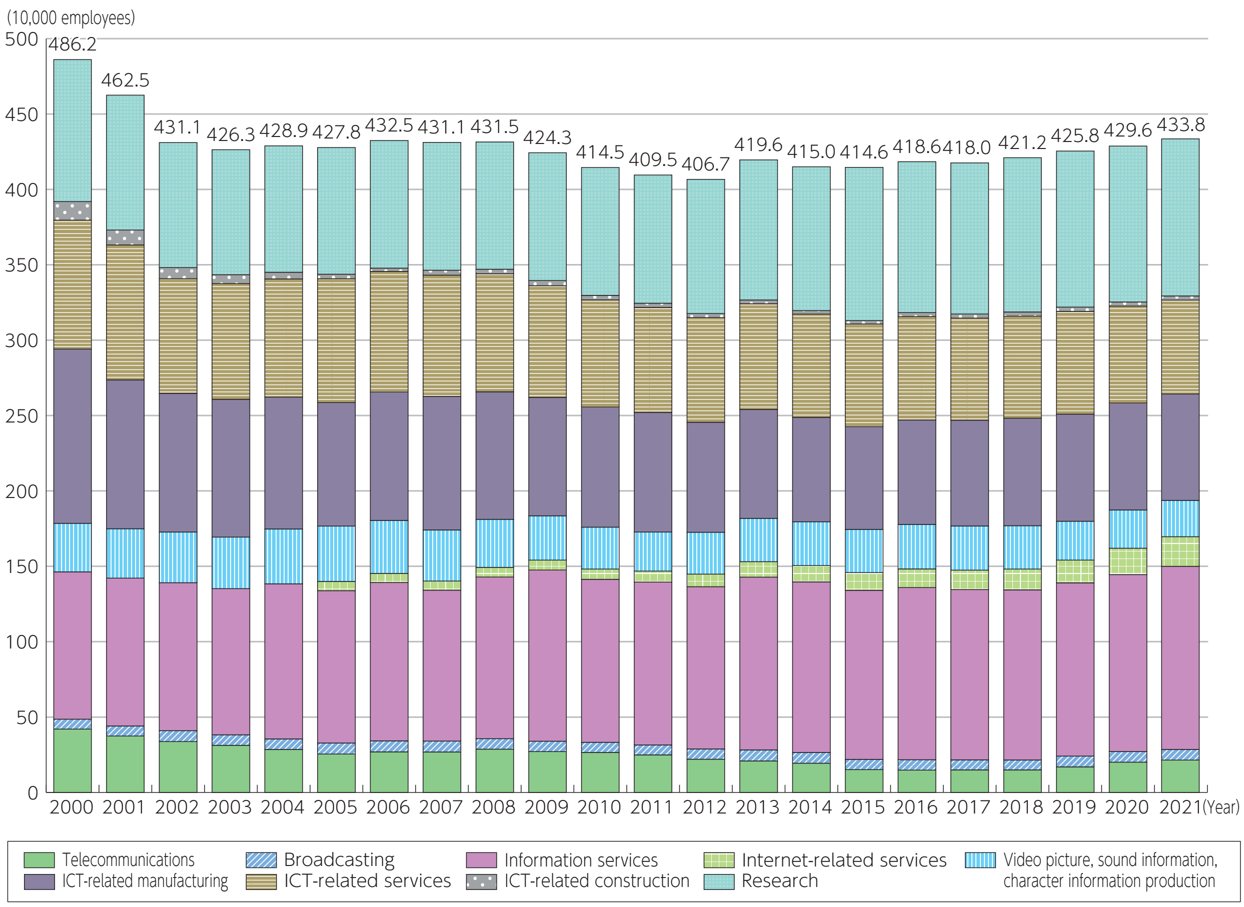
(Source) Prepared based on the annual reports released by companies

26. Comparison of research and development expenditures between major Japanese companies and GAFAM (2021) (Figure4-1-5-6 in White Paper)



(Source) Prepared based on the annual reports released by companies

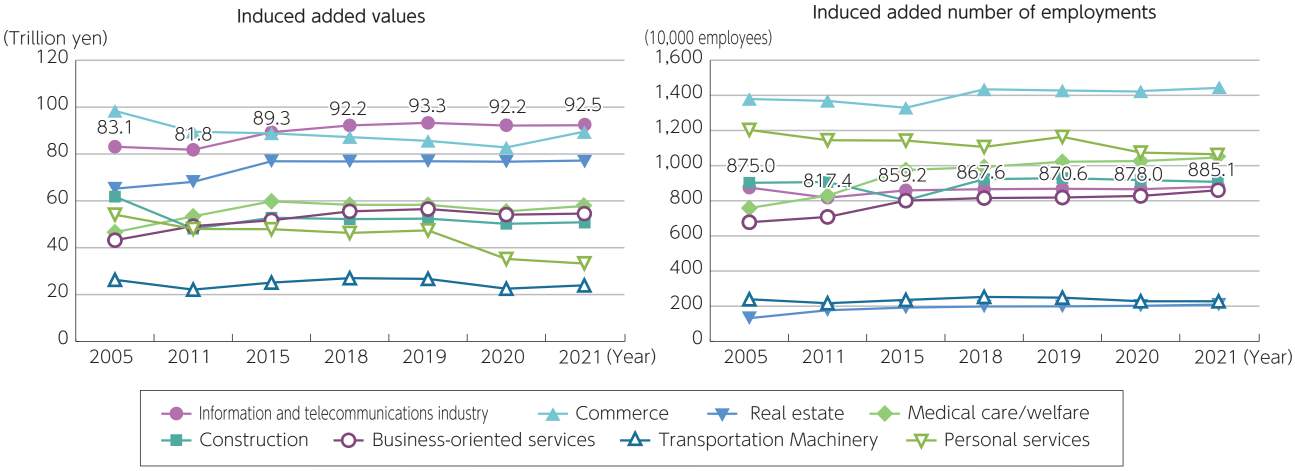
27. Changes in the number of employees of the information and communication industry



* For the details of the values, see Data 6 of the Appendix.

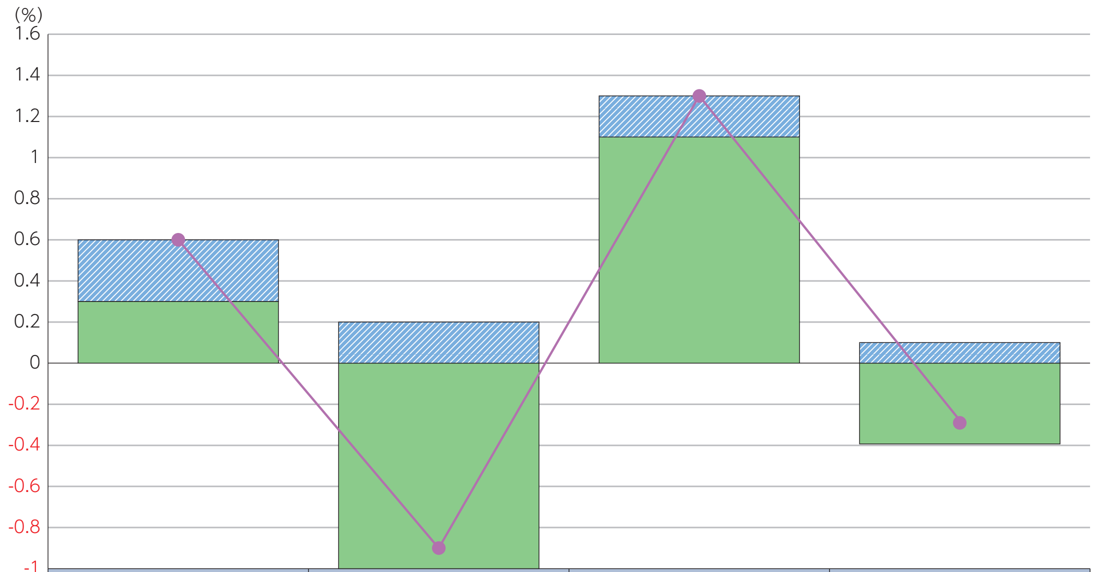
(Source) MIC (2023), "Fiscal 2022 Survey on economic analysis of ICT"

28. Changes in the economic ripple effects (induced added values and number of employments) of production activities of major industry sectors



(Source) MIC (2023), "Fiscal 2022 Survey on economic analysis of ICT"

29. Contribution of the information and communications industry to the real GDP growth rate

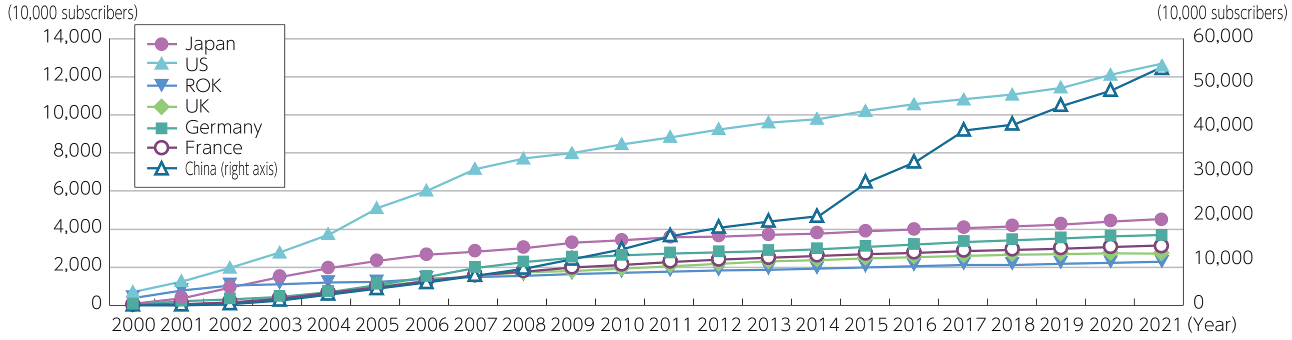


	2000 to 2005 (annual average)	2005 to 2010 (annual average)	2010 to 2015 (annual average)	2015 to 2021 (annual average)
Information and communications industry	0.3	0.2	0.2	0.1
Other industries	0.3	-1.0	1.1	-0.4
All industries	0.6	-0.9	1.3	-0.3

(Source) MIC (2023), "Fiscal 2022 Survey on economic analysis of ICT"

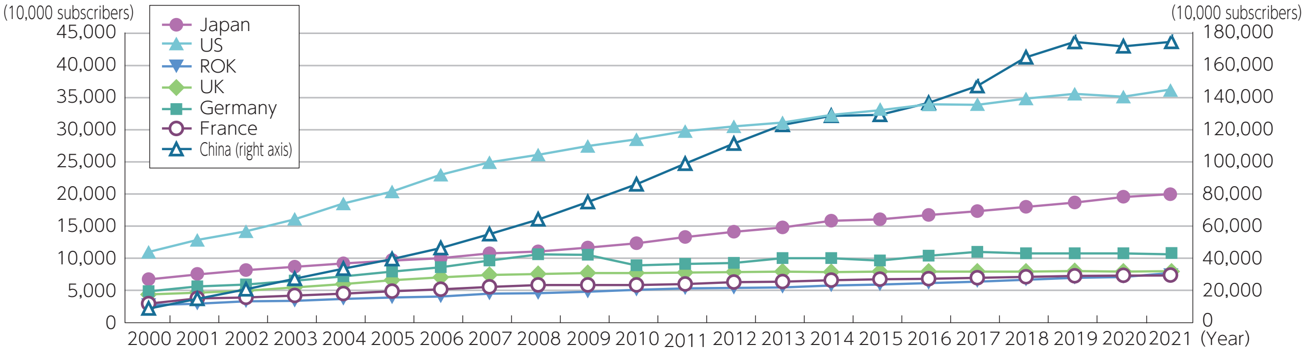
Section 2

1. Changes in fixed broadband service subscriptions in major countries (Figure4-2-1-1 in White Paper)



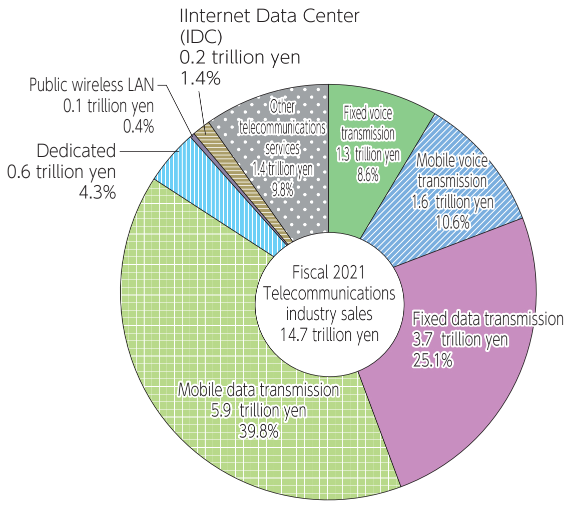
(Source) ITU

2. Changes in the number of mobile phone subscriptions in major countries (Figure4-2-1-2 in White Paper)



(Source) ITU

3. Composition of sales in the telecommunications industry (Figure4-2-2-1 in White Paper)



* 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 the MIC "Basic Survey on the Information and Communications Industry"

4. Changes in the number of telecommunications carriers (Figure4-2-2-2 in White Paper)

End of FY	2015	2016	2017	2018	2019	2020	2021	2022
Number of telecommunication carriers	17,519	18,177	19,079	19,818	20,947	21,913	23,111	24,272

(Source) Information and Communications Statistics Database

5. State of preparation of optical fiber as of March 31, 2022 (estimated) (Figure4-2-2-3 in White Paper)

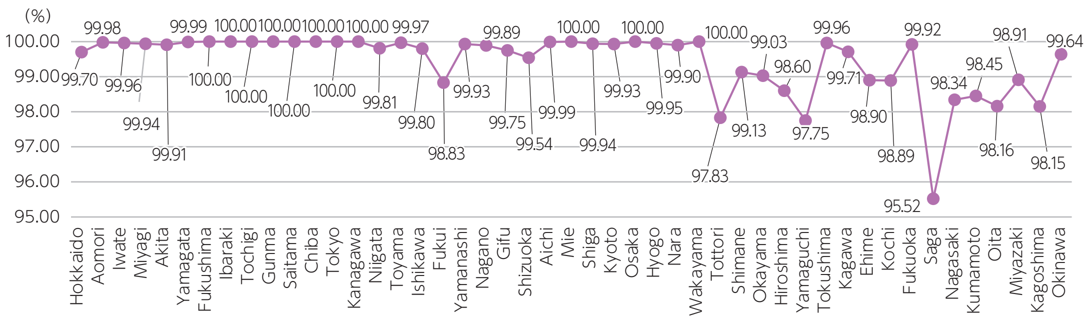
Nationwide development rate of optical fiber

End of March 2022 **99.72%**

(160,000 households are in undeveloped areas)

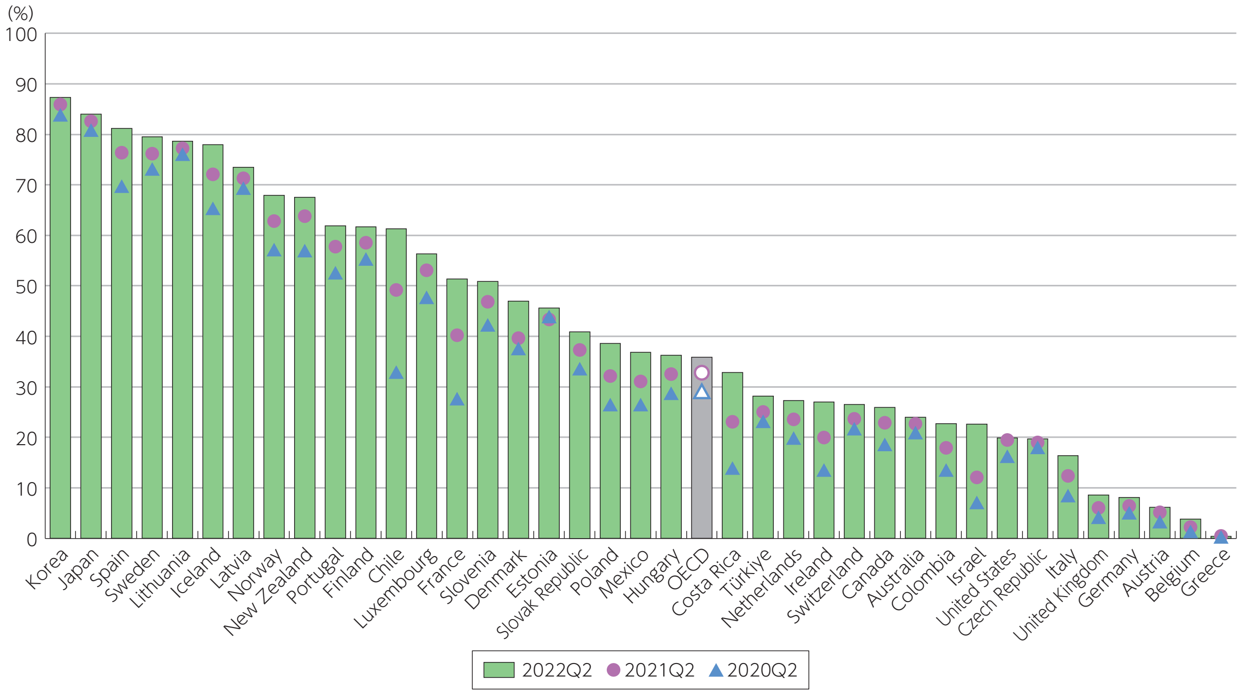
*Based on the basic resident register, etc., the number of the households that can use optical fiber in the areas as estimated based on carrier information on a certain assumption was divided by the number of total households (rounded off to two decimal places).

Development rate of optical fiber by prefecture



(Source) MIC "Survey on Broadband Infrastructure Coverage Rate at End of Fiscal 2021"

6. Percentage of optical fiber in fixed broadband in OECD member countries



(Source) OECD Broadband statistics. 1.10. Percentage of fiber connections in total fixed broadband, June 2022

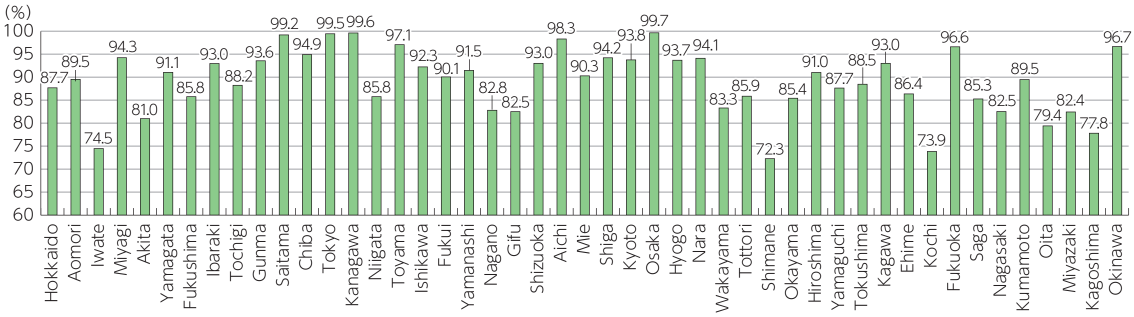
7. Japan's 5G coverage as percentage of population (as of end of March 2022) (Figure4-2-2-4 in White Paper)

National 5G population coverage (end of March 2022)

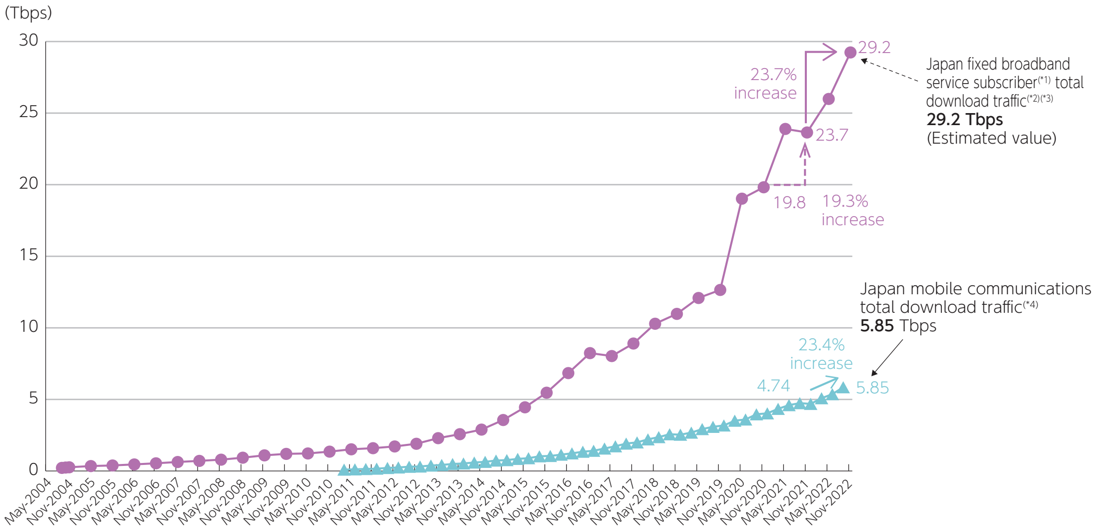
93.2%

* Combined figures of area coverage of four mobile carriers
Rounded to two decimal places

5G population coverage by prefecture (end of March 2022)



8. Changes in Internet traffic (fixed systems, mobile systems, download traffic) (Figure4-2-2-5 in White Paper)



* 1 Services for individuals (FTTH, DSL, CATV, FWA) (including some corporations)
* 2 Prior to May 2011, this also includes some mobile communications traffic to and from mobile phone networks.
* 3 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.
* 4 From "MIC Current State of Mobile Communications Traffic in Japan (Sept. 2022)" (measured in March, June, Sept., and Dec.)

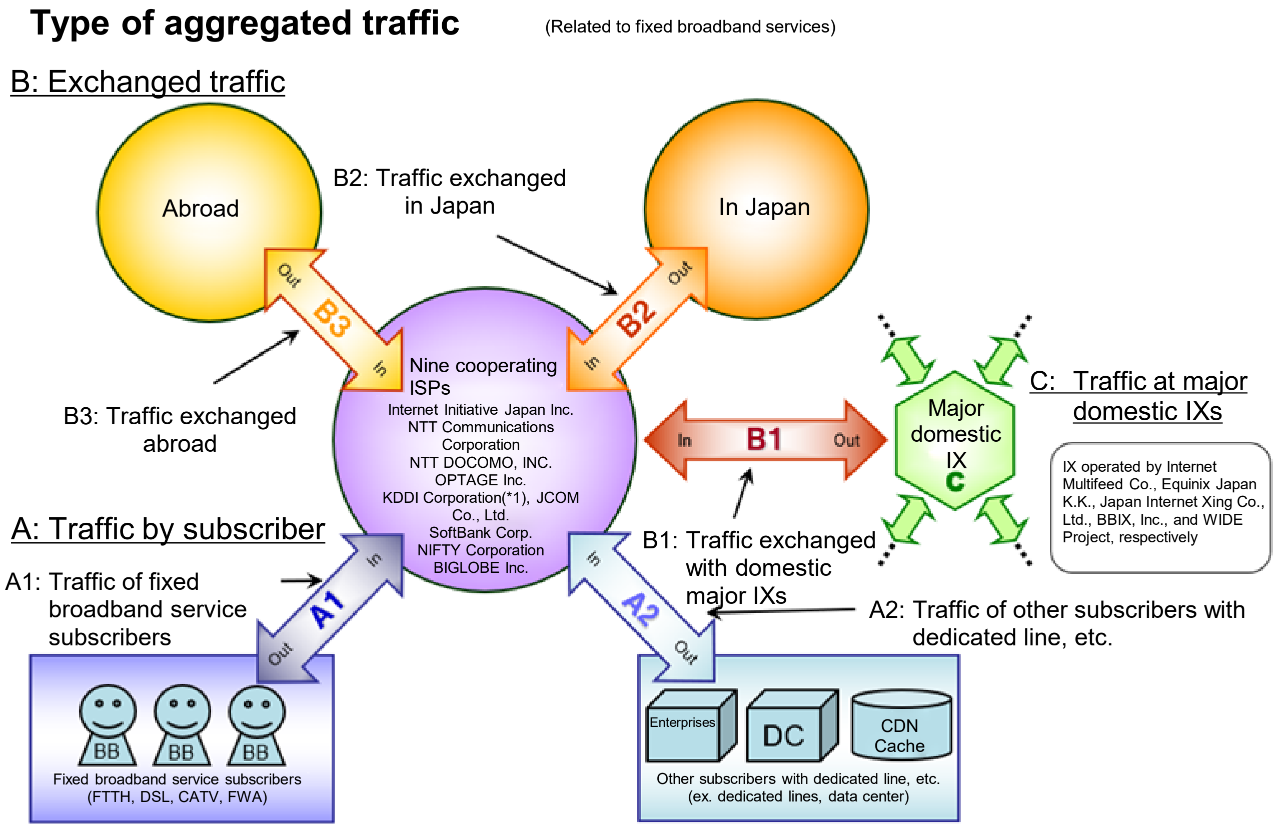
(Source) MIC (2023) "Results of Aggregating Internet Traffic in Japan (for November 2022)"

9. Totalization and trial calculation of internet traffic in Japan*1*2

Totalization and estimates of traffic

Year	Month	Total traffic of broadband service subscribers in Japan (estimates) [Gbps] *3		Traffic per broadband service subscriber (estimates) [kbps]		(A1) Traffic of broadband service subscribers (FTTH, DSL, CATV, FWA) [Gbps]		(A2) Traffic of other subscribers (ex. dedicated line, data center) [Gbps]		(B1) Traffic exchanged among major domestic IX and cooperating nine ISPs [Gbps]		(B2) Traffic exchanged between domestic ISPs and nine cooperating ISPs without mediation of IX [Gbps]		(B3) Traffic exchanged between domestic ISPs and nine cooperating ISPs [Gbps]		(X) Share of nine cooperating ISPs (calculated based on the number of contracts) *4
		In	out	in	out	in	out	in	out	in	out	in	out	in	out	
2020	May	2,321	19,025	56.1	460.2	1,534.3	12,575.6	2,968.1	2,420.1	1,610.7	328.6	10,065.5	1,353.3	2,945.8	724.5	66.10%
	November	2,373	19,821	56.2	469.4	1,542.7	12,885.5	2,787.3	2,552.4	1,502.0	290.5	9,380.0	1,535.1	2,603.5	593.5	65.01%
2021	May	2,781	23,899	64.8	556.8	1,776.4	15,264.6	3,226.4	3,084.7	1,881.8	584.3	12,454.5	1,651.1	2,946.1	715.6	63.87%
	November	2,816	23,650	64.7	543.2	1,772.3	14,885.5	3,590.7	3,147.5	2,078.7	631.9	12,906.8	1,654.0	2,518.9	820.7	62.94%
2022	May	3,088	25,993	70.8	595.7	1,922.1	16,180.7	3,850.4	3,530.7	2,299.0	677.7	14,178.9	1,687.8	2,492.9	914.1	62.25%
	November	3,251	29,241	73.2	658.2	1,973.2	17,749.1	4,039.4	3,827.9	2,616.8	707.7	15,662.5	1,952.6	2,687.0	939.1	60.70%

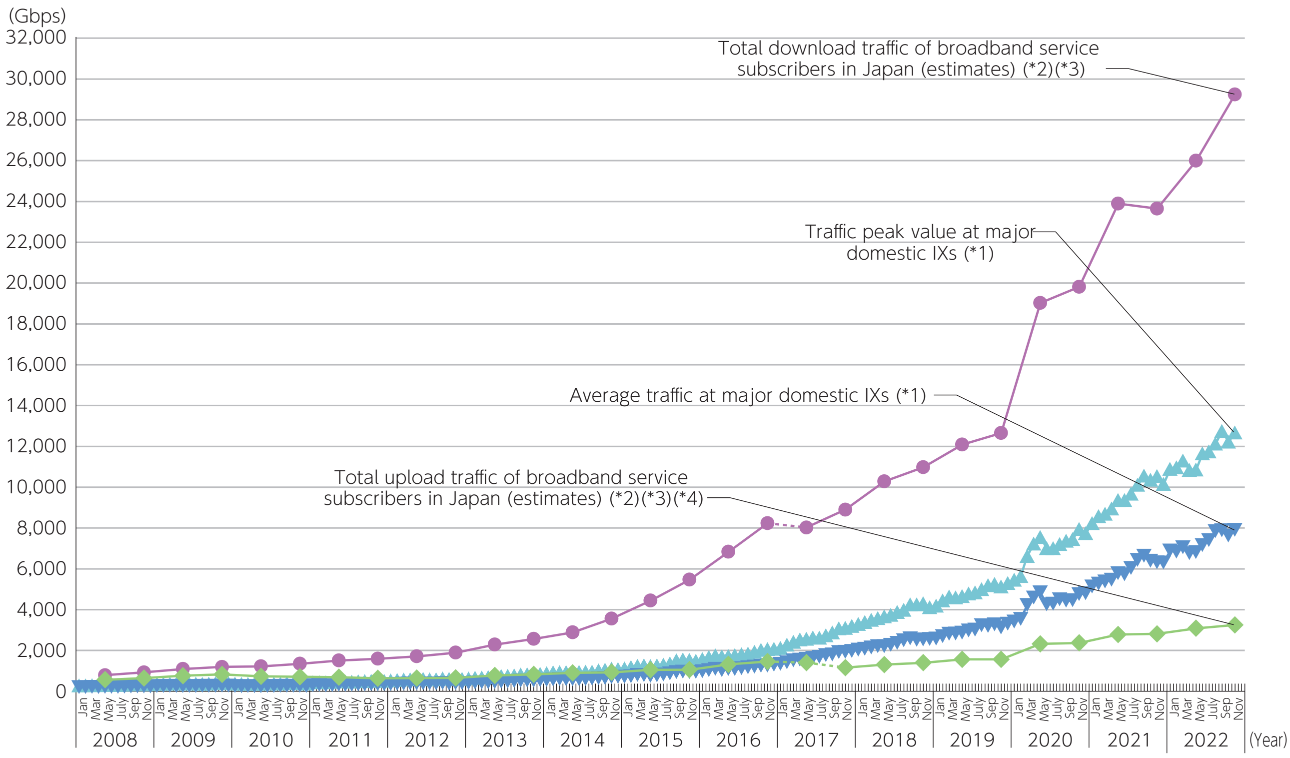
* 1 In "Total traffic of broadband service subscribers in Japan (estimates)", "Traffic per broadband service subscriber (estimates)", A1 and A2, "in" corresponds to "upload" while "out" corresponds to "download".
* 2 Aggregate and estimated values of nine cooperating ISPs (Internet Initiative Japan Inc. (IIJ), NTT Communications Corporation, NTT DOCOMO, INC. (formerly NTT Plala), OPTAGE Inc., KDDI Corporation, JCOM Co., Ltd., SoftBank Corp., NIFTY Corporation, and BIGLOBE Inc.).
* 3 Total traffic of broadband service subscribers in Japan (estimates) is calculated based on the traffic of broadband subscribers of nine cooperating ISPs (A1) and their share of subscribers (X).
* 4 Estimation by linear interpolation based on the "publication of quarterly data on the number and share of telecommunication service contracts"



(*1) Traffic and contract count data of former NTT Plala from NTT DOCOMO, INC.

(Source) Prepared from MIC, "Aggregation result of Internet Traffic in Japan - release of the aggregation result in November 2022"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000210.html

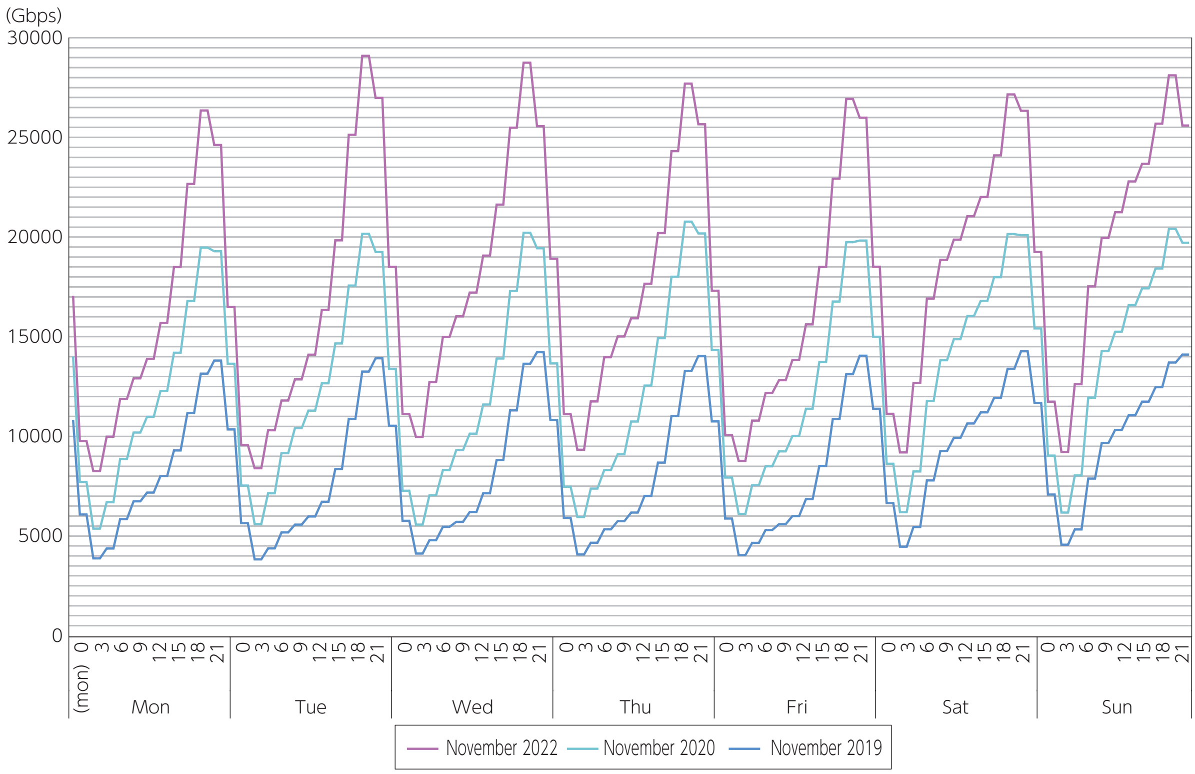
10. Changes in the internet traffic in Japan



* 1 Before December 2010: traffic at three major IXs (WIDE Project (NSPIXP),) Japan Internet Exchange Co. (JPIX) and Internet Multifeed Co. (JPNAP)); In January 2011 and after: traffic at three IXs above plus additional two IXs (BBIX Inc. and Equinix Japan K.K.)
* 2 Before May 2011, a part of mobile communication traffic with mobile telephone network was included in the traffic between some cooperating ISPs and broadband service subscribers. Because exclusion of the traffic concerned from calculation became possible, traffic has been aggregated and calculated without the traffic concerned since November 2011.
* 3 Data is discontinuous because number of cooperating ISPs increased from 5 to 9 in May 2017 and total values and estimates have been based on the nine ISPs since then.
* 4 Data is discontinuous due to a review of measurement method by some of the cooperating business operators during the period from May to November 2017.

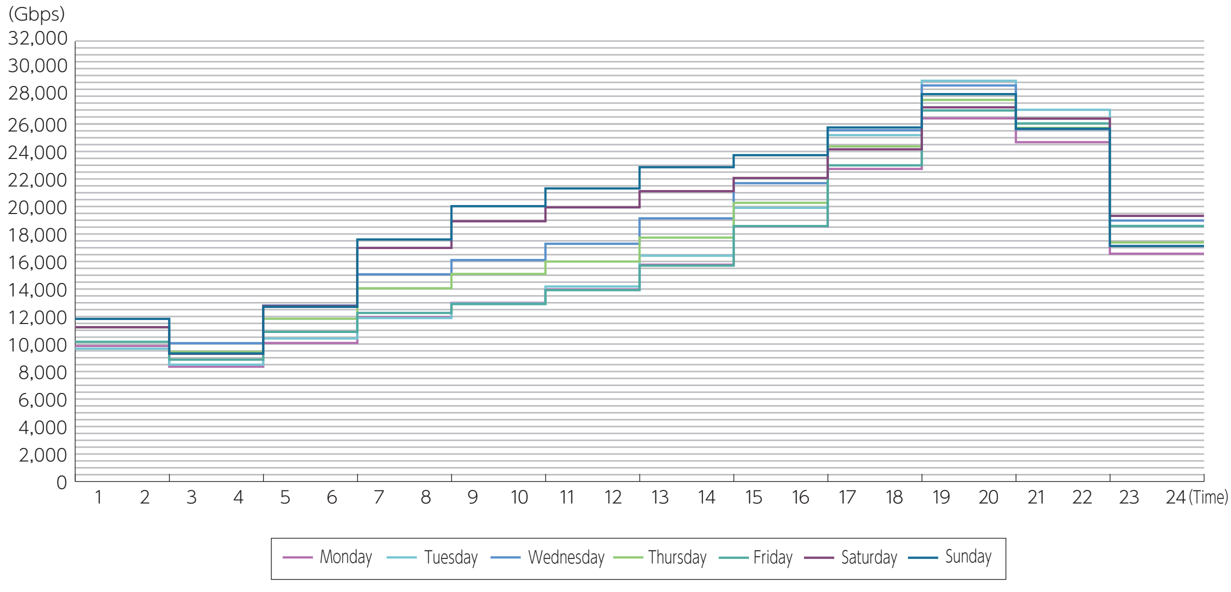
(Source) Prepared from MIC, "Aggregation result of Internet Traffic in Japan (release of the aggregation result in November 2021)"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000210.html

11. Changes in download traffic of broadband subscribers with nine ISPs



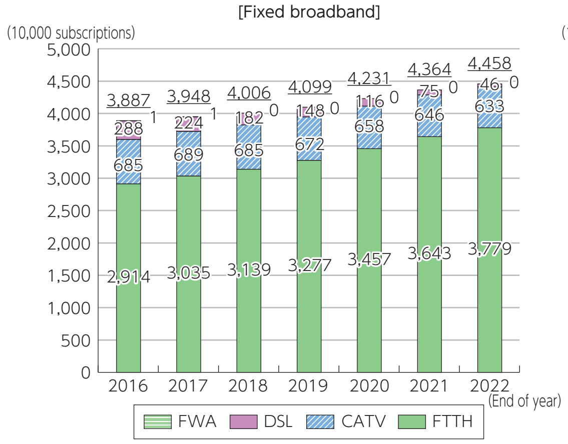
(Source) Prepared from MIC, "Aggregation result of Internet Traffic in Japan (release of the aggregation result in November 2022)"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000210.html

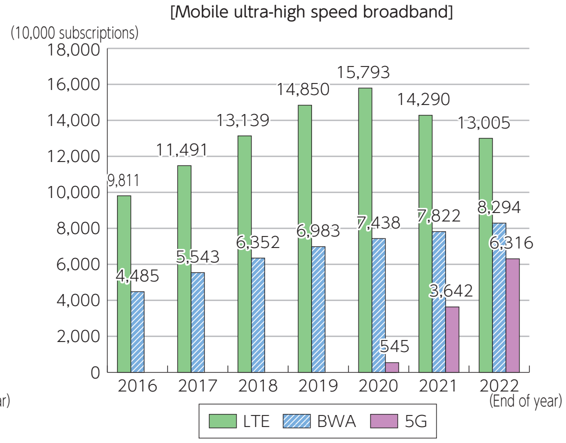
12. Changes in traffic of broadband subscribers with nine ISPs by day of week



(Source) MIC "Compilation and Estimation of Aggregating Internet Traffic in Japan: Publication of Aggregated Results in November 2022"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000210.html

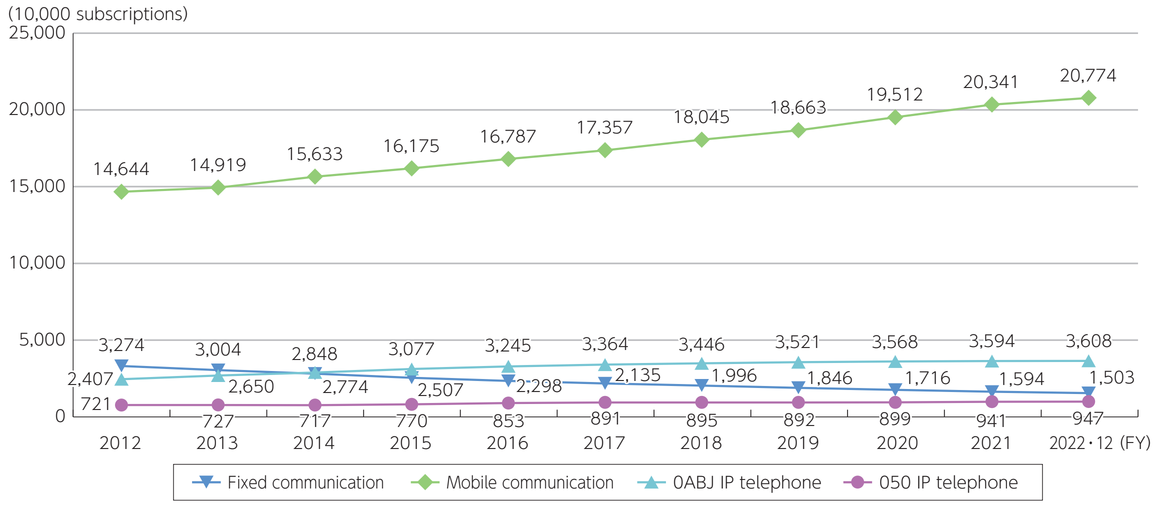
13. Changes in the number of broadband subscriptions (Figure4-2-2-6 in White Paper)





* The figures for the past differ from those published last year due to revisions in business operator reports.
(Source) Prepared based on the MIC "Quarterly data on the number and share of subscriptions to telecommunications services (Fiscal 2022 Q3 (End of December))"

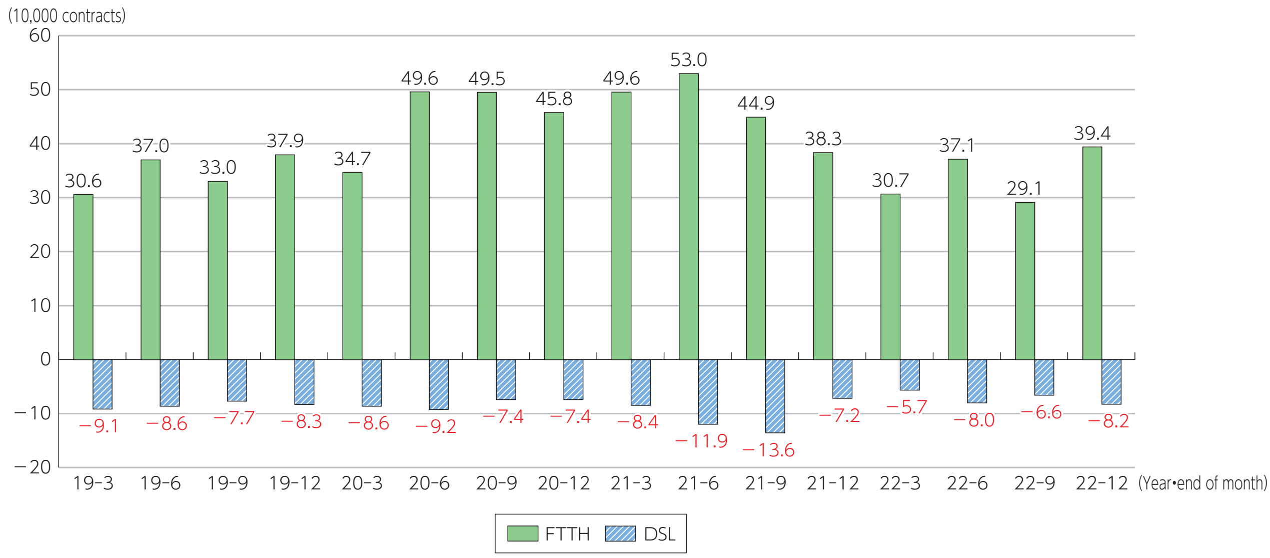
14. Changes in the number of subscriptions to voice communications services (Figure4-2-2-7 in White Paper)



* 1 For fiscal 2022, 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 For mobile communications since fiscal 2013, figures are adjusted for intra-group transactions. Adjusted for intragroup transactions means when an MNO receives mobile phone and BWA services as an MVNO from another MNO in the same group and then provides them together with their own services on a single mobile phone, etc., the contracts are counted as one contract instead of two contracts.

(Source) Prepared based on the MIC "Publication of quarterly data on the number and share of subscriptions to telecommunications services (Fiscal 2022 Q3 (End of December))"

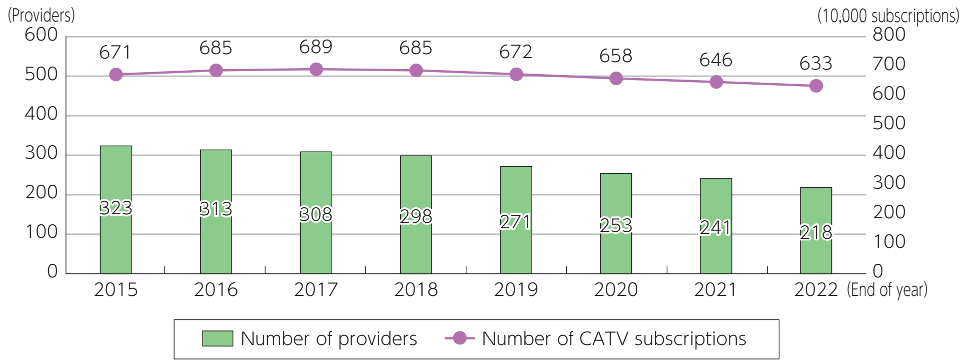
15. Changes in net increase of FTTH and DSL contracts (compared with the end of the previous quarter)



* Past values are different from the past published values due to correction of the report by the business operators.

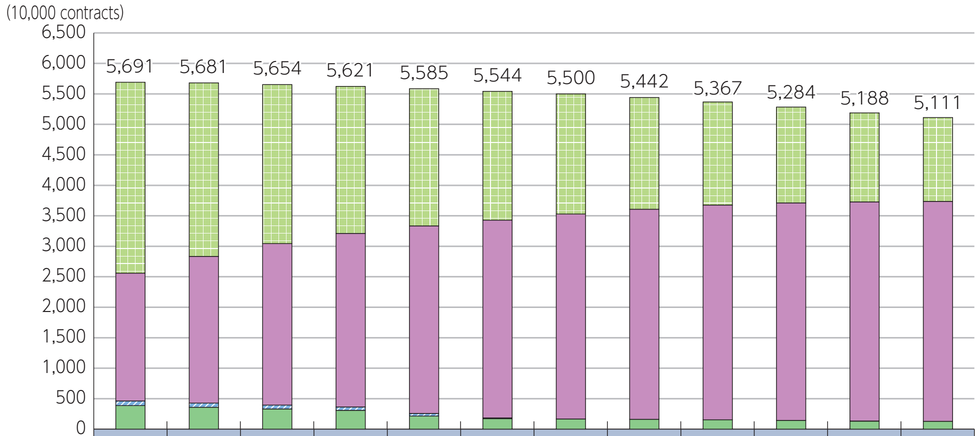
(Source) Prepared from MIC, "Quarterly data on the number of subscribers and the market share of telecommunications services (the 3rd quarter of fiscal 2022 (at the end of December))"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000215.htm

16. Changes in the number of CATV providers and subscriptions



(Source) Prepared from MIC (2022), "Quarterly data on the number of subscribers and the market share of telecommunications services (the 3rd quarter of fiscal 2022 (at the end of December))"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000215.html

17. Changes in the number of subscribers with fixed telephone

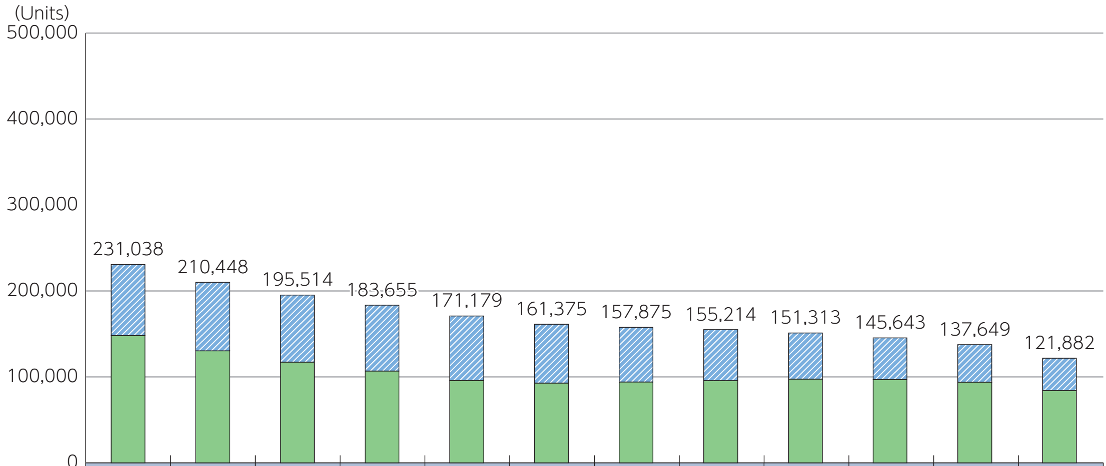


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022・12 (End of FY)
NTT East/West subscribed telephone (including ISDN)	3,135	2,847	2,610	2,411	2,250	2,114	1,969	1,834	1,693	1,573	1,460	1,375
0ABJ IP telephone	2,096	2,407	2,650	2,848	3,077	3,245	3,364	3,446	3,521	3,568	3,594	3,608
CATV telephone	75	70	63	55	44	12	0	0	0	0	0	0
Chokushu (dedicated line) telephone	386	357	331	308	214	172	166	162	153	143	134	128
Total	5,691	5,681	5,654	5,621	5,585	5,544	5,500	5,442	5,367	5,284	5,188	5,111

* For fiscal 2022, data up to the end of December was used, so care must be taken when comparing over time.

(Source) Prepared from MIC (2022), "Quarterly data on the number of subscribers and the market share of telecommunications services (the 3rd quarter of fiscal 2022 (at the end of December))"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000215.html

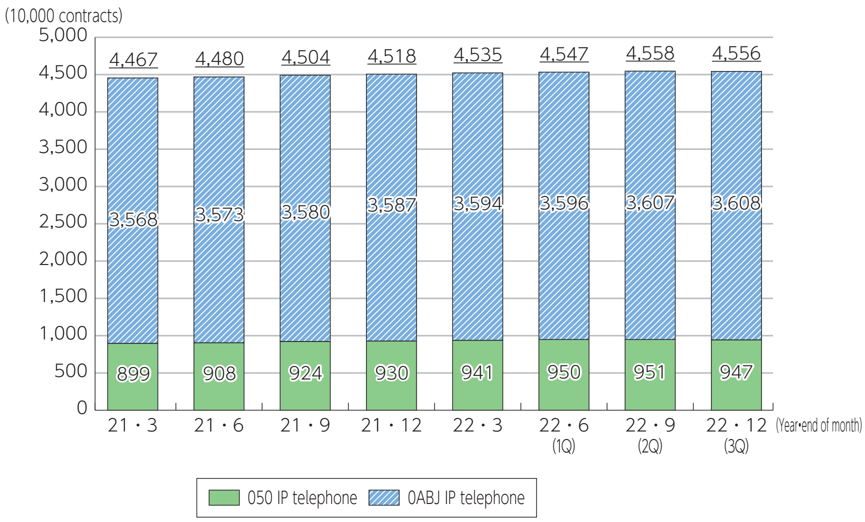
18. Changes in the composition of public telephone facilities of NTT East/West



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 (End of FY)
Digital	82,678	79,919	78,179	76,755	75,149	68,546	63,751	59,437	53,831	48,574	43,710	37,683
Analog	148,360	130,529	117,335	106,900	96,030	92,829	94,124	95,777	97,482	97,069	93,939	84,199
Total	231,038	210,448	195,514	183,655	171,179	161,375	157,875	155,214	151,313	145,643	137,649	121,882

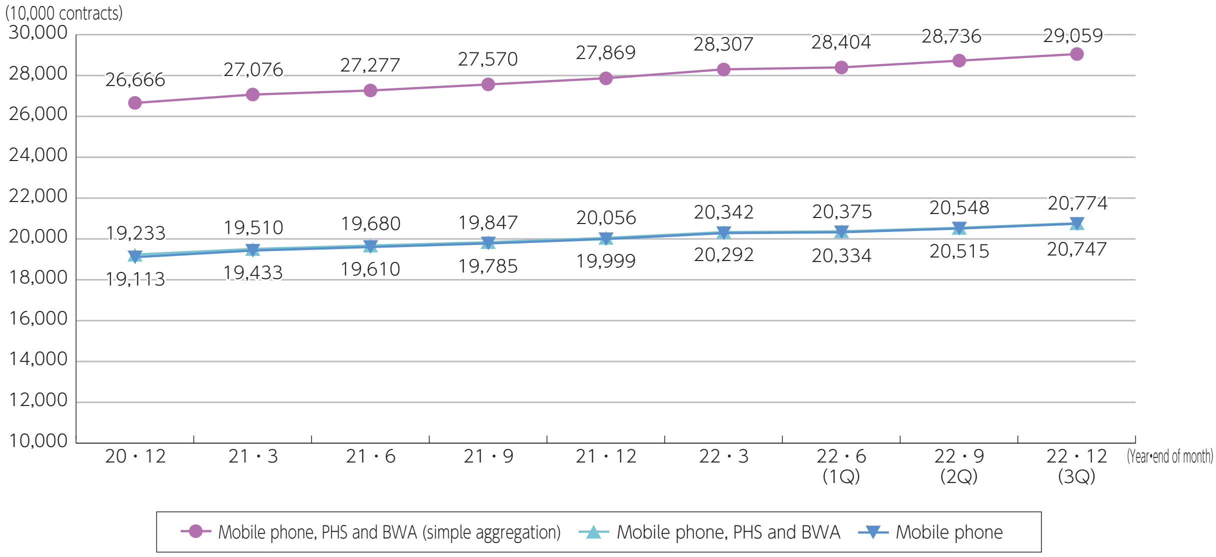
(Source) Prepared from materials of NTT East/West

19. Usage status of IP telephone



(Source) Prepared from MIC (2023), "Quarterly data on the number of subscribers and the market share of telecommunications services (the 3rd quarter of fiscal 2022 (at the end of December))"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000215.html

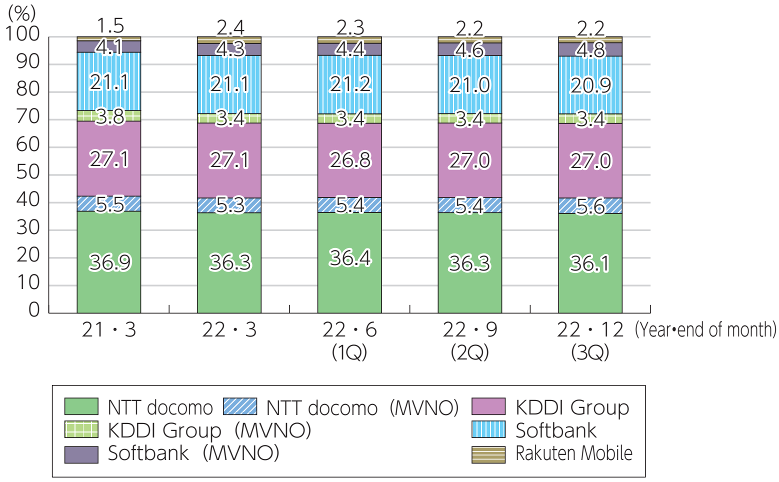
20. Changes in the number of mobile communication contracts



* Unless otherwise stated, the figures for the number of contracts have been adjusted for intra-group transactions. Items indicated as "simple aggregation" are figures that have not been adjusted for intra-group transactions.
"Adjusted for intragroup transactions" means when an MNO receives mobile phone and BWA services as an MVNO from another MNO in the same group and then provides them together with their own services on a single mobile phone, etc., the contracts are counted as one contract instead of two contracts. Counted as one contract.
Past values are different from the values published last year due to correction of the report by the business operators.

(Source) Prepared from MIC (2023), "Quarterly data on the number of subscribers and the market share of telecommunications services (the 3rd quarter of fiscal 2022 (at the end of December))"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000215.html

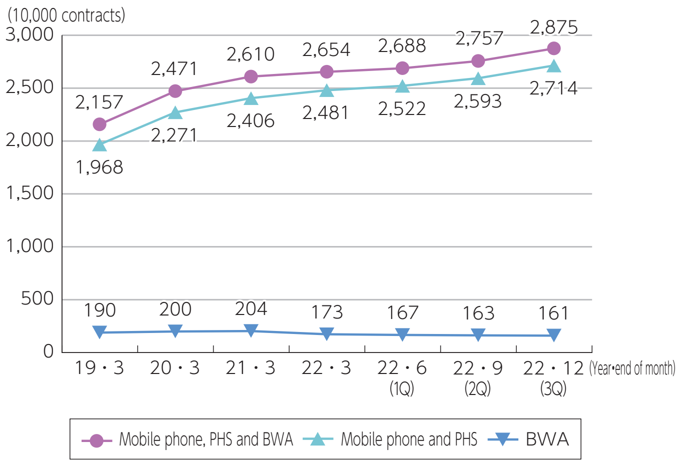
21. Changes in share of mobile communications subscriptions (adjusted for intra-group transactions) by business operator (Figure4-2-2-8 in White Paper)



* 1 Adjusted for intragroup transactions means when an MNO receives mobile phone and BWA services as an MVNO from another MNO in the same group and then provides them together with their own services on a single mobile phone, etc., the contracts are counted as one contract instead of two contracts.
* 2 The share of the KDDI Group includes KDDI, Okinawa Cellular and UQ Communications.
* 3 The share of MVNOs 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 (MVNOs) and KDDI Group (MVNOs).

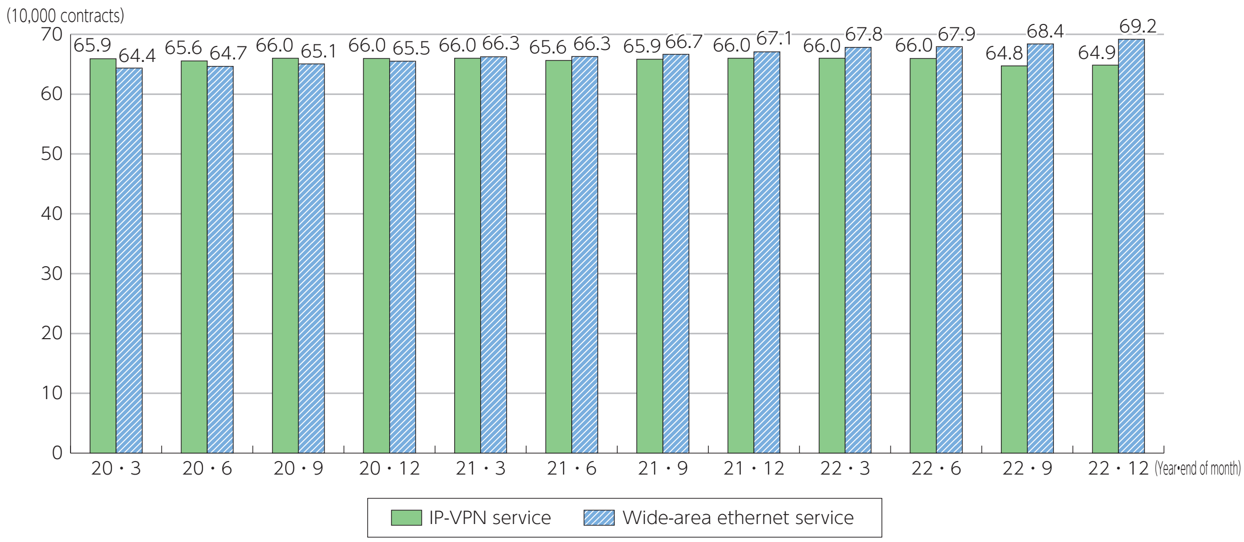
(Source) Prepared based on the MIC "Publication of quarterly data on the number and share of subscriptions to telecommunications services (Fiscal 2022 Q3 (End of December))"

22. Changes in number of MVNO contracts (excluding MVNOs that are MNOs)



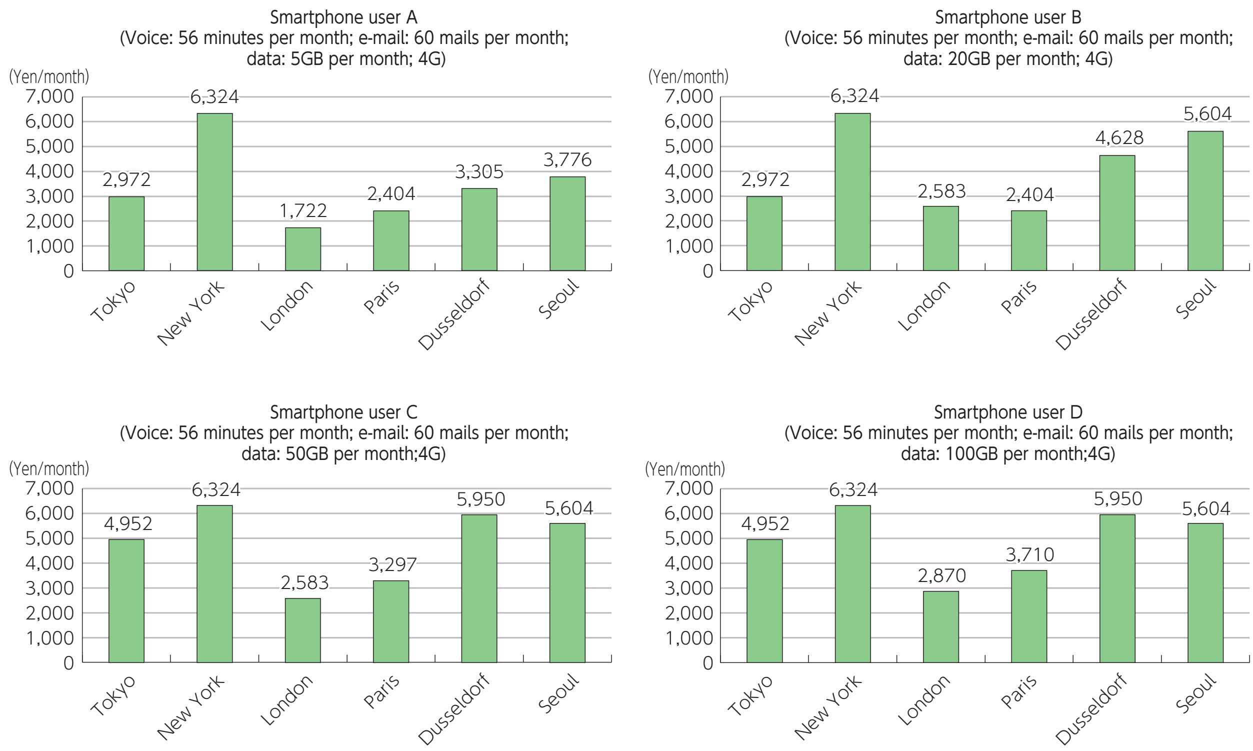
(Source) Prepared from MIC (2023), "Quarterly data on the number of subscribers and the market share of telecommunications services (the 3rd quarter of fiscal 2022 (at the end of December))"
https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000215.html

23. Changes in the number of IP-VPN service and wide-area ethernet service contracts



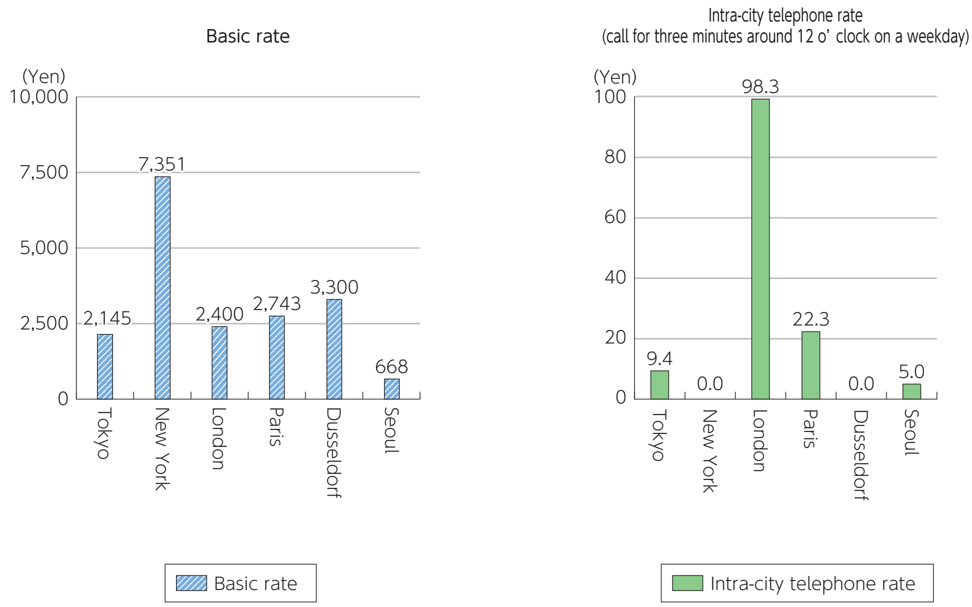
(Source) Past values are different from the values published last year due to correction of the report by the business operators.

24. International comparison of mobile phone charges by model (fiscal 2022)



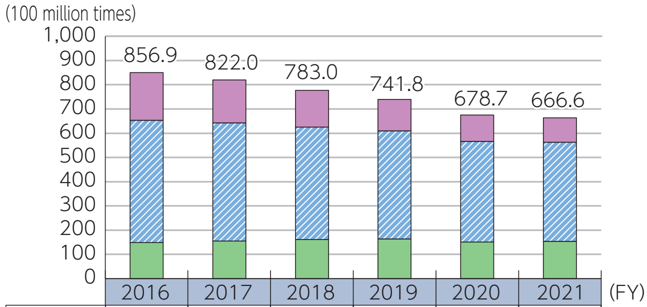
(Source) MIC "FY2022 Survey on Domestic-Overseas Price Difference of Telecommunication Service"

25. International comparison of fixed telephone charges based on individual charges (fiscal 2022)



(Source) MIC "FY2022 Survey on Domestic-Overseas Price Difference of Telecommunication Service"

26. Changes in communication frequency (by calling terminal)

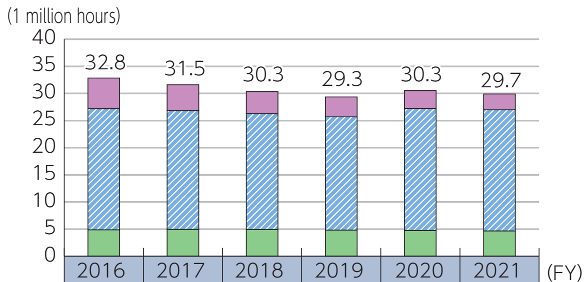


	2016	2017	2018	2019	2020	2021
Fixed	198.1	174.9	152.7	132.2	108.6	97.2
Mobile	503.9	486.1	466.3	445.3	416.5	412.4
IP telephone	154.9	160.9	164.0	164.3	153.5	157.0
Total frequency	856.9	822.0	783.0	741.8	678.7	666.6

* Mobile communication: from mobile phone/PHS; Fixed communication: from subscribed telephone, ISDN and public telephone

(Source) MIC, "Voice communication usage status in Japan based on the communication traffic volume (fiscal 2021)"
https://www.soumu.go.jp/menu_news/s-news/01kiban03_02000838.html

27. Changes in communication time (by calling terminal)

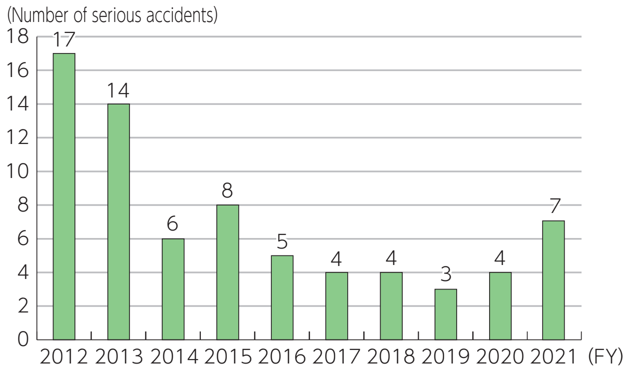


	2016	2017	2018	2019	2020	2021
Fixed	5.6	4.8	4.2	3.6	3.1	2.7
Mobile	22.3	21.8	21.3	20.9	22.5	22.4
IP telephone	4.9	4.9	4.8	4.7	4.7	4.6
Total communication time	32.8	31.5	30.3	29.3	30.3	29.7

* 1 Mobile communication: from mobile phone/PHS; Fixed communication: from subscribed telephone, ISDN and public telephone
* 2 Unit is changed from "million hours" to "100 million hours" and values are rounded to the first decimal place. See the source for the values before rounding.

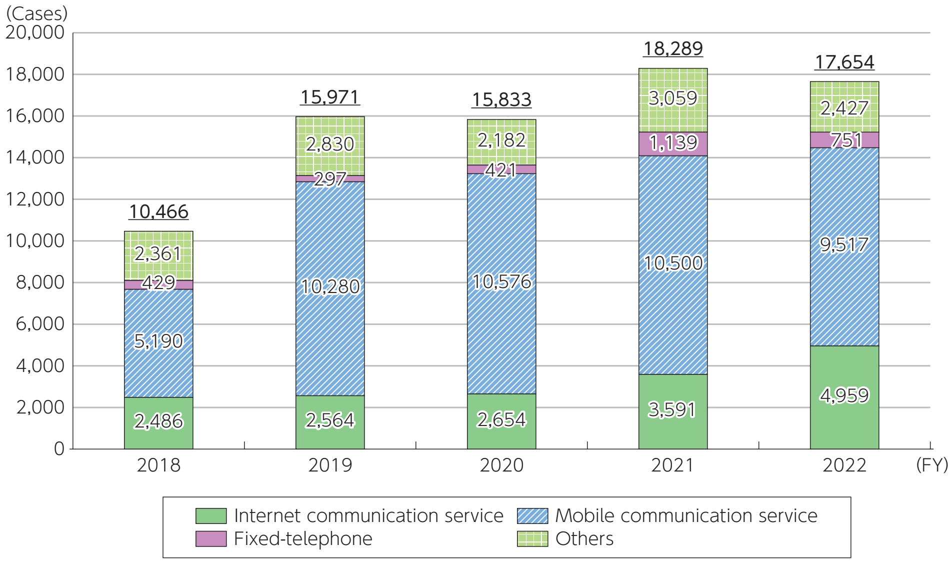
(Source) MIC, "Voice communication usage status in Japan based on the communication traffic volume (fiscal 2021)"
https://www.soumu.go.jp/menu_news/s-news/01kiban03_02000838.html

28. Changes in the number of serious accidents (Figure4-2-2-9 in White Paper)



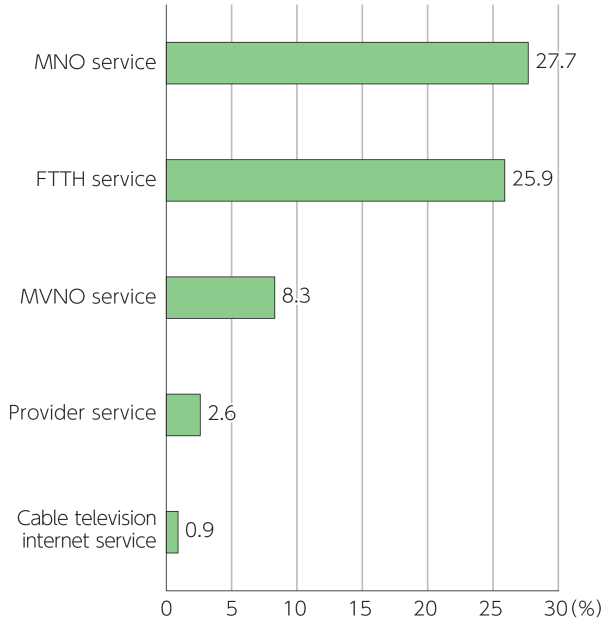
(Source) MIC "Accidents in Telecommunications Services (Fiscal 2021)"

29. Changes in the number of complaints and inquiries received by MIC (Figure4-2-2-10 in White Paper)



(Source) Created by MIC

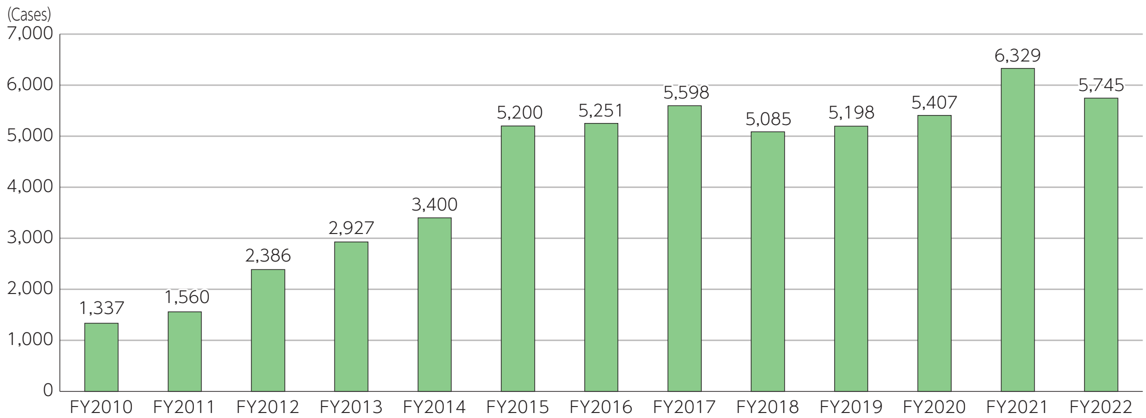
30. Breakdown of complaints and consultations received by consumer centers nationwide and the Ministry of Internal Affairs and Communications (random sample of those received between April 2022 and September 2022) (Figure4-2-2-11 in White Paper)



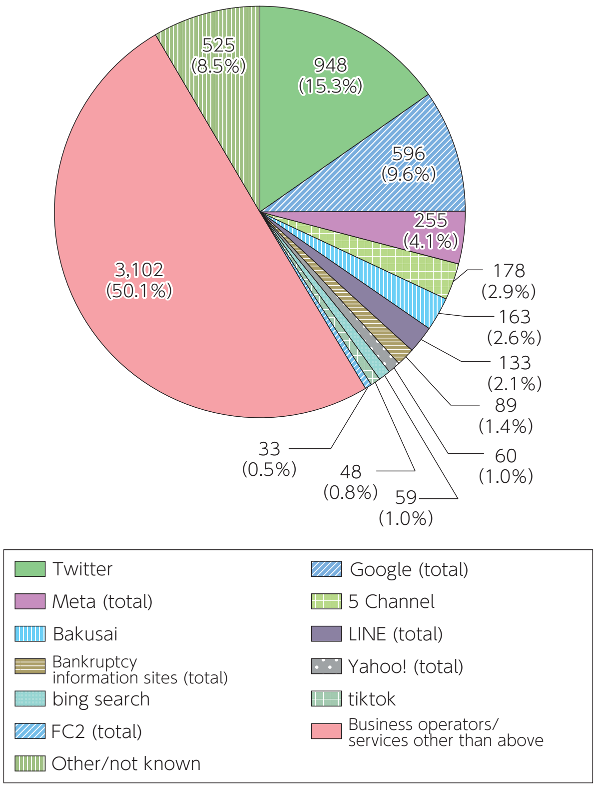
* There is a possibility that ISP services provided together with FTTH lines are only included in provider services.

(Source) MIC "Regular Meeting for Monitoring Consumer Protection Rules and ICT Service Reliability (14th meeting)"

31. Changes in the number of consultations regarding illegal and harmful information (Figure4-2-2-12 in White Paper)



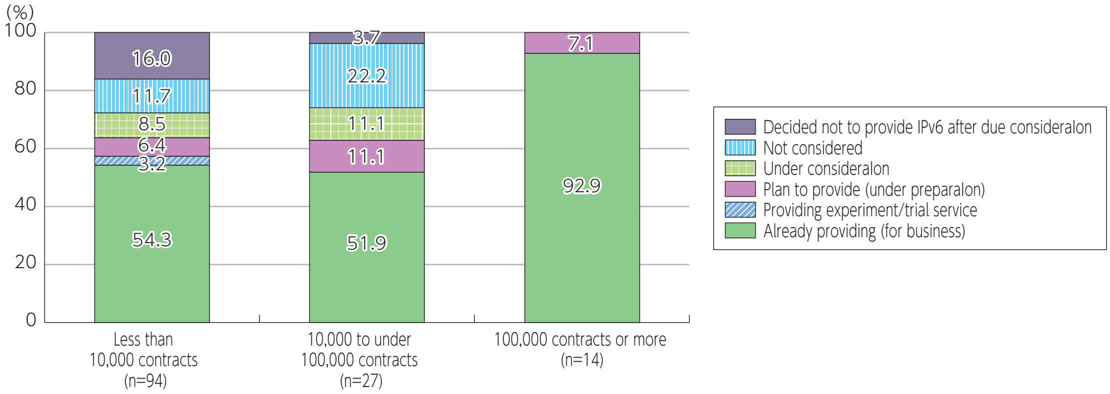
32. Breakdown of the number of consultations provided at the Illegal Harmful Hotline by business operator (Figure4-2-2-13 in White Paper)



Business operator, service, etc.		Number of requests	Percentage
Twitter		948	15.3%
Google (total)		596	9.6%
	Search	229	
	YouTube	158	
	map	180	
	Other	29	
Meta (total)		255	4.1%
	Instagram	199	
	Facebook	55	
	Whatsapp	1	
5 Channel		178	2.9%
Bakusai		163	2.6%
LINE (total)		133	2.1%
	Livedoor services (*2)	61	
	Services in LINE applications	72	
Bankruptcy information sites (total)		89	1.4%
Yahoo! (total)		60	1.0%
	Search	17	
	Auction	14	
	Advice	14	
	News	5	
	Other	10	
bing search		59	1.0%
tiktok		48	0.8%
FC2 (total)		33	0.5%
Business operators/services other than above		3,102	50.1%
Other/not known			8.5%

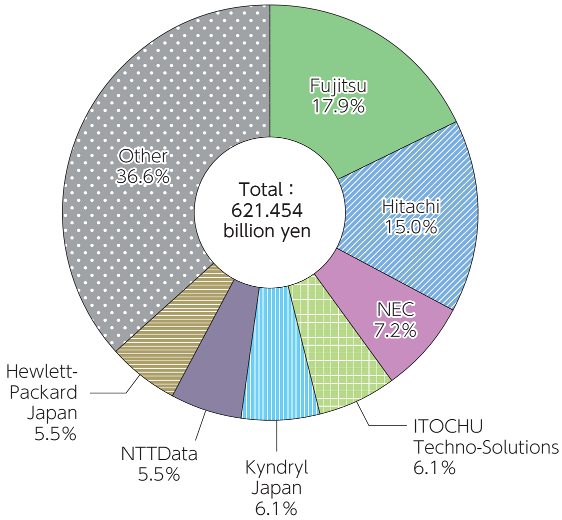
* 1 Breakdown of the number of consultations (work): By business operator/service (n=6,189) <fiscal 2022> *Number of consultations (work): 5,745 cases
* 2 LINE sold the livedoor service on December 27, 2022, so responses from January 2023 are not included.
* 3 Total number of consultations (work), and counseling centers do not determine whether or not individual consultations constitute a violation of rights.
* 4 Since data is compiled by entering a representative domain for each work case, it is not strictly compiled statistical information because there are cases where an applicable domain covers multiple sites.
* 5 Some use their own domains, so the actual domain may not be known.

33. Status of IPv6 service provision (by ISP size) (January 2023)



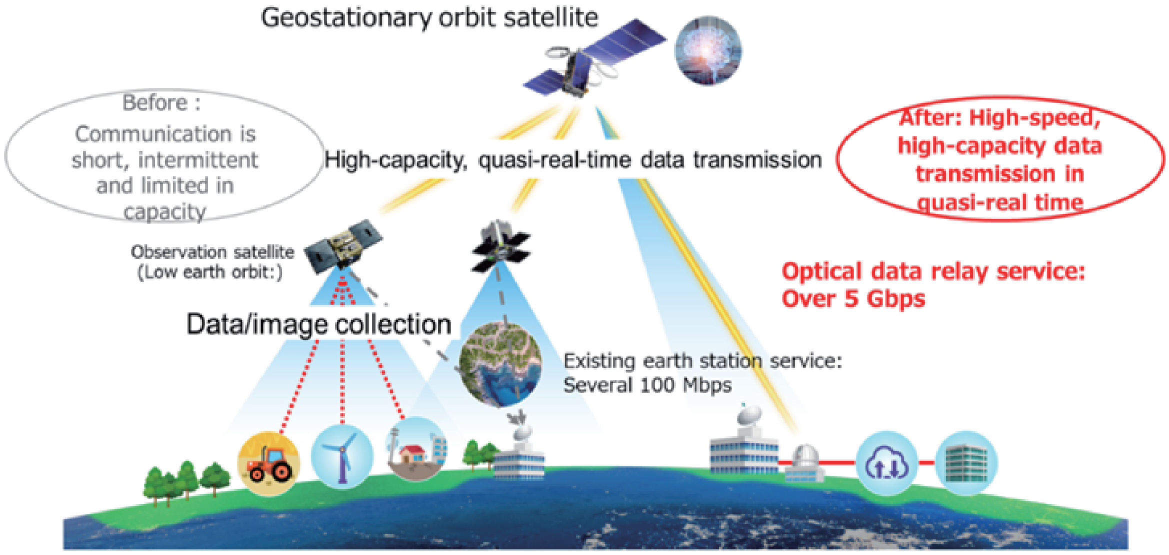
(Source) Prepared from MIC questionnaire survey

34. Market revenue share of domestic client virtualization solutions (on-premises) by vendor sales (2021)



(Source) IDC "Japan Virtual Client Computing Market Share" (July 6, 2022)

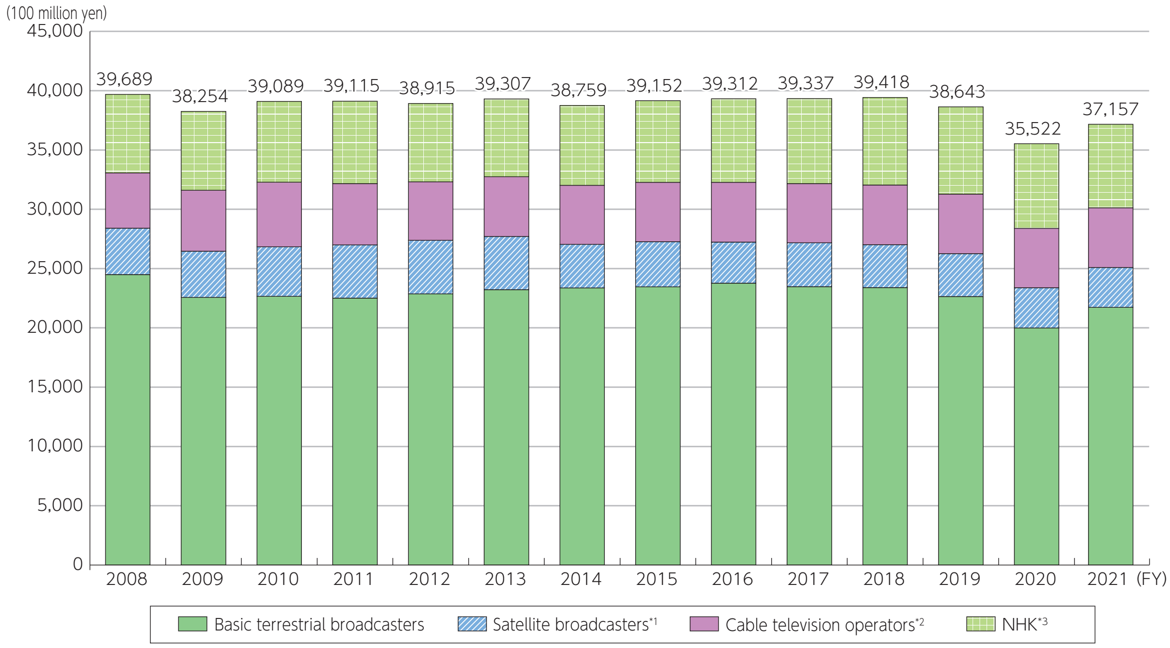
35. Overview of optical data relay service (Figure4-2-3-1 in White Paper)



(Source) Nippon Telegraph and Telephone Corporation "NTT and SKY Perfect JSAT Corporation agree to establish Space Compass, Inc."

Section 3

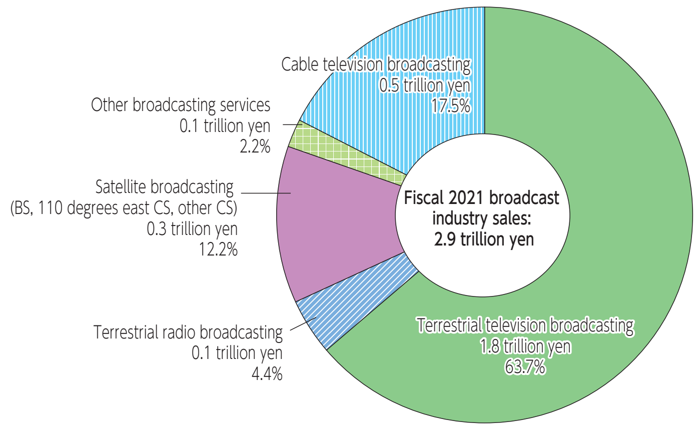
1. Changes in the size of the broadcasting industry market (total sales) and market breakdown (Figure4-3-1-1 in White Paper)



* 1 Calculated based on operating revenues related to the satellite broadcasting business.
* 2 Up to fiscal 2010, 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 Broadcast Act for Use of Telecommunications Services that uses a broadcasting system equivalent to the facilities), and from fiscal 2011, cable television operators are registered general broadcasters (limited to commercial corporations) that conduct independent broadcasting using cable telecommunications equipment (with both excluding operators using the IP multicast method).
* 3 NHK's value is ordinary business income.
* 4 Community broadcasters who are also engaged in cable television are excluded.

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

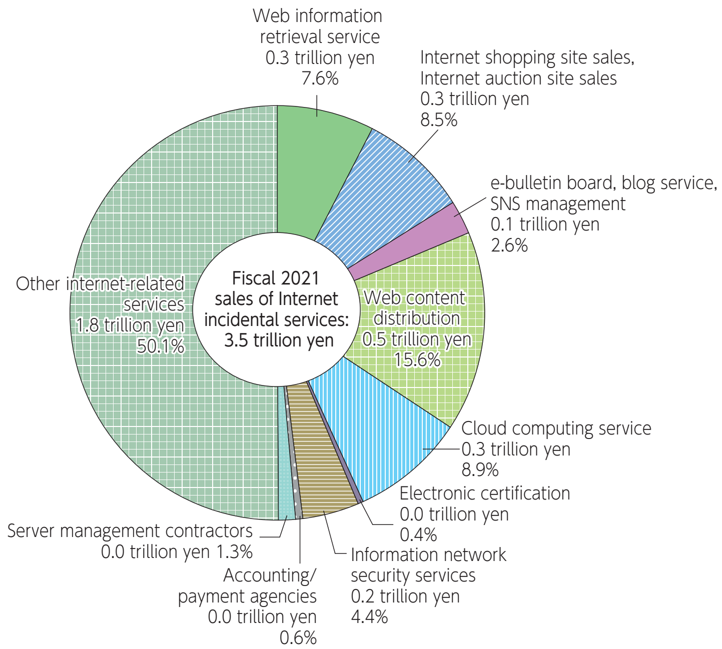
2. Ratio of broadcasting industry sales



* Sales of "cable television broadcasting" include sales of basic services, paid services (paid channels, etc.), and poor reception rebroadcast services.

(Source) Based on MIC "2022 Basic Survey on the Information and Communications Industry"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics07.html

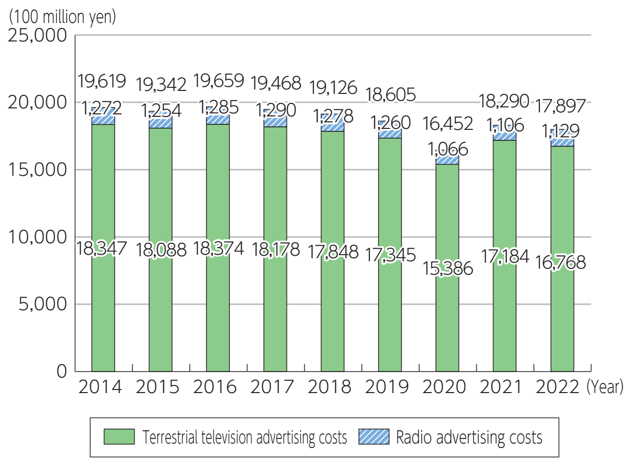
3. Sales ratio of Internet incidental services business



* "Web content streaming business" includes mobile streaming and IPTV services.

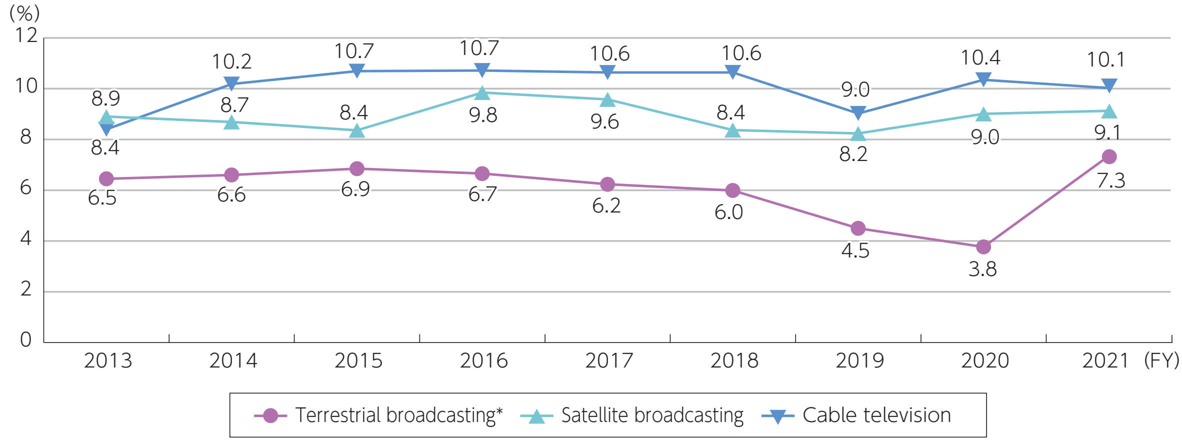
(Source) Based on MIC "2022 Basic Survey on the Information and Communications Industry"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics07.html

4. Changes in advertising expenditures of terrestrial private broadcasters



(Source) Prepared based on Dentsu's "Advertising Costs in Japan"

5. Changes in operating profit on sales of private broadcasters (Figure4-3-1-2 in White Paper)



* Basic terrestrial broadcasting excluding community broadcasting

(Source) Prepared based on the MIC "Income and Expenditures of Private Broadcasters" for each fiscal year. etc.

6. Changes in the number of private broadcasters (Figure4-3-1-3 in White Paper)

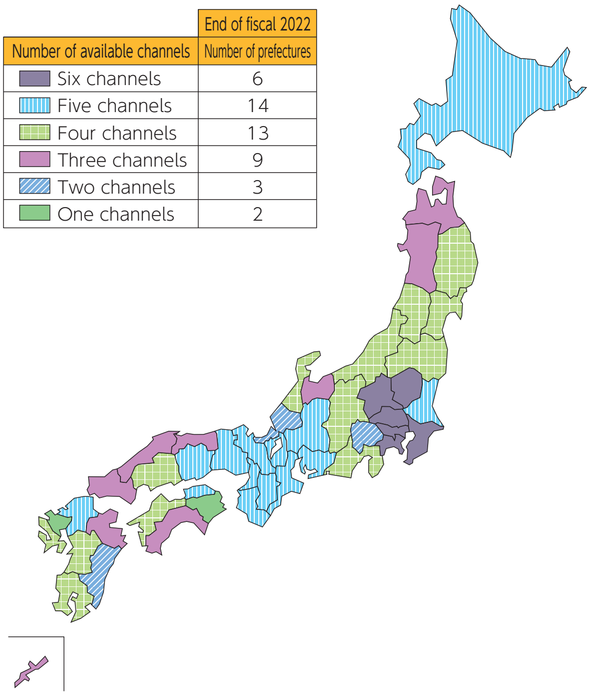
<table>
<tr><th colspan="3">At the end of fiscal year</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th></tr>
<tr><td rowspan="10">Terrestrial</td><td rowspan="2">Television broadcast (Single operation)</td><td>VHF</td><td>16</td><td rowspan="2">93</td><td rowspan="2">93</td><td rowspan="2">94</td><td rowspan="2">94</td><td rowspan="2">98</td><td rowspan="2">94</td><td rowspan="2">94</td><td rowspan="2">95</td><td rowspan="2">95</td><td rowspan="2">95</td><td rowspan="2">96</td><td rowspan="2">96</td></tr>
<tr><td>UHF</td><td>77</td></tr>
<tr><td rowspan="4">Basic satellite broadcasting</td><td>Medium-wave (AM) broadcasting</td><td>13</td><td>13</td><td>13</td><td>14</td><td>14</td><td>14</td><td>14</td><td>14</td><td>15</td><td>15</td><td>15</td><td>16</td><td>16</td></tr>
<tr><td>Ultrashort wave (FM) broadcasting</td><td>298</td><td>307</td><td>319</td><td>332</td><td>338</td><td>350</td><td>356</td><td>369</td><td>377</td><td>384</td><td>384</td><td>388</td><td>390</td></tr>
<tr><td>Community broadcasting of the above</td><td>246</td><td>255</td><td>268</td><td>281</td><td>287</td><td>299</td><td>304</td><td>317</td><td>325</td><td>332</td><td>334</td><td>338</td><td>339</td></tr>
<tr><td>Short wave</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td colspan="2">Television/radio broadcasting (combined operation)</td><td>34</td><td>34</td><td>34</td><td>33</td><td>33</td><td>33</td><td>33</td><td>33</td><td>32</td><td>32</td><td>32</td><td>31</td><td>31</td></tr>
<tr><td colspan="2">Text broadcasting (single operation)</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="2">Multimedia broadcasting</td><td></td><td></td><td>1</td><td>1</td><td>1</td><td>4</td><td>4</td><td>4</td><td>6</td><td>6</td><td>2</td><td>2</td><td>0</td></tr>
<tr><td colspan="2">Subtotal</td><td>440</td><td>449</td><td>461</td><td>475</td><td>481</td><td>500</td><td>502</td><td>515</td><td>526</td><td>533</td><td>529</td><td>534</td><td>534</td></tr>
<tr><td rowspan="4">Satellite</td><td rowspan="2">Basic satellite broadcasting</td><td>BS broadcasting</td><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td><td>19</td><td>19</td><td>22</td><td>22</td><td>20</td><td>22</td><td>21</td></tr>
<tr><td>110 degrees east longitude CS broadcasting</td><td>13</td><td>13</td><td>22</td><td>23</td><td>23</td><td>23</td><td>23</td><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td></tr>
<tr><td colspan="2">General satellite broadcasting</td><td>91</td><td>82</td><td>65</td><td>45</td><td>7</td><td>5</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td></tr>
<tr><td colspan="2">Subtotal</td><td>113</td><td>108</td><td>92</td><td>72</td><td>46</td><td>44</td><td>41</td><td>39</td><td>41</td><td>41</td><td>39</td><td>42</td><td>42</td></tr>
<tr><td rowspan="4">Cable television</td><td rowspan="3">General cable broadcasting pertaining to registration (limited to operators of voluntary broadcasting)</td><td>Broadcasting using former authorized facilities (limited to operators of voluntary broadcasting)</td><td>502</td><td rowspan="2">556</td><td rowspan="2">545</td><td rowspan="2">539</td><td rowspan="2">520</td><td rowspan="2">510</td><td rowspan="2">508</td><td rowspan="2">504</td><td rowspan="2">492</td><td rowspan="2">471</td><td rowspan="2">464</td><td rowspan="2">464</td><td rowspan="2">–</td></tr>
<tr><td>Broadcasting using former cable services</td><td>26</td></tr>
<tr><td>IP multicast broadcasting of the above</td><td>5</td><td>5</td><td>4</td><td>3</td><td>3</td><td>3</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>4</td><td>–</td></tr>
<tr><td colspan="2">Subtotal</td><td>528</td><td>556</td><td>545</td><td>539</td><td>520</td><td>510</td><td>508</td><td>504</td><td>492</td><td>471</td><td>464</td><td>464</td><td>–</td></tr>
</table>

* 1 The number of television broadcasters (single operation) at the end of fiscal 2015 included five operators (including one which also operates basic terrestrial broadcasting) conducting basic terrestrial broadcasting for mobile reception.
* 2 Regarding satellite broadcasters, based on the amended Broadcast Act that came into force in June 2011, 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.
* 3 Some satellite broadcasters operate two or more types of broadcasting (BS broadcasting, 110 degrees east longitude CS broadcasting, and general satellite broadcasting) so the totals of each column do not match the values in the subtotal column. Furthermore, from fiscal 2011, only operating broadcasters are included.
* 4 Regarding cable television operators, up to fiscal 2010, former approved facilities operators under the former Cable Television Broadcasting Act and registered operators under the former Act on Broadcast on Telecommunications Services were included, and from fiscal 2011, registered general broadcasters conducting independent broadcasting using cable telecommunication facilities under the Broadcast Act are included (regarding IP multicast broadcasting, up to fiscal 2010, it is included in former broadcasting using cable services, and from fiscal 2011 it is included in registered general broadcasters conducting independent broadcasting using cable telecommunications equipment).

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

7. Number of available private terrestrial television broadcasting channels (fiscal 2022)

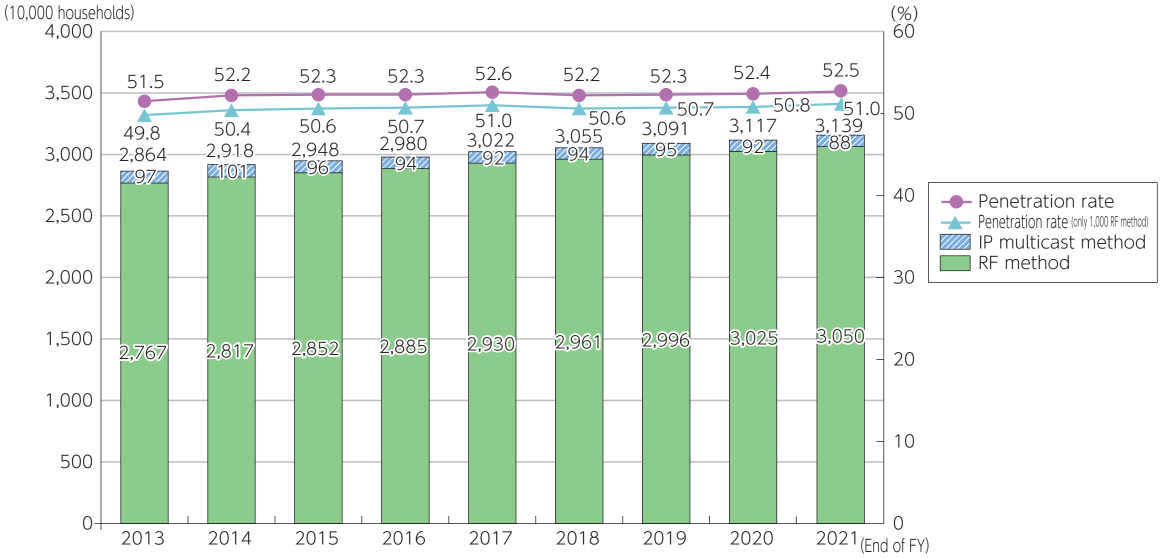
Number of available channels	End of fiscal 2022 Number of prefectures
Six channels	6
Five channels	14
Four channels	13
Three channels	9
Two channels	3
One channels	2



8. Major satellites used for satellite broadcasting in Japan (at the end of fiscal 2022)

Broadcasting type	Satellites	Orbit (east longitude)	Start of operation
Basic satellite broadcasting	BSAT-3a	110 degrees	Oct. 2007
	BSAT-3b	110 degrees	Jul. 2011
	BSAT-3c/JCSAT-110R	110 degrees	Sep. 2011
	JCSAT-110A	110 degrees	Apr. 2017
	BSAT-4a	110 degrees	Dec. 2018
	BSAT-4b	110 degrees	Sep. 2020
General satellite broadcasting	JCSAT-4B	124 degrees	Aug. 2012
	JCSAT-3A	128 degrees	Mar. 2007

9. 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 (Figure4-3-1-4 in White Paper)



* 1 The penetration rate is calculated from the number of households in the Basic Resident Register.
* 2 The number of subscribed households with the RF method 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 the MIC "Current State of Cable Television"

10. NHK domestic broadcasting (end of fiscal 2022) (Figure4-3-1-5 in White Paper)

Category			Number of channels
Terrestrial broadcasting	Television broadcasting		2
	Radio broadcasting	Medium-wave (AM) broadcasting	2
		Ultrashort wave (FM) broadcasting	1
Satellite broadcasting (BS broadcasting)	Television broadcasting		4

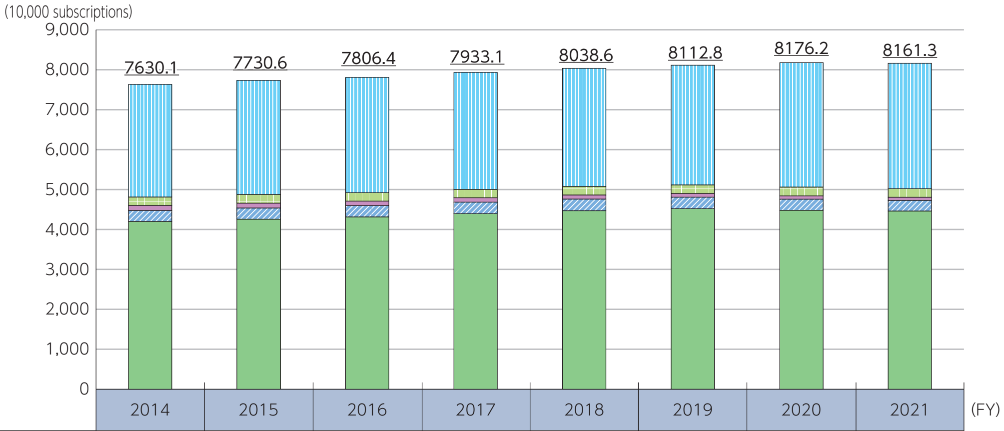
* 1 The radio broadcasting frequency is also indicated by the channel.
* 2 With regard to television broadcasting, analog television broadcasting ended on March 31, 2021, and all broadcasting has been shifted to digital broadcasting.

11. NHK's international television and radio broadcasting (plan as of April 2023) (Figure4-3-1-6 in White Paper)

	Television		Radio
	For overseas Japanese	For foreigners	For overseas Japanese and foreigners
Broadcasting hours	Around 5 hours a day	24 hours a day	75 hours 7 minutes in total per day
Budget	19..8 billion yen (FY2023 NHK budget)		4.9 billion yen (same as on the left)
Language	Japanese	English	18 languages
Service area	Almost all over the world		Almost all over the world
Satellites used / Transmission facilities	Foreign satellites, CATV, etc.		Domestic transmitting stations, overseas relay stations, etc.

* The number of broadcasting hours of international TV broadcasting for foreigners includes the broadcasting hours of Japan International Broadcasting (JIB).

12. Number of subscribers to broadcasting services (Figure4-3-1-7 in White Paper)

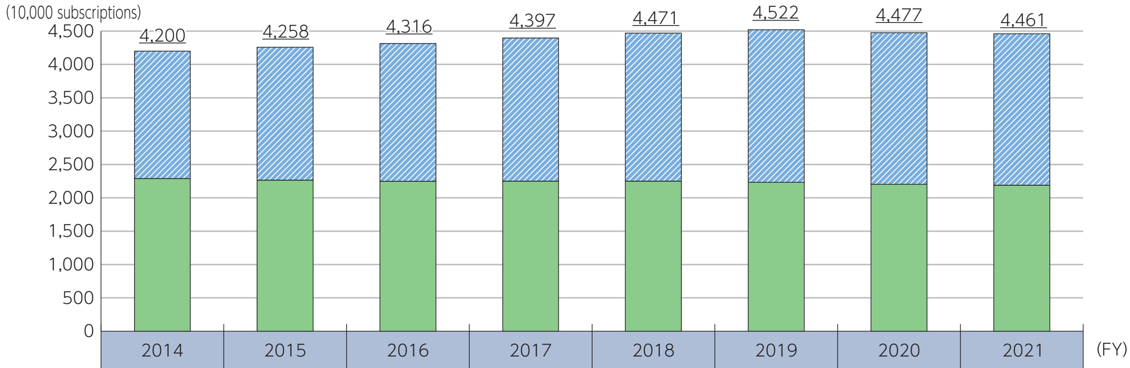


	2014	2015	2016	2017	2018	2019	2020	2021
Cable television	2,817.0	2,852.0	2,885.0	2,930.3	2960.7	2,995.9	3,117.1	3,138.5
110 degrees east longitude CS	212.0	219.5	209.3	208.4	213.7	215.8	218.3	217.1
124/128 degrees east longitude CS	125.4	120.3	114.4	109.4	102.7	93.1	84.4	76.6
WOWOW	275.6	280.5	282.3	287.6	290.1	285.5	279.1	268.0
NHK	4,200.1	4,258.3	4,315.4	4397.4	4,471.4	4,522.5	4,477.3	4,461.1
Satellite contract, etc.	1,911.3	1,993.3	2,066.7	2147.6	2,221.5	2,289.1	2,274.2	2,271.5

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

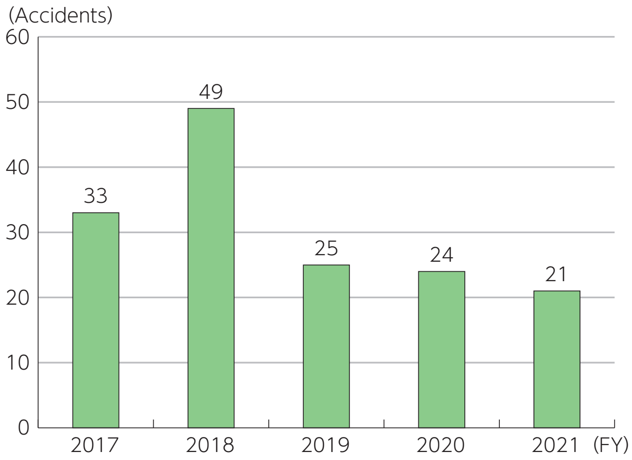
13. Changes in the number of NHK broadcast subscriptions (Figure4-3-1-8 in White Paper)



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

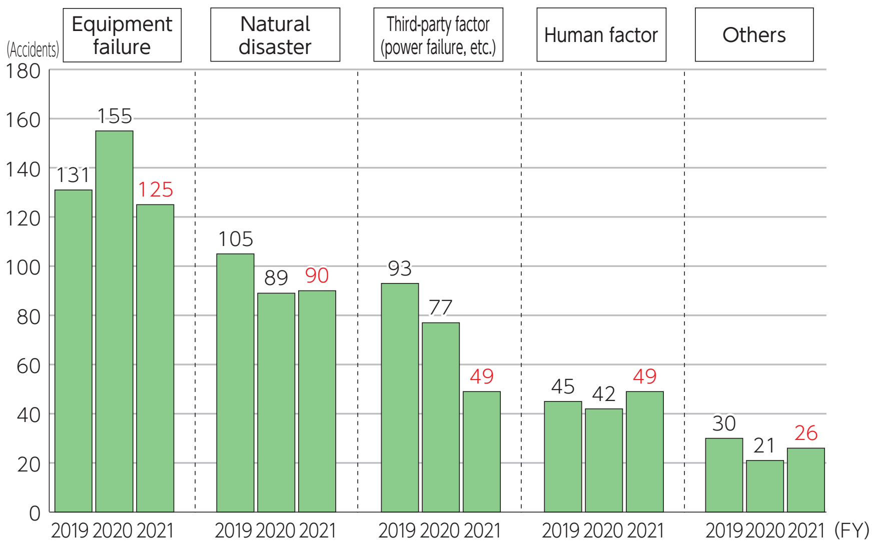
(Source) Prepared based on material from NHK

14. Changes in the number of serious accidents
(Figure4-3-1-9 in White Paper)



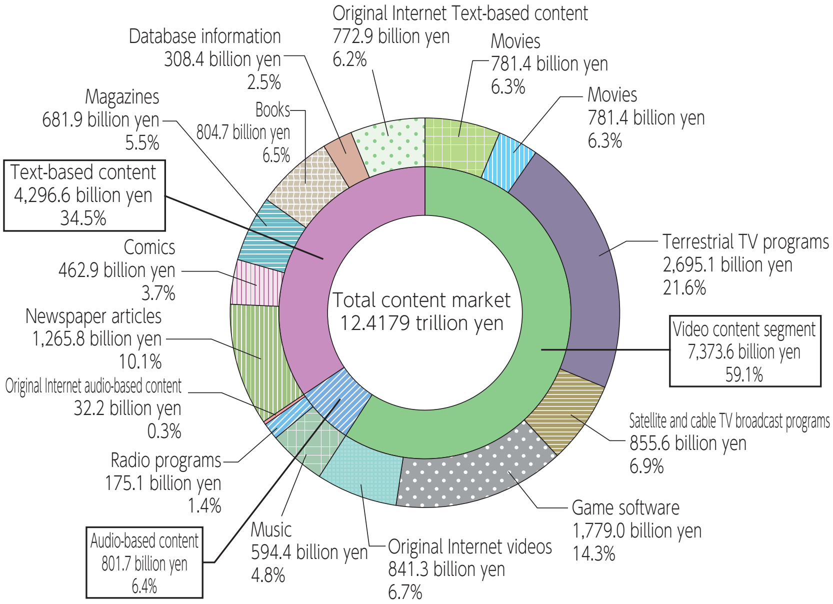
(Source) Prepared based on the MIC "State of the Occurrence of Broadcasting Suspension Accidents" (fiscal 2021)

15. Changes in the number of broadcasting suspension accidents by cause
(Figure4-3-1-10 in White Paper)



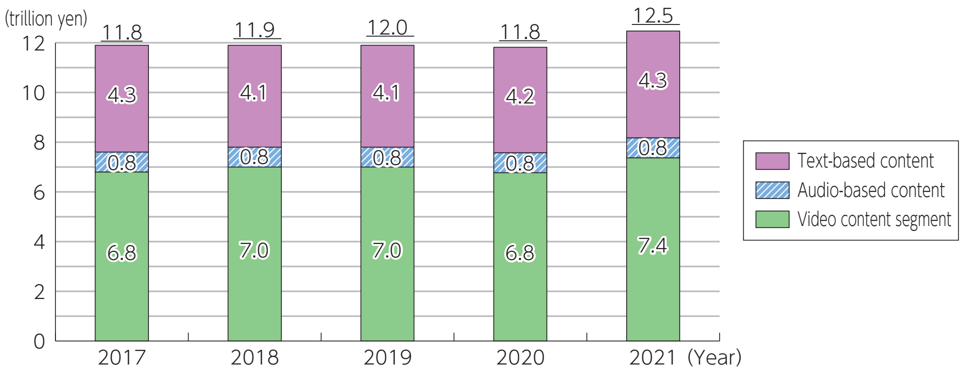
(Source) Prepared based on the MIC "State of the Occurrence of Broadcasting Suspension Accidents (fiscal 2021)"

16. Breakdown of the Japanese content market (2021) (Figure4-3-2-1 in White Paper)



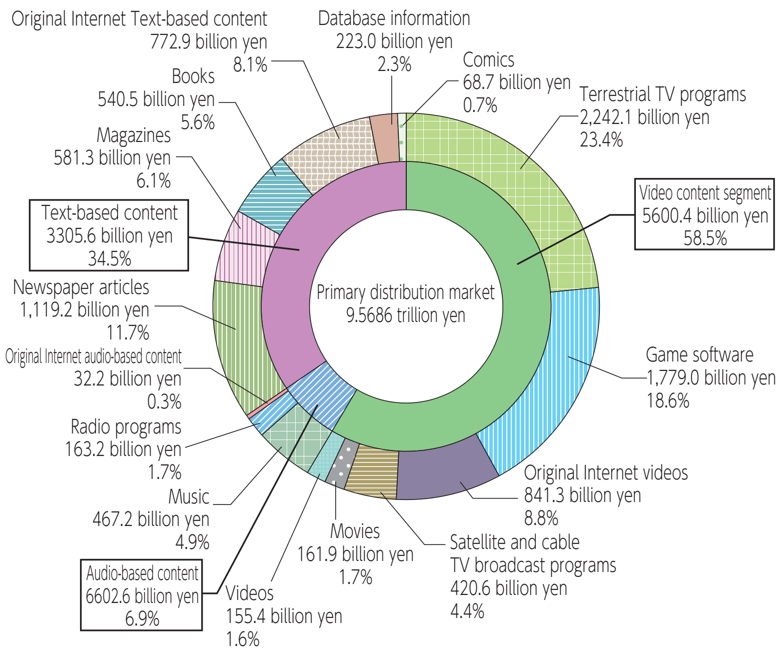
(Source) MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution"

17. Changes in size of the Japanese content market (by content type) (Figure4-3-2-2 in White Paper)



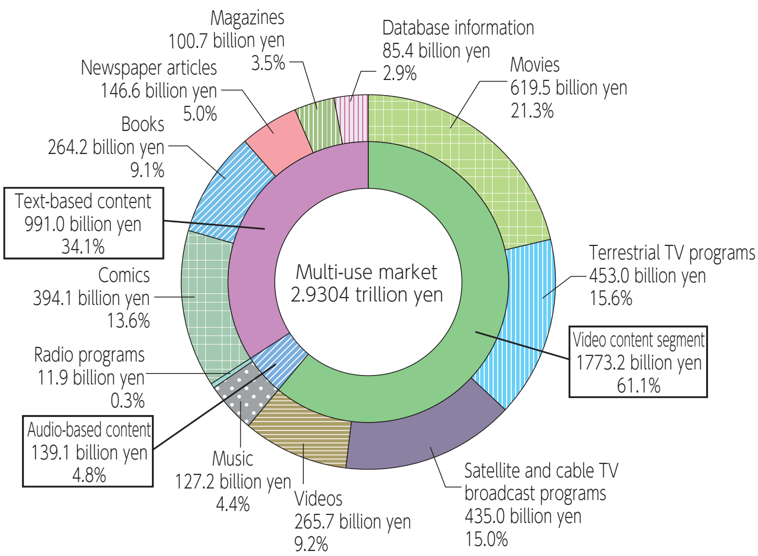
(Source) MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution"

18. Breakdown of primary distribution market (2021) (Figure4-3-2-3 in White Paper)



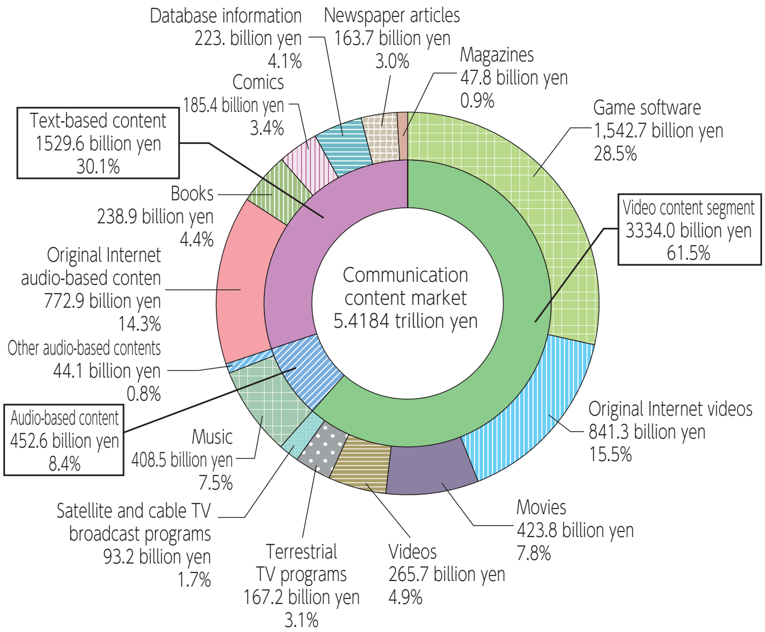
(Source) MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution"

19. Breakdown of multi-use market (2021) (Figure4-3-2-4 in White Paper)



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

20. Breakdown of the communication content market (2021) (Figure4-3-2-5 in White Paper)

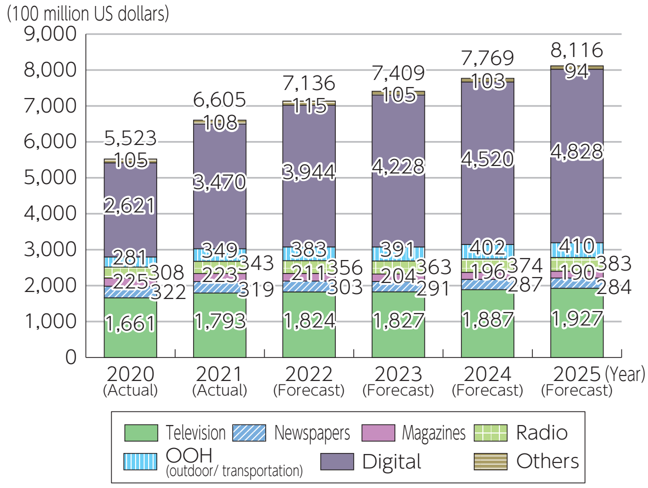


(Source) MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution"

21. Changes in the size of the telecommunications content market (by content type) (Figure4-3-2-6 in White Paper)

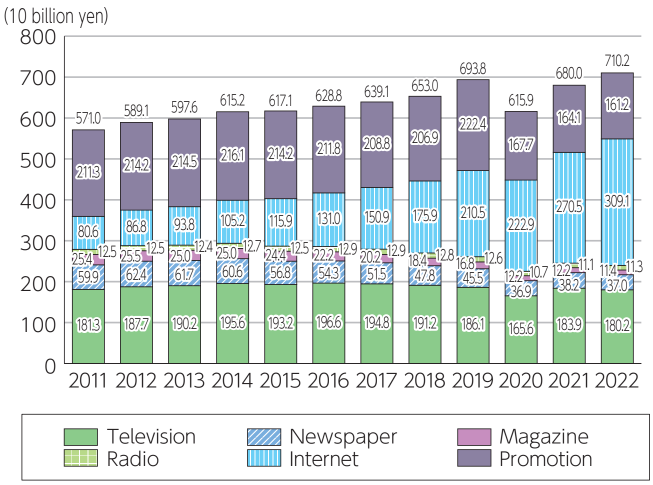
(Source) MIC Institute for Information and Communications Policy "Survey on Media/Software Production and Distribution"

22. Changes and forecast in global advertising expenditures by media type (Figure4-3-2-7 in White Paper)



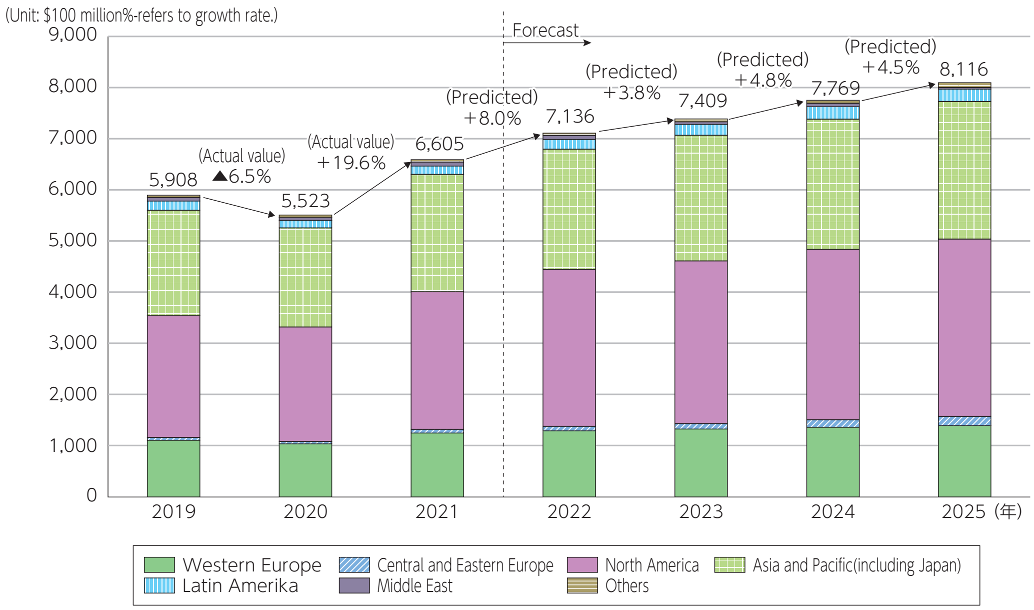
(Source) Prepared based on Dentsu Group's "Global Advertisement Spend Growth Rate Forecast (2022 to 2025)"

23. Changes in advertising expenditure by media in Japan (Figure4-3-2-8 in White Paper)



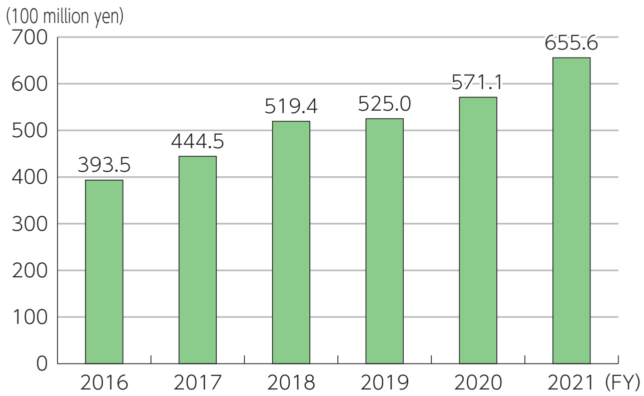
(Source) Prepared based on Dentsu's "Advertising expenditure in Japan (each year)"

24. Changes in global total advertising expenditure



(Source) Dentsu Group "Global Advertisement Spend Growth Rate Forecast (2022 to 2025)"

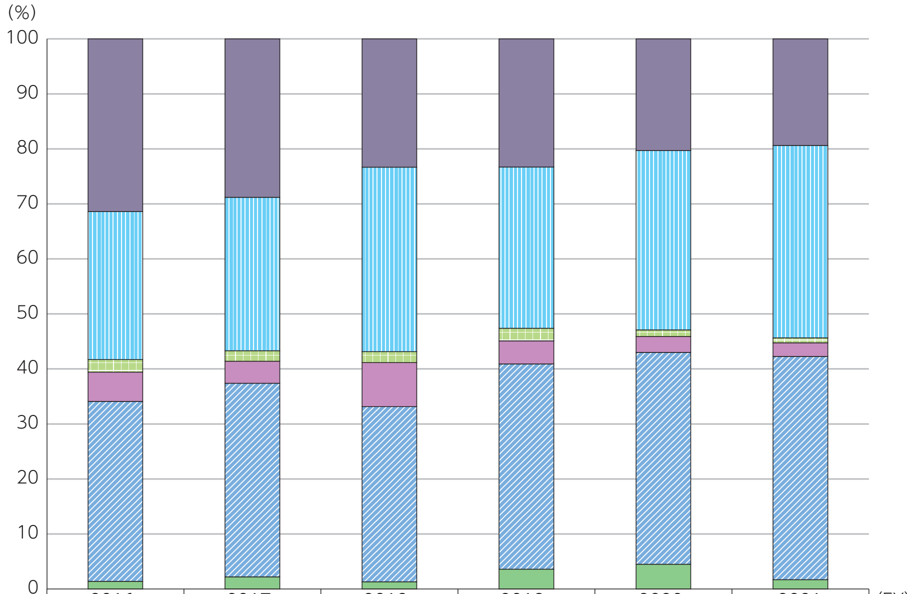
25. Changes in the value of broadcasting content exports from Japan (Figure4-3-2-9 in White Paper)



* 1 Value of broadcasting content exports: Total sales to overseas of program broadcasting rights, Internet distribution rights, video/DVD rights, program format remake rights, and merchandising rights, etc.
* 2 Calculated based on questionnaire responses submitted by NHK, key private broadcasting stations, semi-key private broadcasting stations, local stations, satellite broadcasters, CATV operators, and production companies, etc.

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

26. Changes in the value of Japan's broadcasting content exports by rights

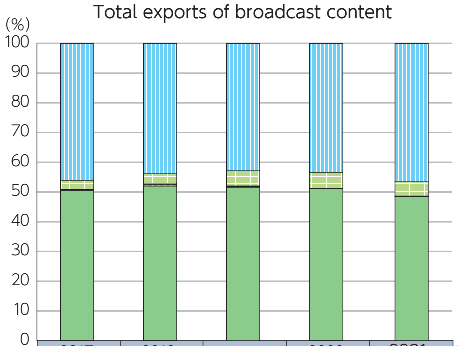


	2016	2017	2018	2019	2020	2021 (FY)
Program broadcasting right	31.4	28.8	23.3	23.3	20.3	19.4
Internet distribution right	26.9	27.9	33.5	29.3	32.6	35.0
Video/DVD release right	2.3	1.9	2.0	2.3	1.2	0.8
TV formatting/remaking right	5.3	4.0	8.1	4.2	2.9	2.5
Merchandizing right	32.7	35.2	31.8	37.3	38.5	40.6
Others	1.4	2.2	1.3	3.6	4.5	1.7

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

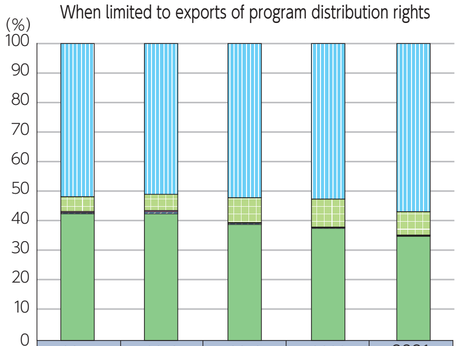
27. Changes in the value of Japan's broadcasting content exports by entity

Total exports of broadcast content



	2017	2018	2019	2020	2021 (FY)
NHK and key private staJons	46.0	43.9	42.9	43.3	46.5
Semi-key private staJons in Osaka	3.1	3.4	5.1	5.4	4.6
Local staJons	0.2	0.3	0.2	0.1	0.1
Satellite broadcaster	0.3	0.4	0.2	0.1	0.2
ProducJons, etc.	50.4	52.1	51.7	51.1	48.7

When limited to exports of program distribution rights

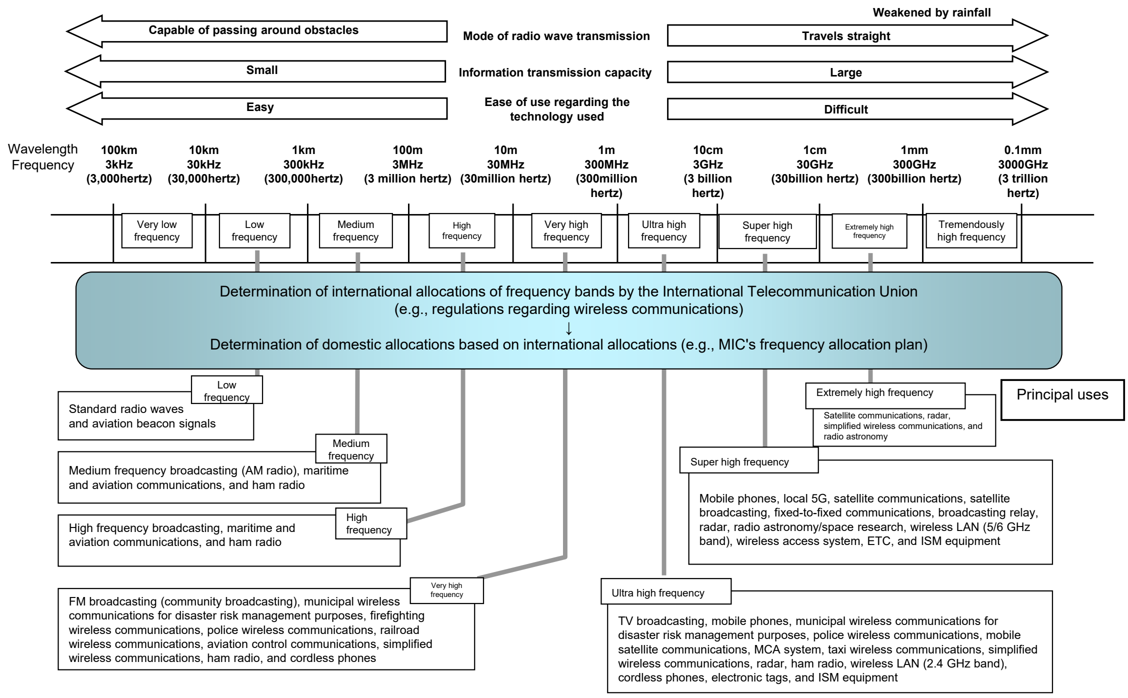


	2017	2018	2019	2020	2021 (FY)
NHK and key private staJons	51.9	51.1	51.9	52.7	56.9
Semi-key private staJons in Osaka	5.0	5.5	8.4	9.5	7.9
Local staJons	0.4	0.5	0.2	0.2	0.1
Satellite broadcaster	0.4	0.6	0.4	0.2	0.3
ProducJons, etc.	42.3	42.3	39.1	37.4	34.7

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

Section 4

1. Main uses and characteristics of each frequency band in Japan (Figure4-4-1-1 in White Paper)



Spectrum	Wave length	Characteristics
Very low frequency	10 to 100km	Propagating along ground surface, waves of this spectrum can go over low hills. Being capable of propagating in water, the spectrum can be used for seabed exploration
Low frequency	1 to 10km	Being capable of propagating to very distant places, the spectrum is used by standard frequency stations to inform radio clock, etc. of time and frequency standard.
Medium frequency	100 to 1000m	Capable of propagating through reflection off the E-layer of the ionosphere that is formed at the height of about 100km, the spectrum is used mainly for radio broadcasting.
High frequency	10 to 100m	Capable of reaching the other side of the globe by being reflected off the F-layer of the ionosphere that is formed at the height of about 200 to 400km and by repeating reflection between F-layer and the ground surface. Widely used for ocean ship and international flight plane communication, international broadcasting and amateur radio.
Very high frequency	1to 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 high frequency	0.1mm to 1mm	The spectrum has nature similar tolight. It is rarely used for communication but used for radio telescopes for astronomical observation as is the case of Extremely high frequency.

2. Changes in the number of radio stations (Figure4-4-2-1 in White Paper)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Other	43	46	50	50	55	49	49	55	59	61	51	55
Base stations	58	63	68	71	70	73	125	132	117	95	108	112
Convenience stations*2	77	84	90	97	105	112	118	125	132	137	142	143
Amateur stations	44	44	44	44	44	43	43	41	40	39	38	37
Land mobile stations*1	13,266	14,388	15,472	17,493	19,711	21,457	23,109	24,748	26,278	27,379	28,859	30,219
Percentage of land mobile stations	98.3	98.4	98.4	98.5	98.6	98.7	98.6	98.6	98.7	98.8	98.8	98.9

* 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. Major geostationary satellites used for communications services in Japan (at the end of fiscal 2022)

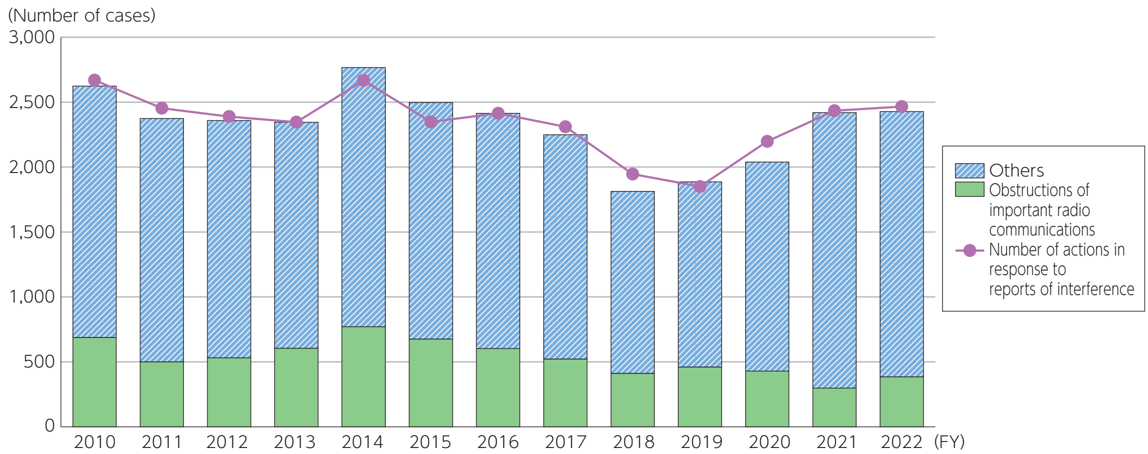
		Satellite name	Orbit (east longitude)	Operating company	Band used
		JCSAT-85	85.15°	Sky Perfect JSAT	Ku
		Intelsat 15		Intelsat	
	●	JCSAT-110A	110°	Sky Perfect JSAT	Ku
	●	JCSAT-4B	124°	Sky Perfect JSAT	Ku
	●	JCSAT-3A	128°	Sky Perfect JSAT	C、Ku
		JCSAT-5A	132°	Sky Perfect JSAT	S、C、Ku
◎		N-STAR d		NTT Docomo	
◎		N-STAR e	136°	NTT Docomo	S、C
	●	SUPERBIRD-C2	144°	Sky Perfect JSAT	Ku
	●	JCSAT-1C	150°	Sky Perfect JSAT	Ku、Ka
	●	JCSAT-2B	154°	Sky Perfect JSAT	C、Ku
	●	SUPERBIRD-B3	162°	Sky Perfect JSAT	Ku、Ka
		Horizons-3e	169°	Sky Perfect JSAT, Intelsat	C、Ku

* 1 Satellites with ¤ are mainly used for mobile communications. Satellites with l are also used for broadcasting.
* 2 JCSAT-85 and Intelsat 15 are the name of the same satellite. Similarly, JCSAT-5A and N-STAR d are the name of the same satellite.

4. Major non-geostationary satellites used for communications services in Japan (at the end of fiscal 2022)

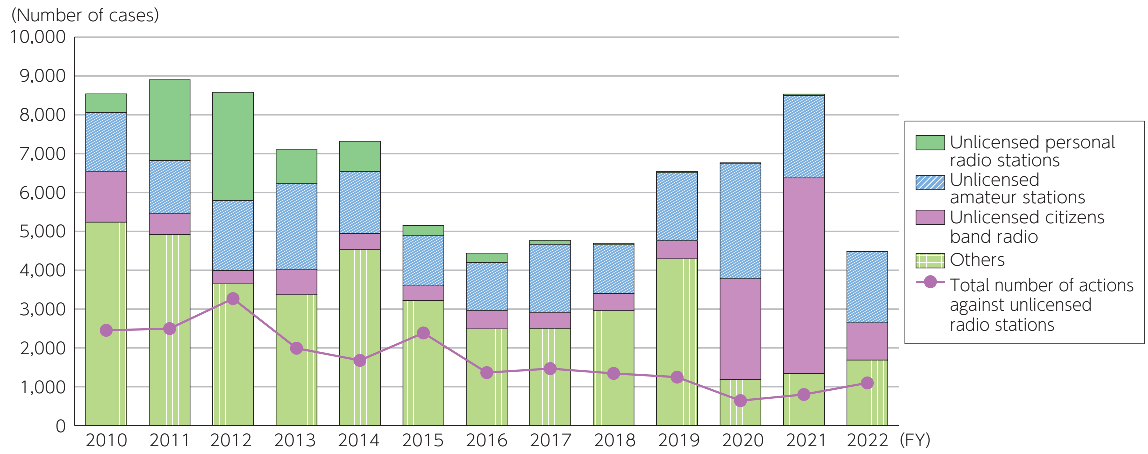
Satellite name	Altitude/number of satellites	Operating business	Agency in Japan	Service area	Service content	Service launch time
ORBCOMM	825km hight/16 satellites	ORBCOMM	ORBCOMM Japan	Global	Data communication and positioning	March, 1999
Iridium	780km hight/66 satellites	Iridium	KDDI Satcom Global Cubic-i Furuno Marlink Overseas Communications ICOM Vavicom Aviation Japan Digital Communications	Global	Voice, data communication, short burst data, open port	June, 2005
Globalstar	1414km hight/24 satellites	Globalstar	IPMotion	Global	Voice, data communication, positioning	July, 2018
Starlink	550km hight/4053 satellites	SpaceX	Starlink Japan	Global	Data communication	October, 2022

5. Changes in the number of reports of jamming and obstruction of radio stations and the number of actions taken (Figure4-4-4-1 in White Paper)



Number of reports of interference or obstruction	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	(FY)
Obstructions of important radio communications	689	501	532	605	771	676	603	522	412	461	429	298	385	
Others	1,934	1,873	1,826	1,740	1,995	1,821	1,811	1,727	1,401	1,425	1,610	2,121	2,047	
Total	2,623	2,374	2,358	2,345	2,766	2,497	2,414	2,249	1,813	1,886	2,039	2,419	2,432	
Number of actions in response to reports of interference or obstructions														
Number of actions in response to reports of interference	2,669	2,453	2,389	2,346	2,667	2,348	2,414	2,310	1,946	1,850	2,198	2,434	2,466	

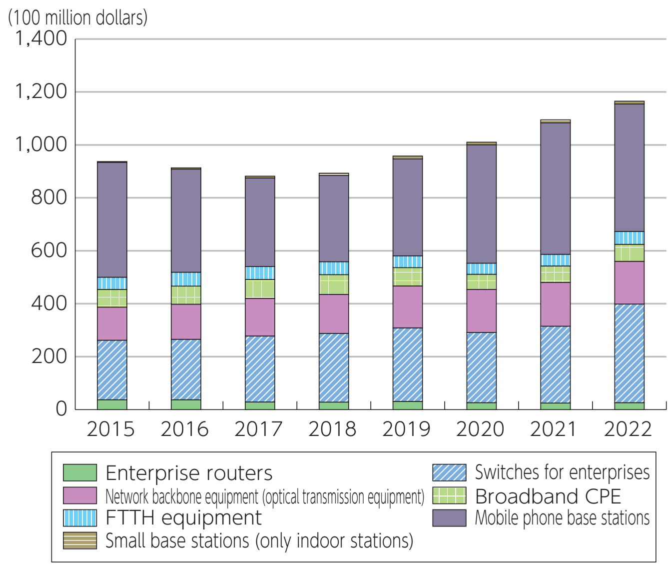
6. Changes in the number of reports of unlicensed radio stations and the number of actions taken (Figure4-4-4-2 in White Paper)



Number of unlicensed radio stations found		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 (FY)
Stations found	Unlicensed personal radio stations	479	2,081	2,788	865	784	265	245	99	40	28	25	32	3
	Unlicensed amateur stations	1,525	1,367	1,803	2,225	1,592	1,291	1,229	1,749	1,253	1,739	2,959	2,126	1,831
	Unlicensed citizens band radio	1,295	538	342	642	404	375	478	414	443	477	2,594	5,035	958
	Others	5,239	4,917	3,648	3,369	4,541	3,221	2,489	2,508	2,958	4,293	1,187	1,341	1,689
	Total	8,538	8,903	8,581	7,101	7,321	5,152	4,441	4,770	4,694	6,537	6,765	8,534	4,481
Number of actions against unlicensed radio stations														
Number of actions	Prosecution	262	249	231	228	215	230	168	168	208	189	62	49	94
	Guidance	2,190	2,247	3,038	1,764	1,465	2,156	1,196	1,300	1,136	1,058	581	752	1,004
	Total	2,452	2,496	3,269	1,992	1,680	2,386	1,364	1,468	1,344	1,247	643	801	1,098

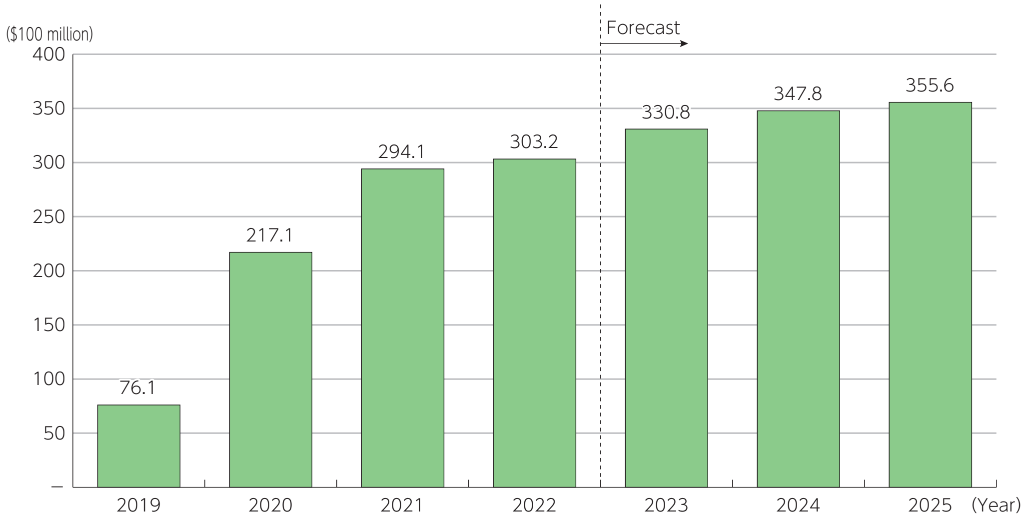
Section 5

1. Changes in the value of global network equipment shipments (Figure4-5-1-1 in White Paper)



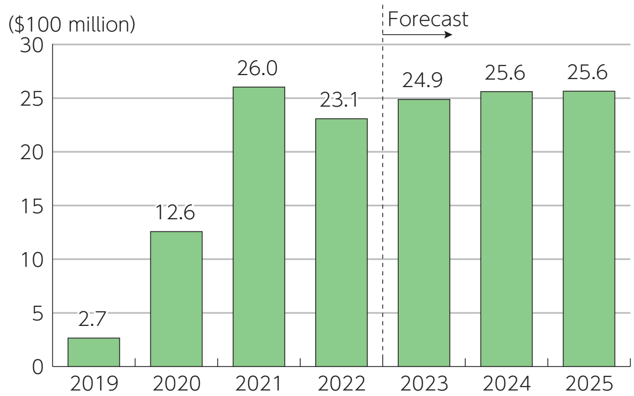
(Source) Omdia

2. Global 5G base stations (macrocells) market size (value of shipments)



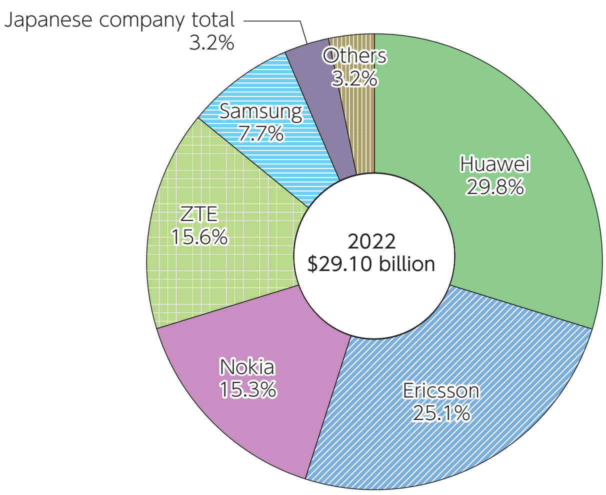
(Source) Omdia

3. Size (value of shipments) of the Japanese 5G base stations (macrocells) market (Figure4-5-1-2 in White Paper)



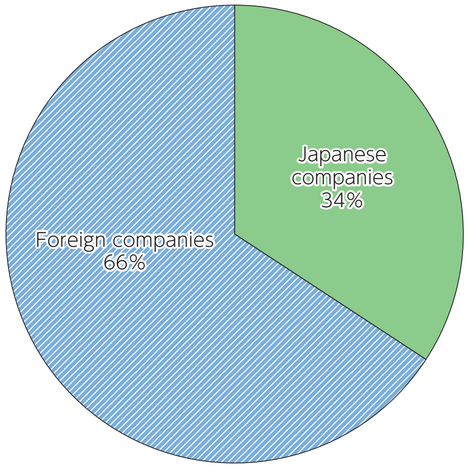
(Source) Omdia

4. Global 5G base stations (macrocells) market share (value of shipments)



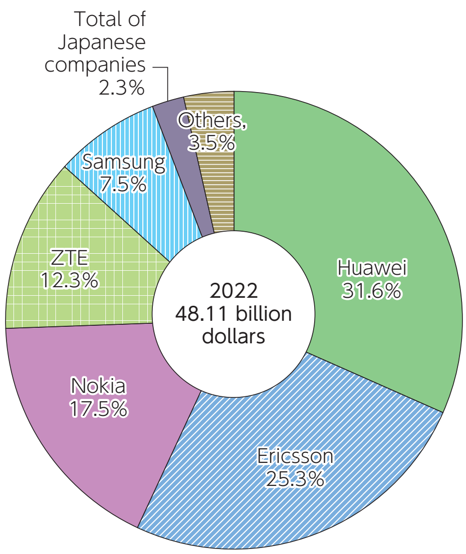
(Source) Omdia

5. Share of global electronic components market (in terms of sales) (2021) (Figure4-5-1-3 in White Paper)



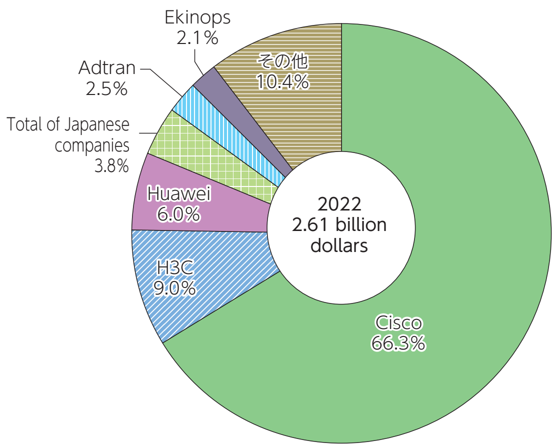
(Source) Omdia

6. Share of the global macrocell base station market (value of shipments in 2022) (Figure4-5-1-4 in White Paper)



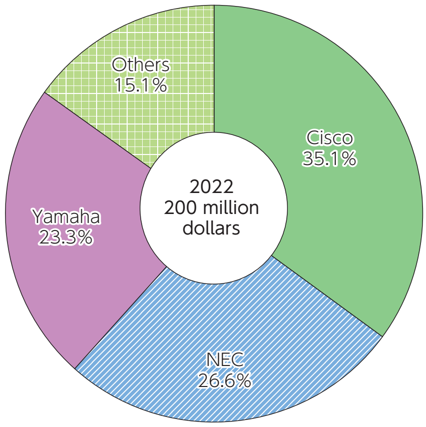
(Source) Omdia

7. Global enterprise router market share



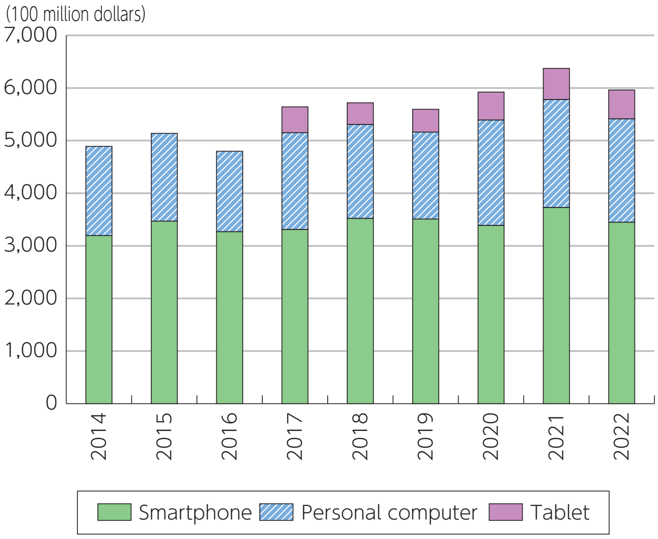
(Source) Omdia

8. Japanese enterprise router market share



(Source) Omdia

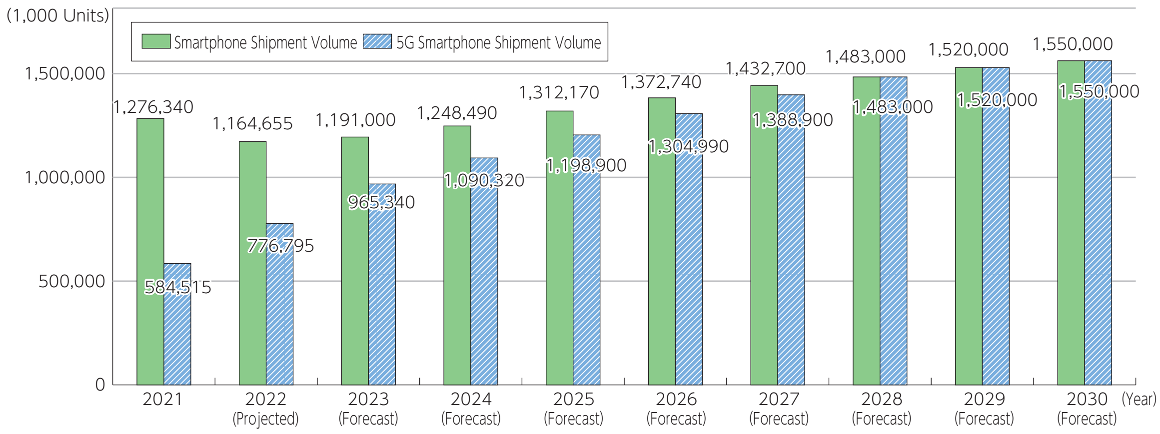
9. Changes in the value of global information device shipments (Figure4-5-2-1 in White Paper)



* Tablets have been counted since 2017

(Source) Omdia

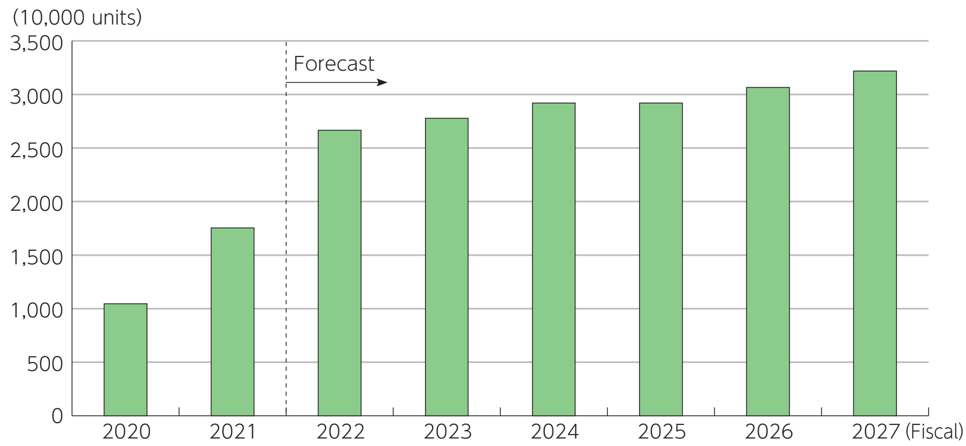
10. Transition and Forecast of Global Shipment Volume of Smartphones & 5G Smartphones (Figure4-5-2-2 in White Paper)



* 1 Based on the shipment volume at manufacturers.
* 2 The values for 2022 are those projected, and the values after 2023 are those forecasted.
* 3 Number of 5G smartphones are included in the number of smartphones.

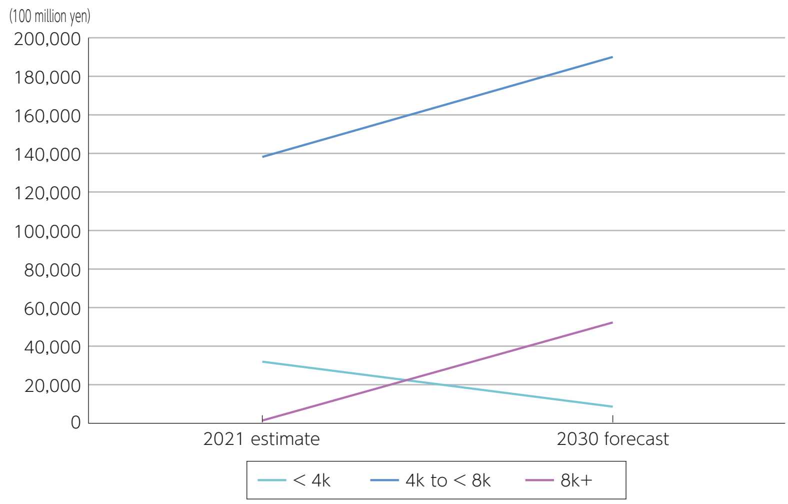
(Source) Yano Research Institute Ltd., "Global Market of Mobile Phone Subscriptions and Shipment Volume: Key Research Findings 2022", February 7, 2023

11. Shipments of 5G smartphones in Japan (Figure4-5-2-3 in White Paper)



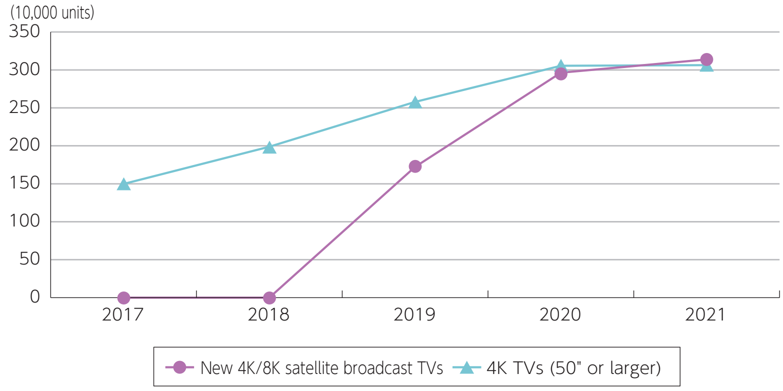
(Source) CIAJ "Medium-Term Demand Forecast for Communications Devices [Fiscal 2022 to Fiscal 2027]"

12. Value of global shipments of 4K and 8K televisions (Figure4-5-2-4 in White Paper)



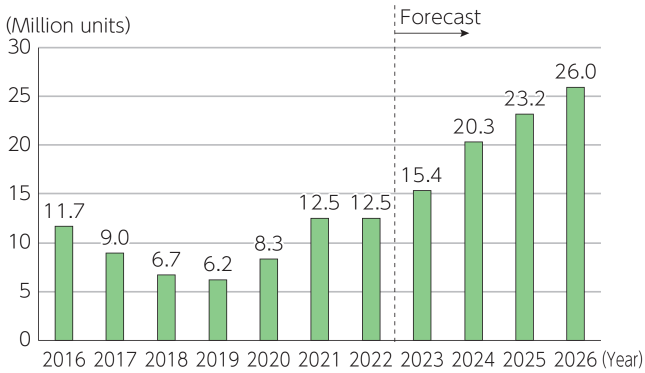
(Source) Fuji Chimera Research Institute, Inc. "5G/8K business future outlook survey 2022"

13. Number of 4K and 8K televisions shipped in Japan (Figure4-5-2-5 in White Paper)



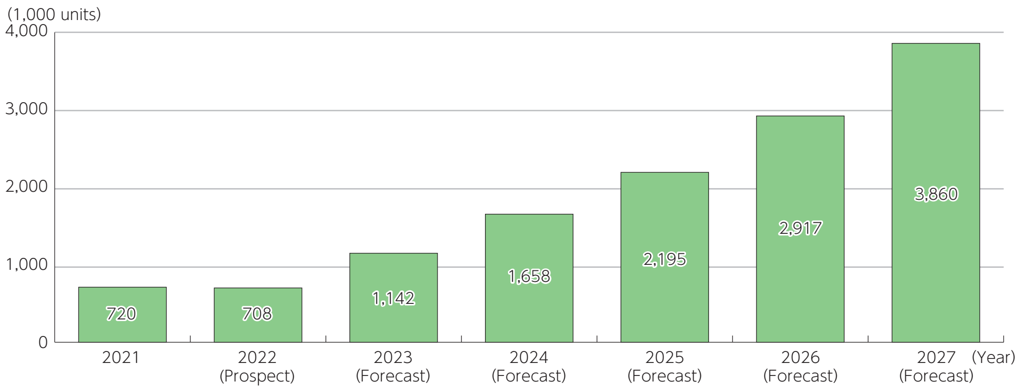
(Source) JEITA "Domestic Shipments of Consumer Electronic Devices"

14. Changes and forecast in global VR headset shipments (Figure4-5-2-6 in White Paper)



(Source) Omdia

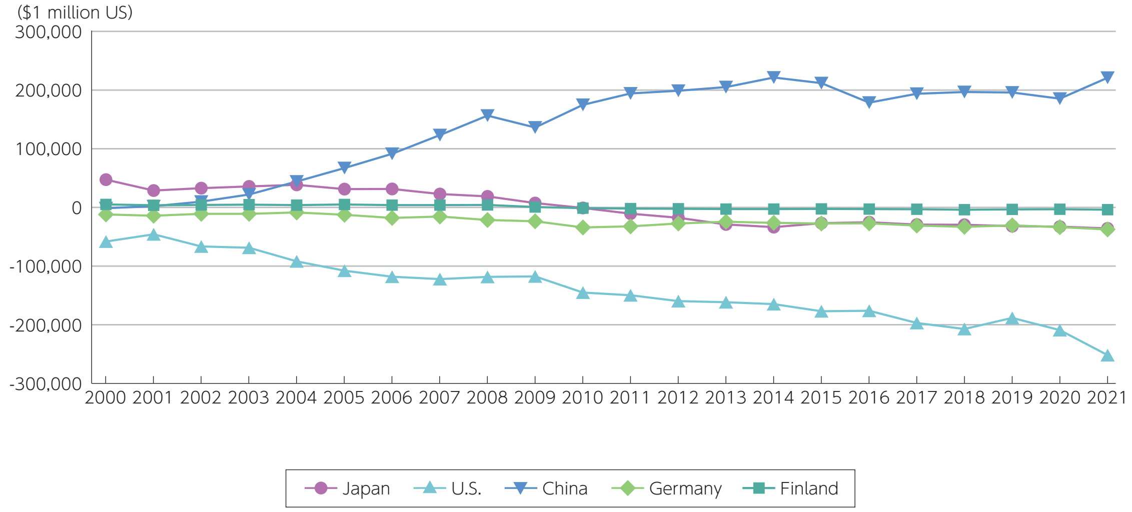
15. Forecast on Domestic Shipment Volume of HMDs for XR (VR/AR/MR) & 360-Degree Videos (Figure4-5-2-7 in White Paper)



* 1 In terms of the number of units shipped by manufacturers.
* 2 The value for 2022 is an estimate, and the values for 2023 and later are forecasts.

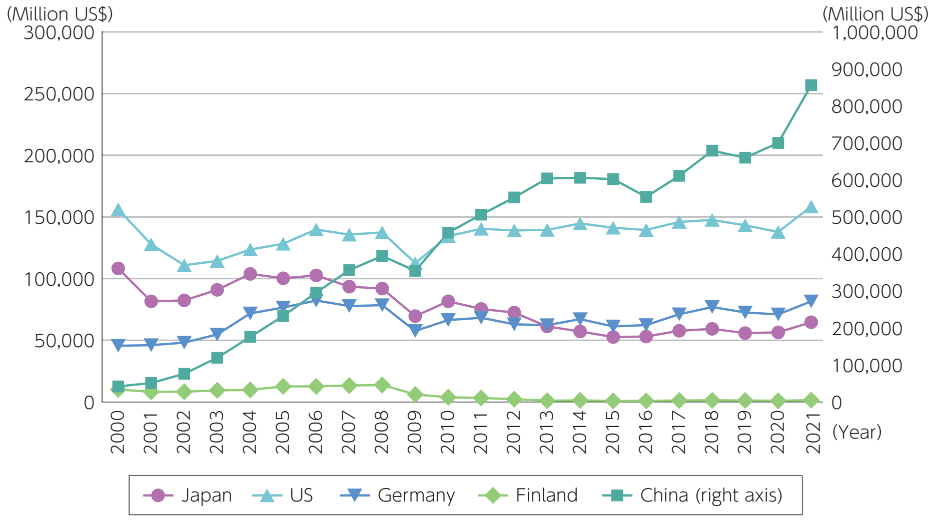
(Source) Yano Research Institute Ltd., "The Market of HMDs (Head Mounted Displays) for XR (VR/AR/MR) and 360-Degree Videos: Key Research Findings 2021", May 11, 2022

16. Changes in the value of the export surplus of ICT equipment and devices by country (Figure4-5-3-1 in White Paper)



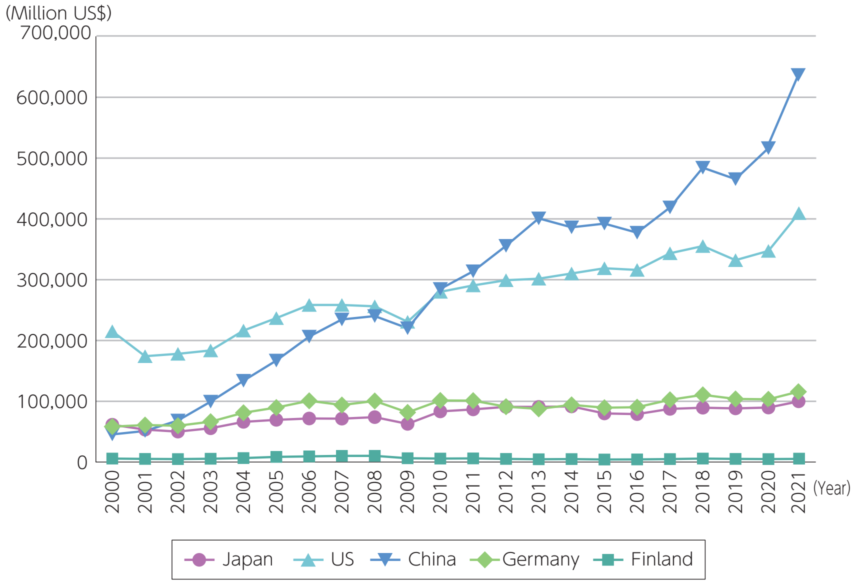
(Source) UNCTAD "UNCTAD STAT"

17. Changes in the value of exports of ICT equipment and devices by country



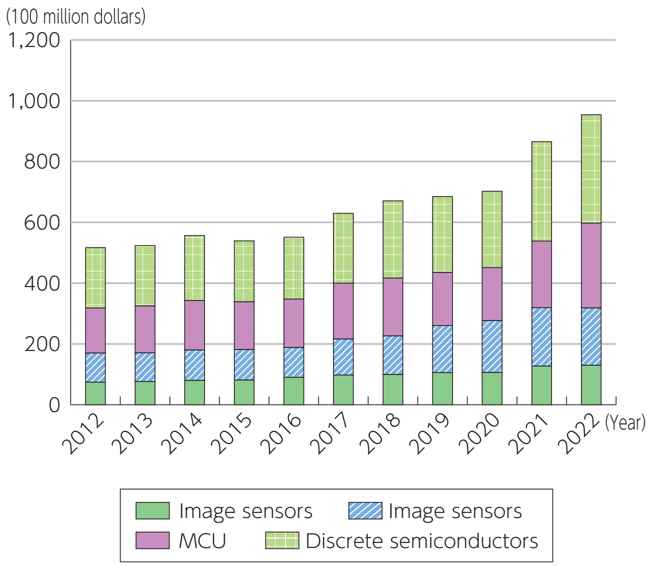
(Source) UNCTAD "UNCTAD STAT"

18. Changes in the value of imports of ICT equipment and devices by country



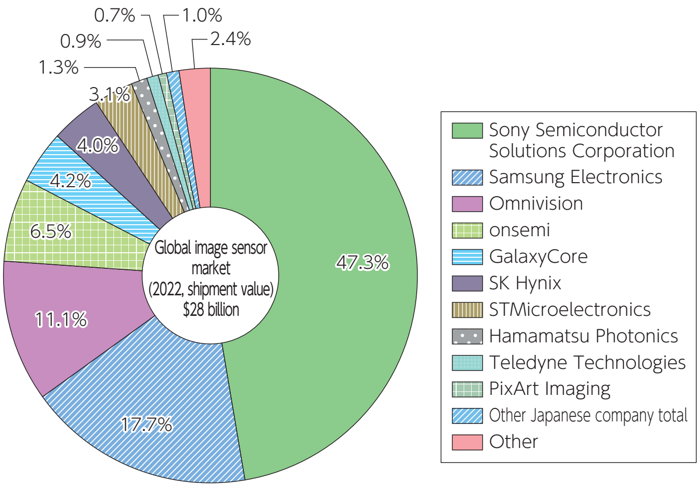
(Source) UNCTAD "UNCTAD STAT"

19. Changes in global semiconductor market (value of shipments)



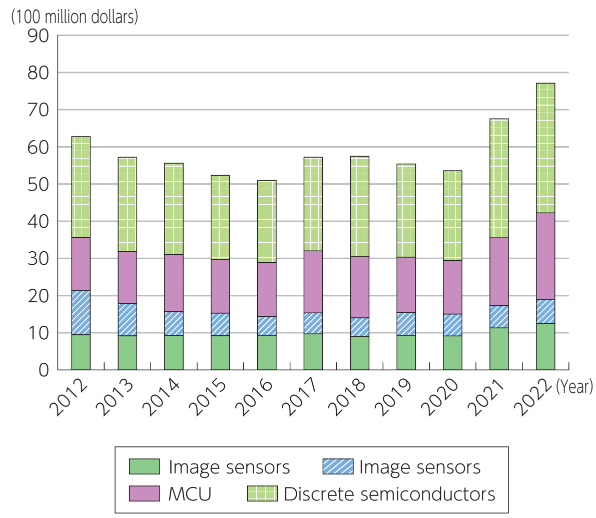
(Source) Omdia

20. Changes in Global imaging sensor market share (value of shipments in 2022)



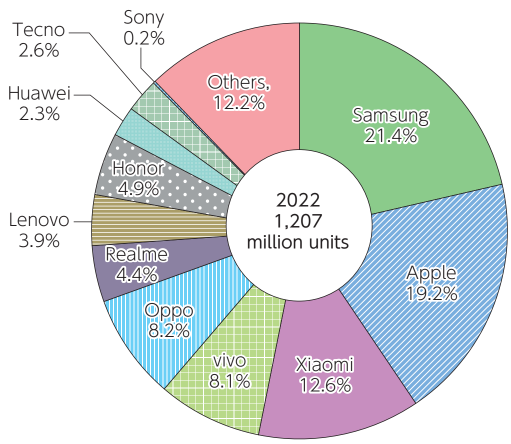
(Source) Omdia

21. Changes in Japan's semiconductor market (value of shipments)



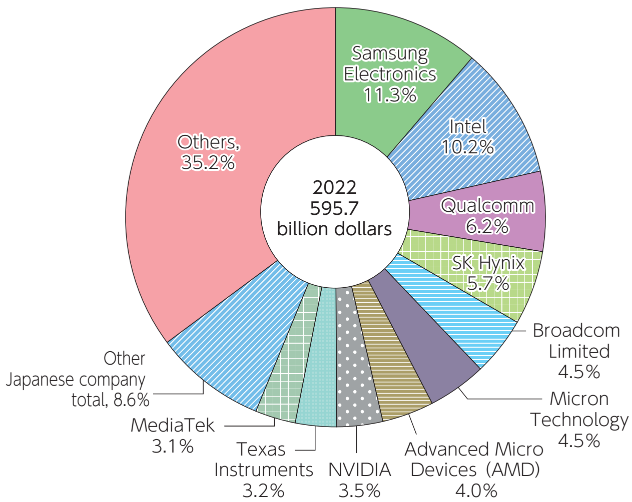
(Source) Omdia

22. Changes in the global smartphone market share



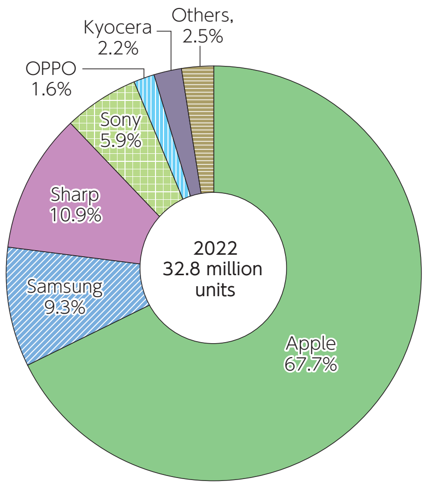
(Source) Omdia

23. Changes in the global semiconductor market share



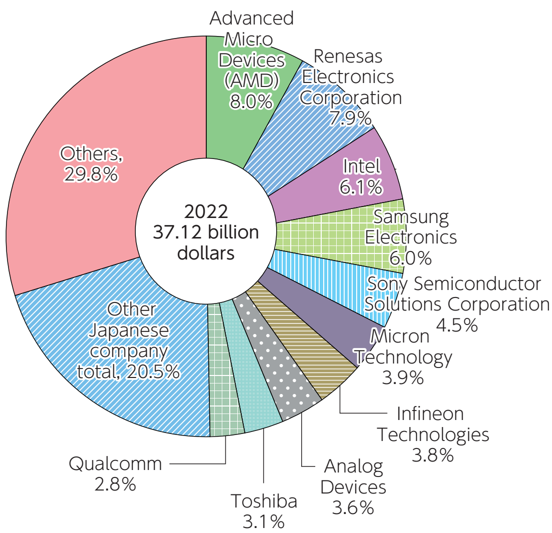
(Source) Omdia

24. Japanese smartphone market share



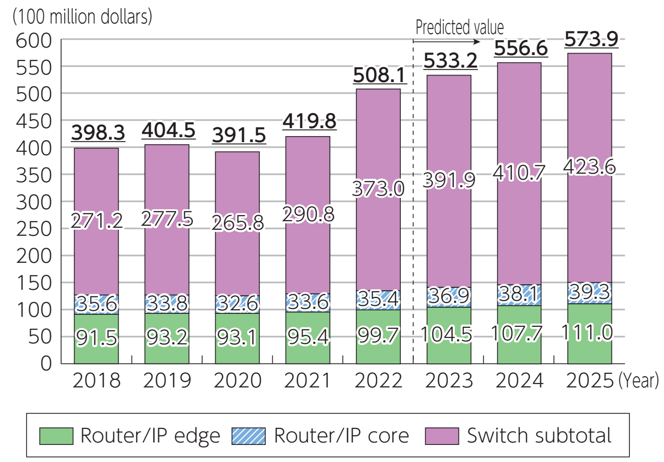
(Source) Omdia

25. Japanese semiconductor market share



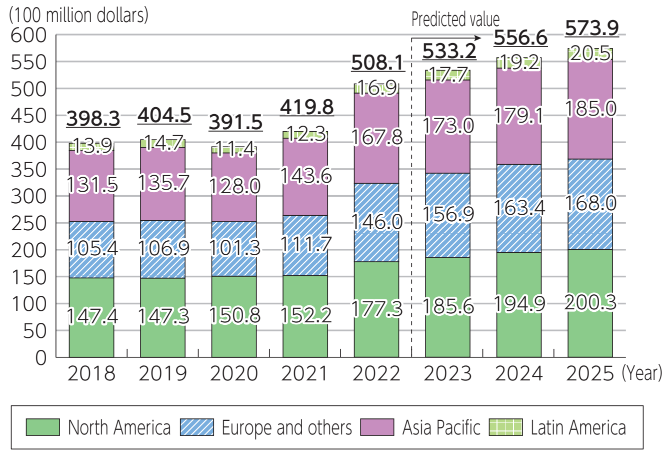
(Source) Omdia

26. Changes and forecasts for the size of the global router/switch market (by category)



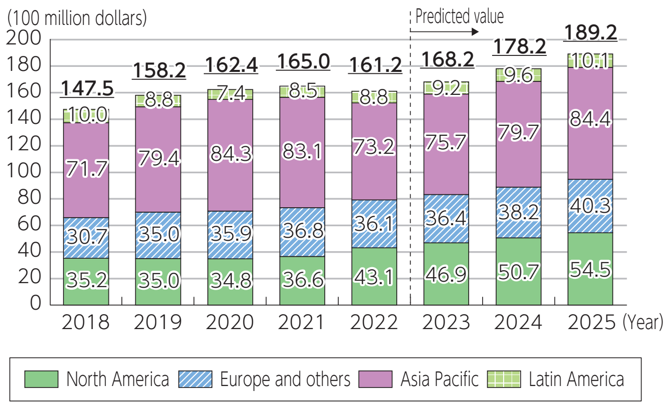
(Source) Omdia

27. Changes and forecasts for the size of the global router/switch market (by region)



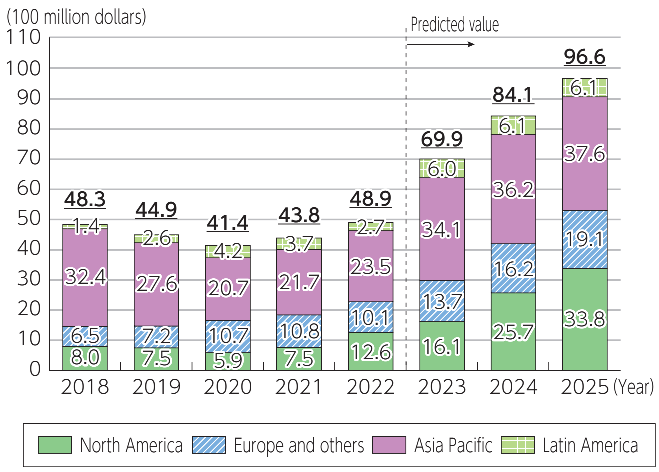
(Source) Omdia

28. "Changes and forecasts for the size of the global optical transmission equipment market"



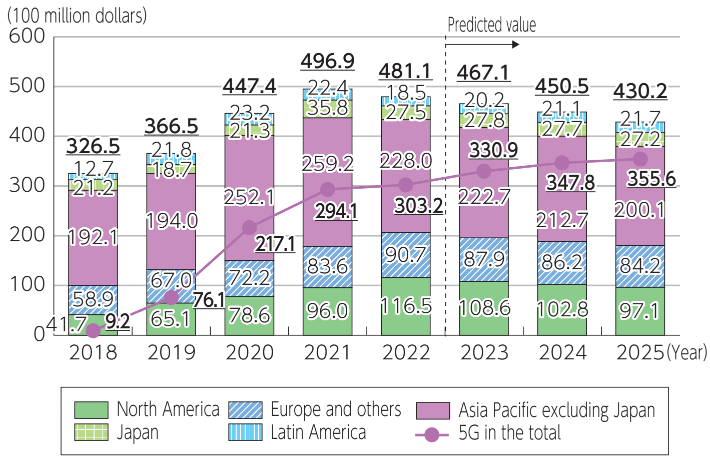
(Source) Omdia

29. Changes and forecasts for the size of the global FTTH equipment market



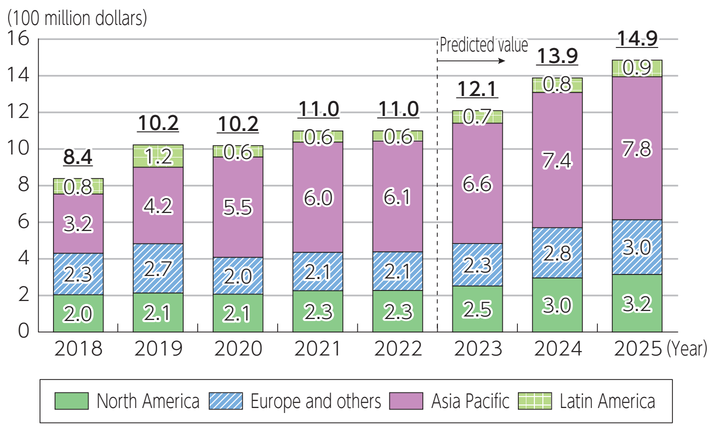
(Source) Omdia

30. Changes and forecasts for the size of the global macrocell base station market



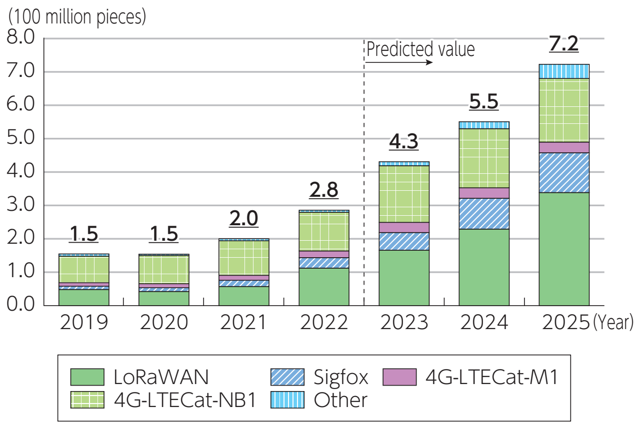
(Source) Omdia

31. Changes and forecasts for the size of the global indoor small cell market



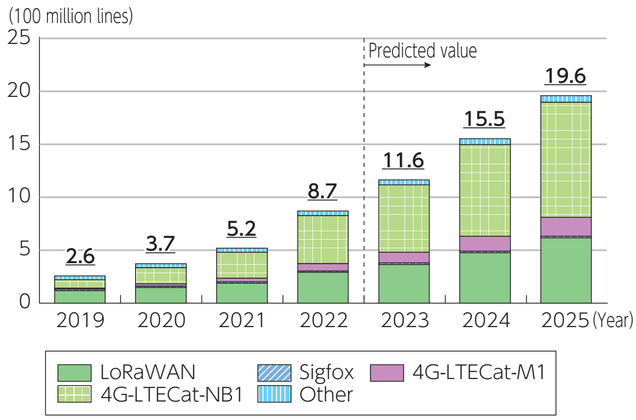
(Source) Omdia

32. Changes and forecasts for the number of global shipments of IC for LPWA module



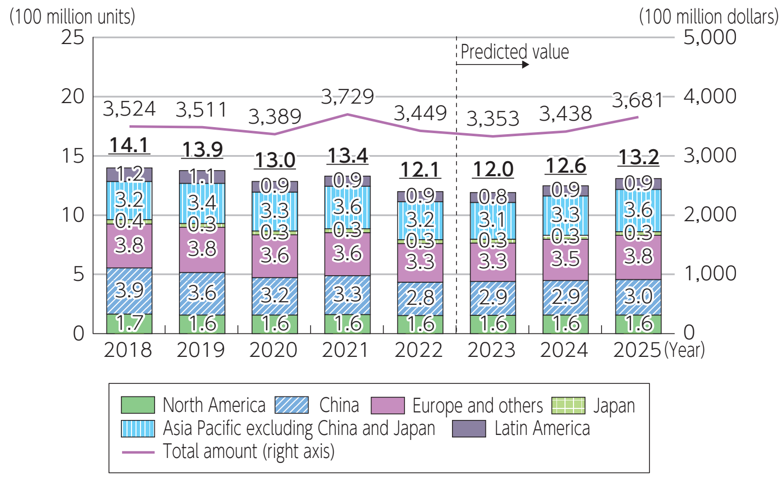
(Source) Omdia

33. Changes and forecasts for the number of global LPWA connection lines



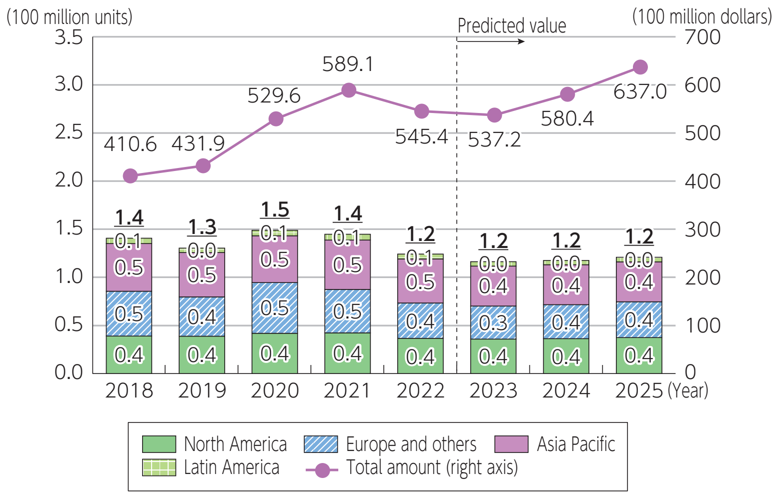
(Source) Omdia

34. Changes and forecasts for the size of the global smartphone market and the number of shipments



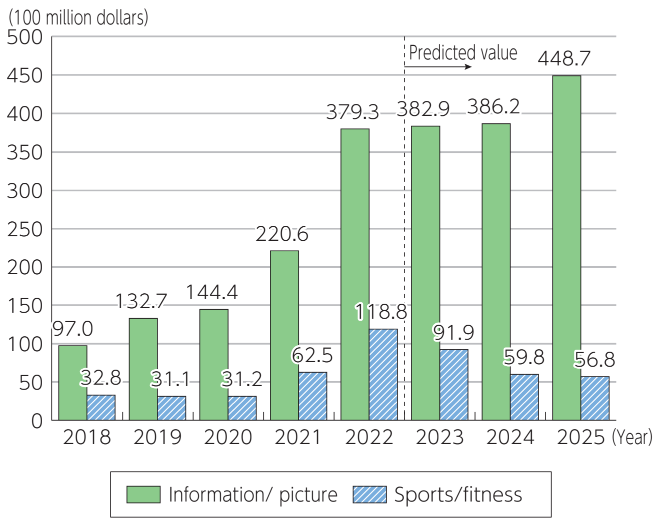
(Source) Omdia

35. Changes and forecasts for the size of the global tablet market and the number of shipments



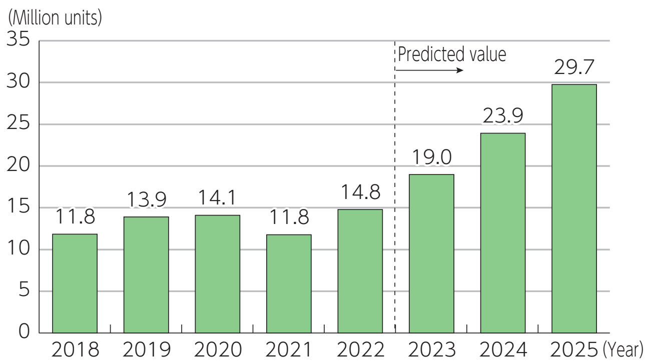
(Source) Omdia

36. Changes and forecasts for the size of the global wearable terminal market



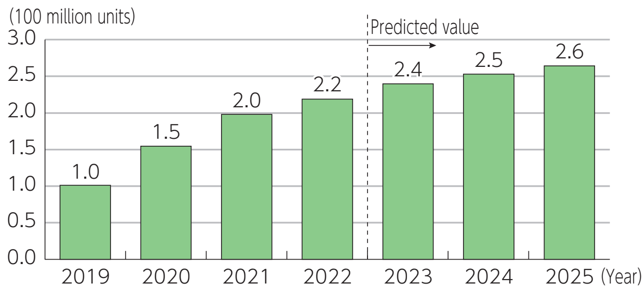
(Source) Omdia

37. Changes and forecasts for the size of the global domestic/consumer robot market and the number of shipments



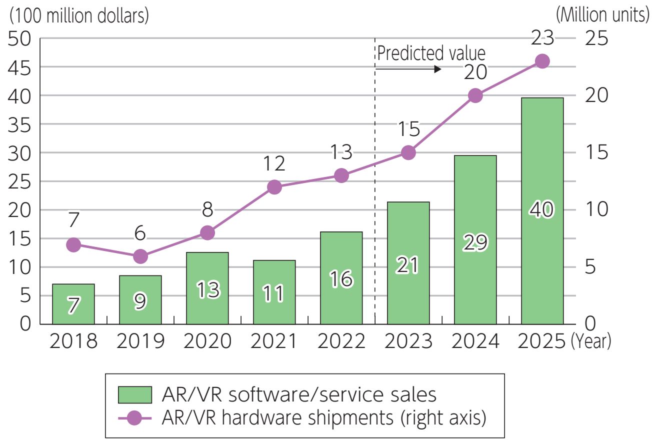
(Source) Omdia

38. Changes and forecasts for the number of global AI speaker (smart speaker) shipments



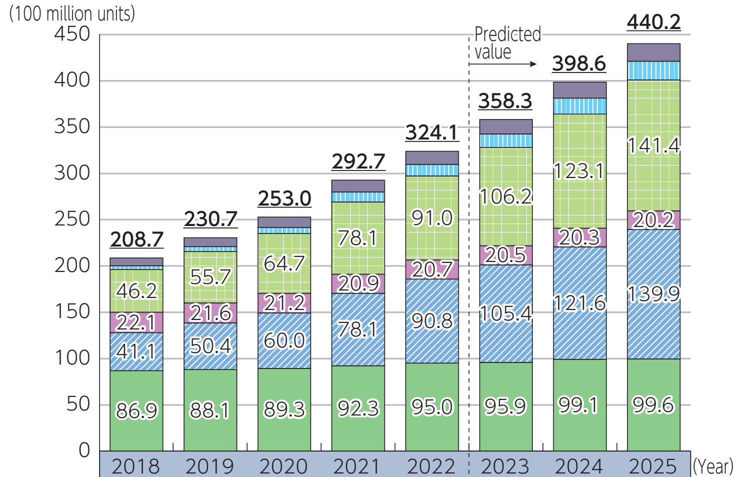
(Source) Omdia

39. Changes and forecasts for the size of the global AR/VR market and the number of shipments



(Source) Omdia

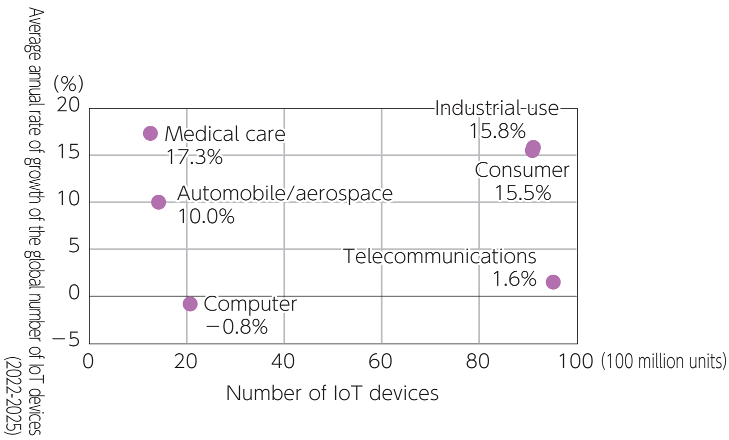
40. Changes and forecasts for the number of global IoT devices



	2018	2019	2020	2021	2022	2023	2024	2025
合計	208.7	230.7	253.0	292.7	324.1	358.3	398.6	440.2
Automobile/aerospace	8.5	9.8	11.3	12.7	14.2	15.7	17.3	18.9
Medical care	4.0	5.1	6.5	10.7	12.5	14.6	17.2	20.2
Industrial use	46.2	55.7	64.7	78.1	91.0	106.2	123.1	141.4
Computer	22.1	21.6	21.2	20.9	20.7	20.5	20.3	20.2
Consumer	41.1	50.4	60.0	78.1	90.8	105.4	121.6	139.9
Telecommunications	86.9	88.1	89.3	92.3	95.0	95.9	99.1	99.6

(Source) Omdia

41. Global number and growth-rate forecasts for IoT devices by sector/industry



(Source) Omdia

Section 6

1. Efforts by Japanese telecom operators to utilize and introduce satellites, etc. (Figure4-6-1-1 in White Paper)

2022

Company name	Major business	Country	"Market capitalization (100 million dollars)"
Apple	Hardware, software, services	US	28,282
Microsoft	Cloud service	US	23,584
Alphabet/Google	Search engine	US	18,215
Amazon.com	Cloud service, e-commerce	US	16,353
Meta Platforms/ Facebook	SNS	US	9,267
NVIDIA	Semiconductor	US	6,817
Taiwan Semiconductor Manufacturing	Semiconductor	Taiwan	5,946
Tencent	SNS		5,465
Visa	Payment	US	4,588
Samsung Electronics	Hardware	Korea	4,473
Mastercard	Payment	US	3,637
Alibaba	e-commerce		3,589
Walt Disney	Media	US	2,811
Cisco Systems	Hardware, security	US	2,578
Broadcom	Hardware, semiconductor	US	2,557

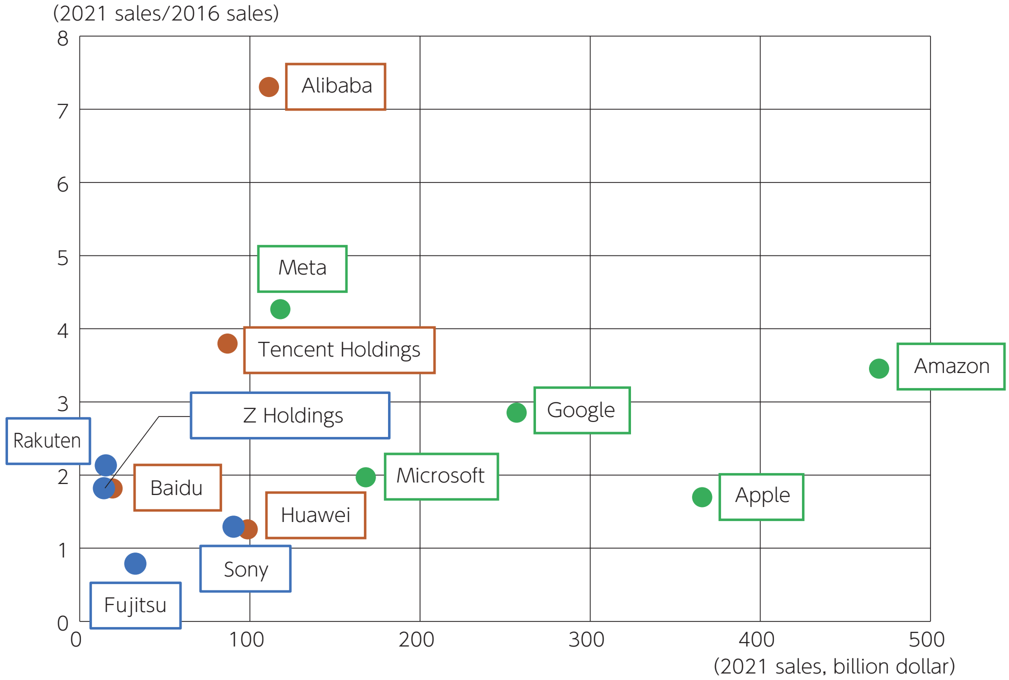
2023

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

* The figures for 2022 are as of January 14, 2022, and the figures for 2023 are as of March 31, 2023.

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

2. Sales of platform providers in Japan, the U.S. and China (Figure4-6-1-2 in White Paper)



(Source) Prepared based on Statista data

3. Overseas regulation to ensure a competitive environment of the markets

Region	Summary of efforts
Japan	●In February 2021, the "Act on Improving Transparency and Fairness of Digital Platforms" was enacted. Each year, digital platform providers are required to submit reports with self-assessments on the disclosure of terms and conditions of transactions, the development of voluntary procedures and systems, and measures that have been implemented. ●In April 2021, Amazon, Rakuten, Yahoo, Apple, iTunes, and Google were designated as "specified digital platform providers." ●In October 2022, Google, Meta, and Yahoo were designated as "specified digital platform providers" for digital advertising.
US	●In July 2019, the Department of Justice (DoJ) announced a major antimonopoly investigation of major online platform providers (GAFA firms), and a hearing on antitrust laws with respect to the GAFA firms was held before the U.S. House Committee on the Judiciary in July 2020. ●In June 2021, bipartisan members of the House of Representatives introduced five bills to tighten regulations on GAFA, none of which have been voted on. ●In January 2023, the Department of Justice sued Google for antitrust violations in the Internet advertising market. In addition to Google, the GAFA firms have been sued for antitrust violations.
China	●In December 2020, the Central Economic Work Conference included strengthening of regulation on platformers in its eight major tasks and stated "strengthen antitrust and prevent disordered capital expansion." * ●In January 2022, the "Digital Economy Development Plan for the 14th Five-Year Plan" was released, with the main initiatives for the enhancement project including the establishment of a supervisory management system for digital services and the strengthening of control over platforms. ●In February 2022, the Network Safety Review Valuation Act came into effect, making it mandatory for network platform operators with personal information of more than one million people to submit an application when making an IPO overseas, and switching to a pre-screening system. ●In August 2022, the Anti-Monopoly Law was amended to include measures aimed at platform operators that prohibit operators with a dominant market position from abusing their position by using means such as data, algorithms, technology, and platform rules.
Europe	●In December 2020, the Digital Markets Act and the Digital Services Act were announced as regulations with major IT services companies such as the GAFA firms in mind. The Digital Markets Act was adopted in March 2022, and the Digital Service Act was adopted in April. ●In February 2022, the Data Act was proposed to clarify the rules for the use of data generated from IoT devices and create an environment where more data can be used by society as a whole.

* https://www.tkfd.or.jp/research/detail.php?id=3908

(Source) Based on IPA "DX White Paper 2023"
https://www.ipa.go.jp/publish/wp-dx/dx-2023.html

4. Overseas regulation on illegal/harmful contents on the Internet

Country	Initiative
US	●Section 230 of the Communications Decency Act of 1996 exempts platform operators from liability for the content of their communications. However, platform operators have recently been asked to attend hearings in the U.S. Congress to discuss Section 230 of the Communications Decency Act and measures to combat illegal and harmful information on the Internet. ●In May 2020, President Trump signed the "Executive Order on Preventing Online Censorship," which considered limiting the arbitrary removal of user posts by platform operators. However, following Trump's election loss, the FCC stated that it had no intention of clarifying Section 230 of the Act. ●In January 2021, platform operators froze Trump's accounts after his supporters stormed the Capitol Building over the election results.
Europe	●In December 2020, the European Commission published draft legislation for the Digital Service Act (DSA). Legislation was agreed upon in April 2022 after negotiations with the European Parliament and the European Council. ●The DSA came into effect in November 2022, holding intermediary service providers (such as ISPs, hosting service providers, and online platform operators) responsible for the distribution of illegal content, as well as requiring them to protect users, depending on the size of the provider.
UK	●In April 2019, the Department for Digital, Culture, Media and Sport and the Home Office jointly published the "Online Harms White Paper." It formulates a statutory duty of care to require action against harmful content and conduct online, and requires platform operators to comply with this duty of care. ●In December 2020, the government introduced regulations according to the scale of services, based on public comments to "Online Harms White Paper." ●In March 2022, the Department for Digital, Culture, Media and Sport introduced legislation which states that, rather than relying on self-regulation by platform providers and other online companies, the government would regulate and Ofcom would monitor whether the regulations were followed.
France	●In May 2020, the National Assembly passed an anti-hate speech law to combat hate speech online. However, after it was referred to the Constitutional Council for a constitutional review, most of its provisions were declared unconstitutional because they could encourage excessive removal of content. The provisions that were deemed unconstitutional were removed and the law came into effect in June 2020.
Germany	●In October 2017, the Network Enforcement Act was passed, which obliges social media services with more than two million registered users in Germany to publish transparency reports once every six months. ●The Federal Office of Justice has deemed failure to remove content due to "incomplete system functionality" as a breach of public order, and fined Facebook two million euros for content deemed inadequate in the transparency report the company filed in the first half of 2018. ●In April 2021, the revised Network Enforcement Act came into force, making it mandatory for social media platforms to not only delete posts on certain serious matters, but also to report the content of posts that meet criminal constitution requirements along with the IP addresses of the posters to investigative authorities. ●In June 2021, the Network Enforcement Act was amended to include video-sharing platforms and to provide opportunities to raise objections to revise decisions to remove content or disable access.
Australia	●The "Online Safety Act" was passed in July 2021. Users can now file complaints with the eSafety Commissioner about online violence targeting adults or posts that promote violent behavior. The eSafety Commissioner's obligation to respond to takedown notices has been reduced to 24 hours, and civil penalties can now be imposed for failure to comply with takedown or evidence notice requirements for certain content.

(Source) Based on MIC "Second Summary of the Platform Service Study Group"
https://www.soumu.go.jp/menu_news/s-news/01kiban18_01000173.html

5. Trends with major platform providers in the U.S. and China (Figure4-6-2-1 in White Paper)

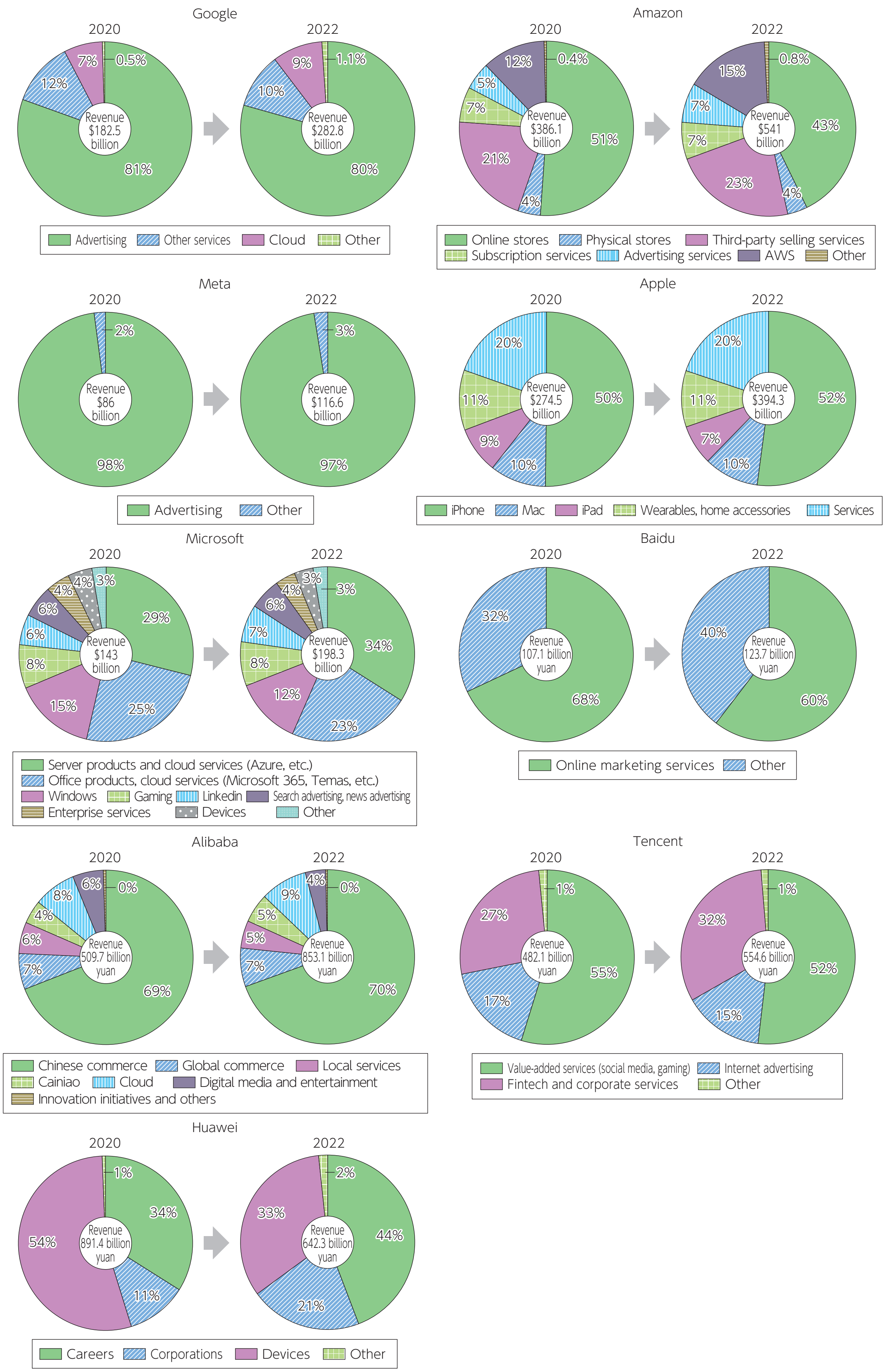
<U.S.>

Key areas	Company	Business overview and areas	New areas and businesses
Advertising, search	Alphabet (Google)	Provides the largest search engine service in the world, and is developing a massive economic sphere including cloud and devices focused mainly insearch advertising.	Recognizing the threat of generative AI to search engines, the company has been strengthening its search engine using AI technology, including the launch of the "Bard" chat AI linked with Google search.
E-commerce	Amazon	One of the largest e-commerce operators in the world, with a huge economic sphere centered on cloud services (AWS).	The company is strengthening its cloud services and advertising services on e-commerce sites.
Social media, apps	Meta (Facebook)	The company provides one of the world's largest social media services, and in 2021 changed its name to Meta Platforms to promote its metaversebusiness.	The company is focusing on its metaverse business as a pillar of its future amid a slight slowdown in advertising revenue on social media.
Communications devices and terminals	Apple	The world's largest manufacturer and retailer of Internet and digital home appliances, the company has developed a massive economic sphere centered on iPhones and other devices.	The company is expanding its business with the iPhone at its core, and in recent years has focused on expanding in the healthcare area with Apple Watch.
Terminals, cloud	Microsoft	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.	The company is focusing on using generative AI, including expanding its partnership with OpenAI.

<China>

Key areas	Company	Business overview and areas	New areas and businesses
Advertising, search	Baidu	The largest search engine operator in China, the company is now focusing on artificial intelligence (AI) technology based on search engines and expanding into areas such as deep learning, autonomous driving, and AI chips.	On March 16, 2023, the company announced the "ERNIE Bot" generative AI technology based on the latest large language model. It now plans to implement generative AI to own products and other's.
E-commerce	Alibaba	The world's largest e-commerce operator based on gross merchandise volume, the company is now leveraging data technology to provide services ranging from marketing to logistics and payments.	On April 11, 2023, Alibaba Cloud, a group company, announced "Tongyi Qianwen," a new AI language model for companies, and is currently developing its AI business.
Social media, apps	Tencent	China's largest social media app platformer, the company has built a massive ecosystem to provide payment services, games, and other service based on "WeChat."	On November 30, 2022, the company announced the "Kurumazukumo" cloud solution specializing in smart mobility, and then began providing mapping services necessary for autonomous driving, in order tofocus on the mobility field.
Communications devices and terminals	Huawei	A leading global communications device vendor with operations in four key areas: telecom networks, IT, smart devices, and cloud services.	In June 2021, Huawei Digital Power Technologies, a subsidiary providing digital energy products and solutions, was established to expand into the energy field, including green power generation.

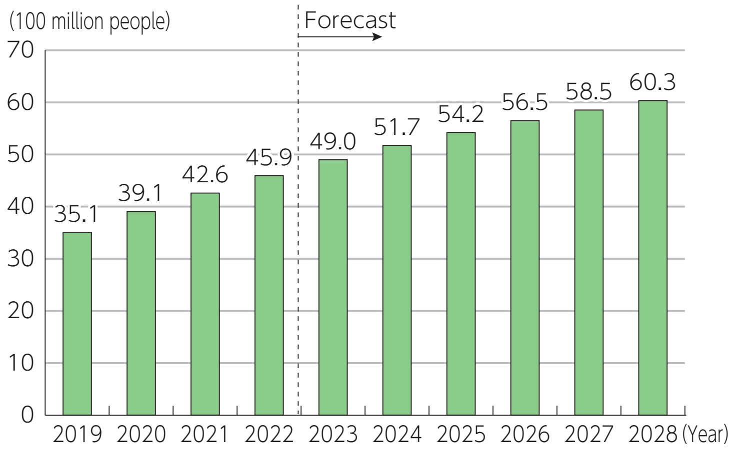
6. Sales of major platform providers in the U.S. and China by business



(Source) Prepared based on financial results material released by each company

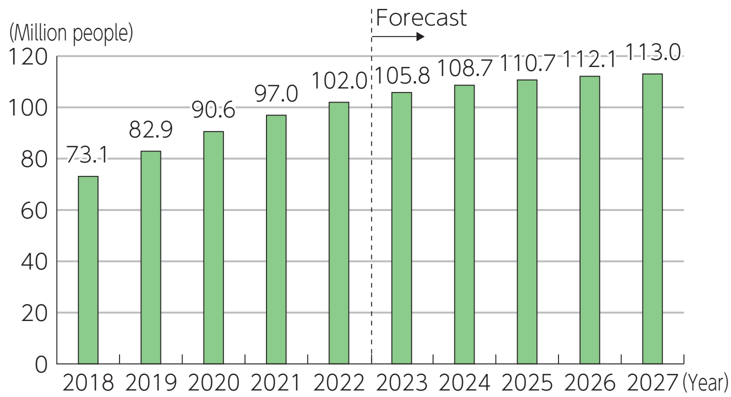
Section 7

1. Changes and forecast in the number of global social media users (Figure4-7-1-1 in White Paper)



(Source) Statista

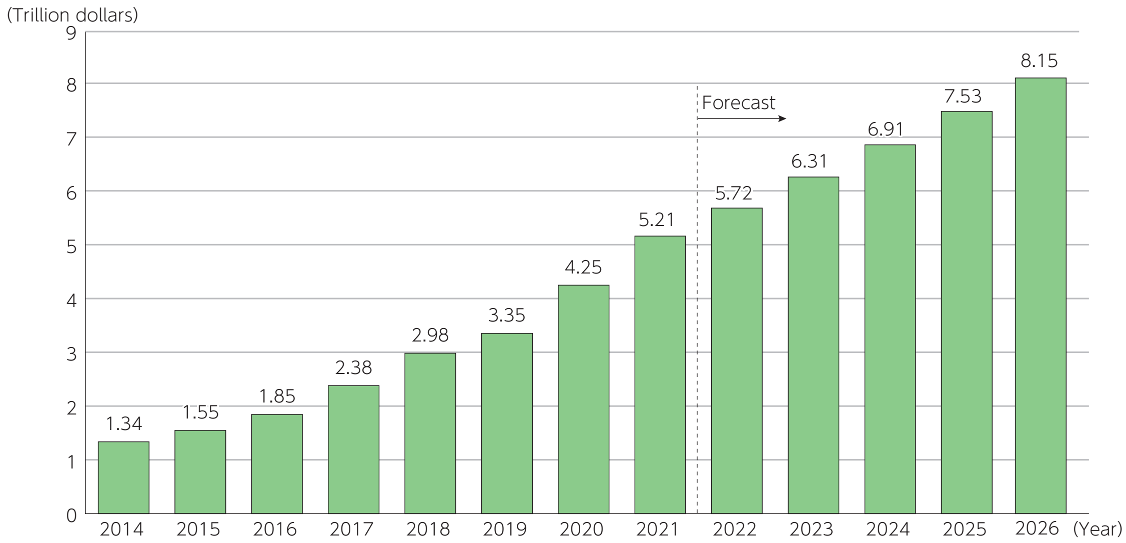
2. Changes and forecast in the number of social media users in Japan (Figure4-7-1-2 in White Paper)



* Number of people who use social media sites and applications at least once a month, with or without an account

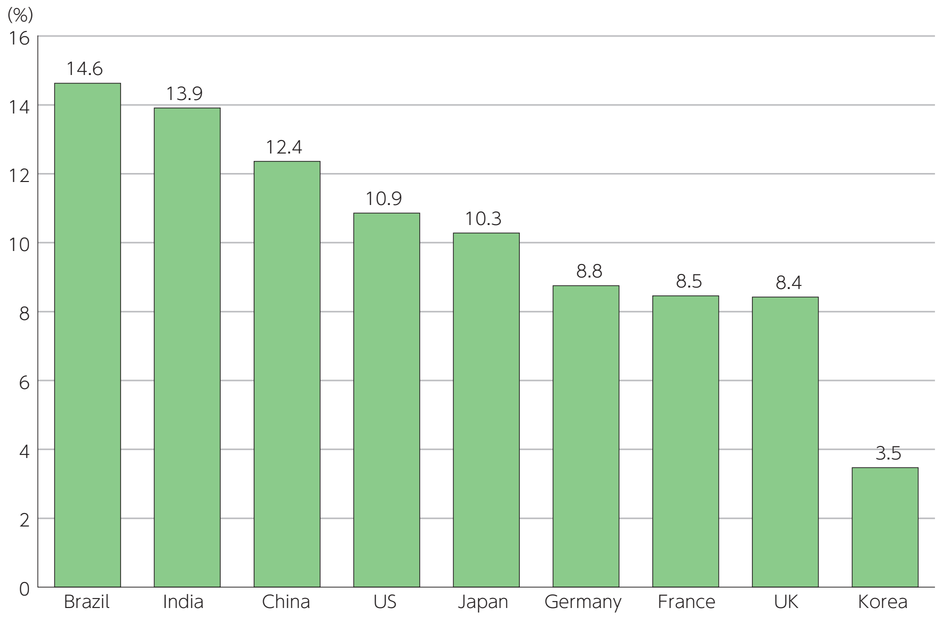
(Source) Statista

3. Changes and forecast in sales in the global EC market



(Source) Statista (eMarketer)
https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/

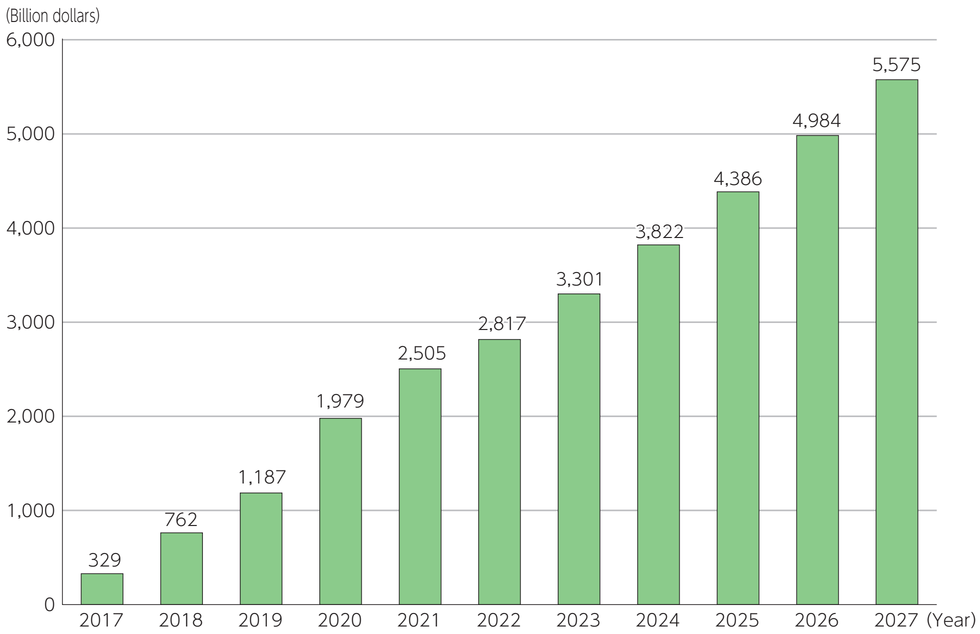
4. Growth rate of EC market by country (2023 to 2027)



* Compound annual growth rate from 2023 to 2027

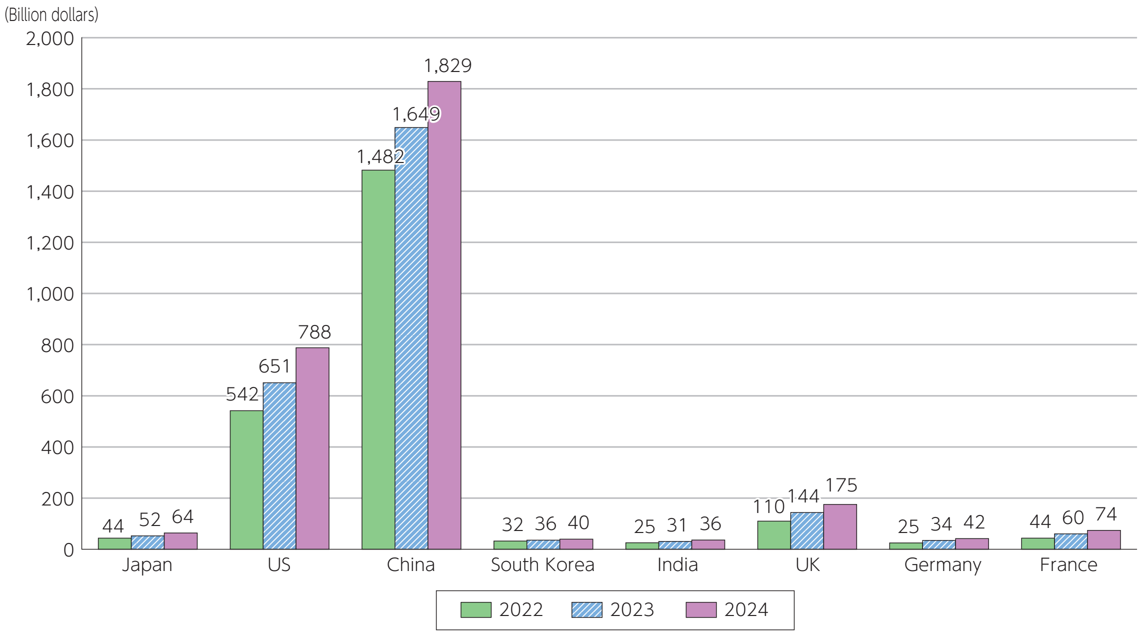
(Source) Statista [Statista Digital Market Insights]
https://www.statista.com/forecasts/220177/b2c-e-commerce-sales-cagr-forecast-for-selected-countries

5. Changes and forecasts for transaction values of global mobile payment



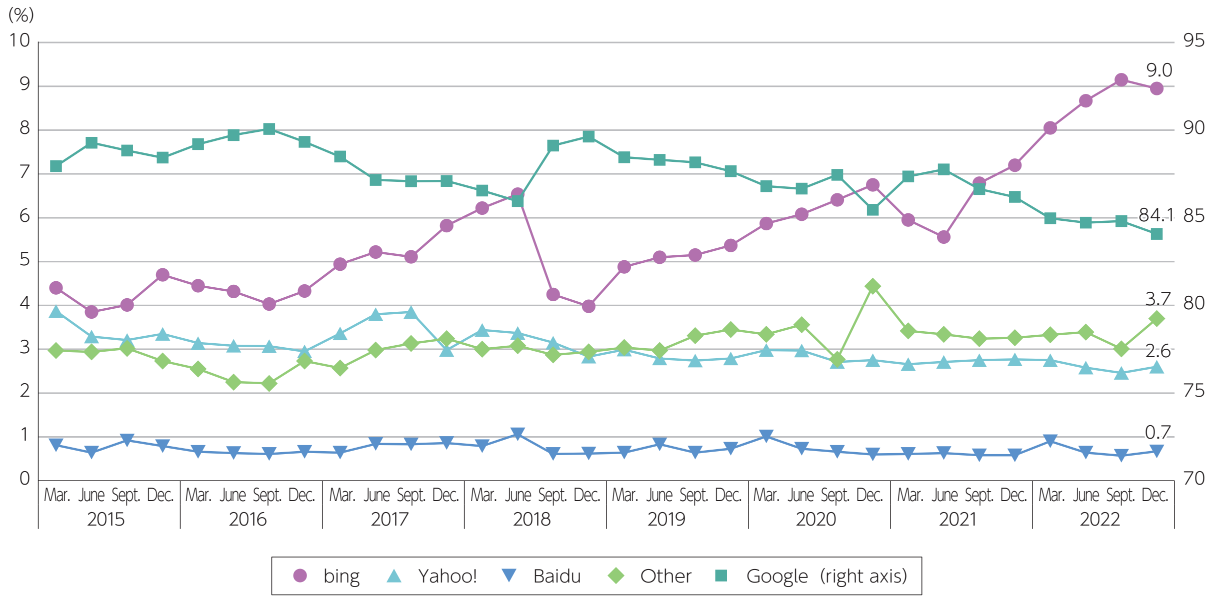
(Source) Statista
https://www.statista.com/outlook/dmo/fintech/digital-payments/mobile-pos-payments/worldwide#transaction-value

6. Transaction values of mobile payment in each country (2021)



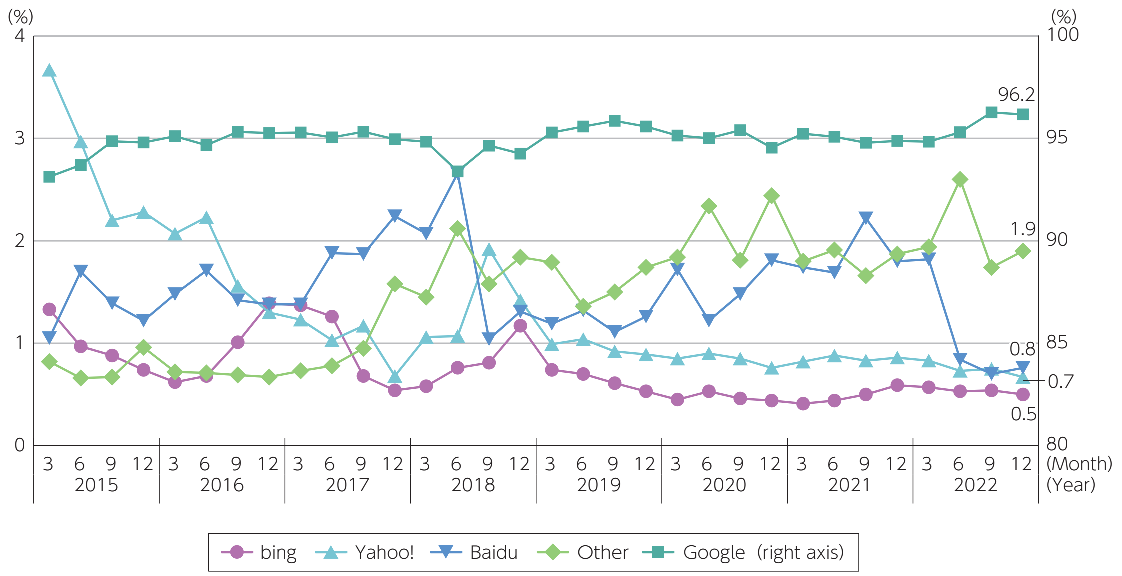
(Source) Statista
https://www.statista.com/outlook/dmo/fintech/digital-payments/mobile-pos-payments/worldwide#global-comparison

7. Changes in global market share of search engines (Desktop)



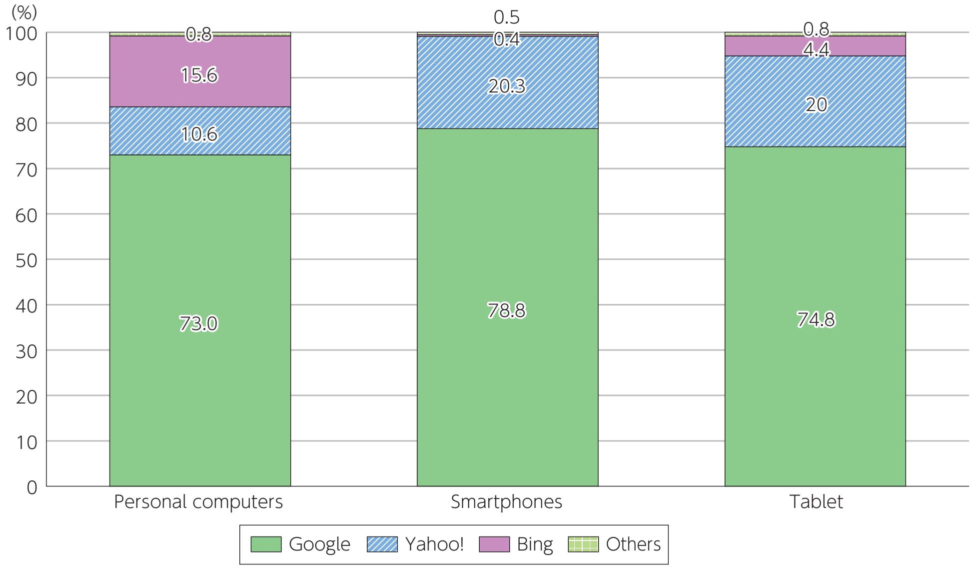
(Source) Statista (StatCounter)
https://www.statista.com/statistics/216573/worldwide-market-share-of-search-engines/

8. Changes in global market share of search engines (mobile)



(Source) Statista (StatCounter)
https://www.statista.com/statistics/216573/worldwide-market-share-of-search-engines/

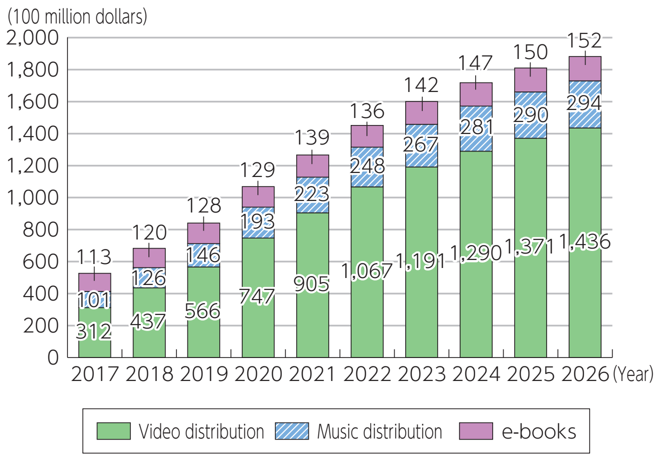
9. Market share of search engines in Japan



* PCs: As of September 2022; Smartphones and tablets: As of March 2022

(Source) Statista (StatCounter)
https://www.statista.com/statistics/1270637/japan-leading-desktop-search-engines/
https://www.statista.com/statistics/1270599/japan-leading-mobile-search-engines/
https://www.statista.com/statistics/1270602/japan-leading-tablet-search-engines/

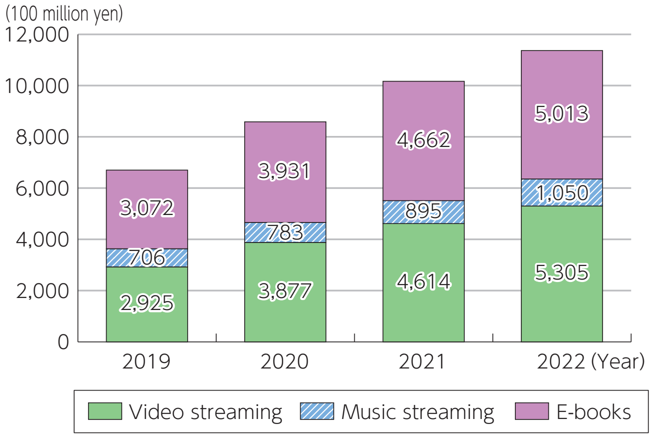
10. Changes and forecast in size of global video streaming, music streaming and E-book market



* Video streaming and e-books: Forecast for 2023 onward
* Music streaming: Forecast for 2022 onward

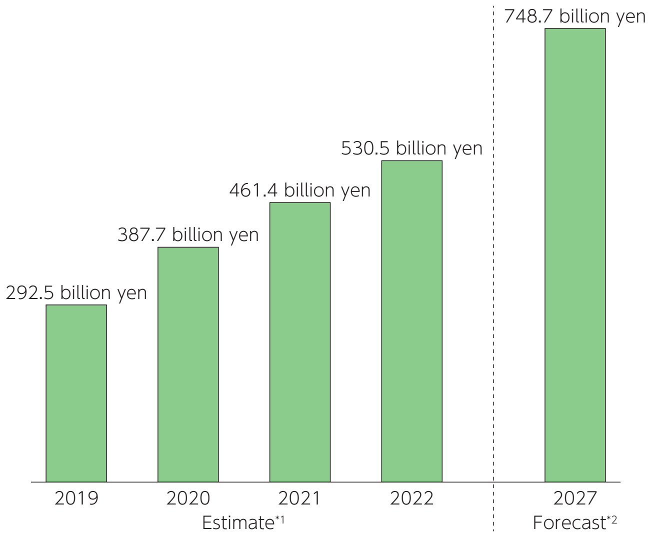
(Source) Omdia, Statista
https://www.statista.com/outlook/dmo/digital-media/epublishing/worldwide#revenue

11. Changes in the size of the Japanese video streaming, music streaming, and e-book markets (Figure4-7-4-1 in White Paper)



(Source) Prepared based on GEM Partners' "Video Streaming (VOD) Market Forecast for Five Years (2022 - 2026) Report," the Recording Industry Association of Japan's "Japan Recording Industry 2023," and the All Japan Magazine and Book Publisher's and Editor's Association and Research Institute for Publications' (2023) "Publishing Monthly Report.

12. Changes in size of Japanese video streaming market

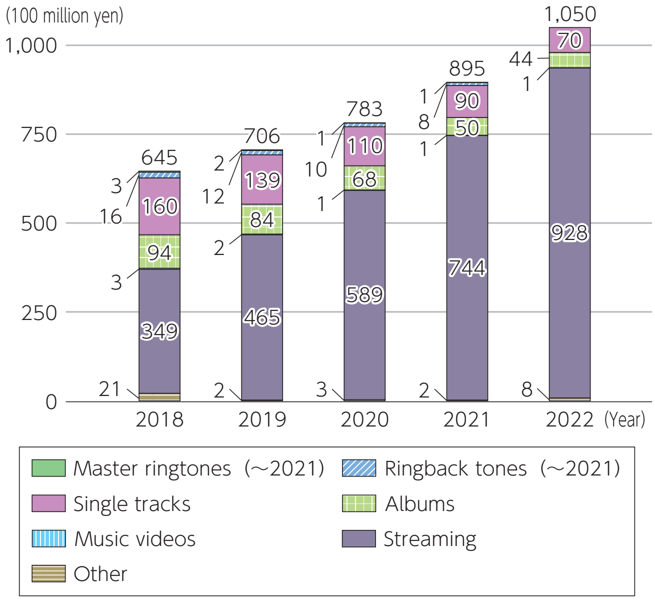


* 1 Total amount paid by consumers to video streaming service providers regardless of contract type

* 2 Based on the results of the consumer survey, calculations were made for three scenarios (base, optimistic, and pessimistic) taking into consideration the spread of video streaming in Japan and the U.S., the ratio of the DVD/BD market and video streaming with regard to overall video home entertainment, and the impact of the COVID-19 pandemic. This value is based on the "base" scenario
https://gem-standard.com/columns/674

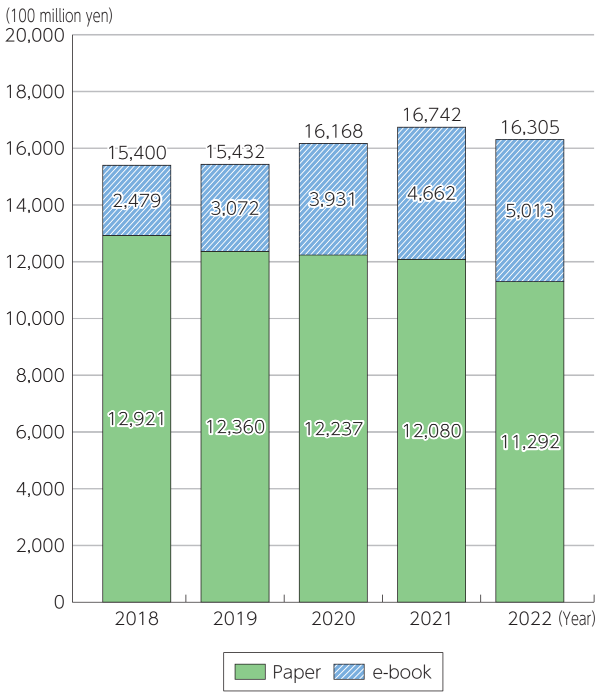
(Source) GEM Partners "Video Streaming (VOD) Market Five-Year Forecast (2022-2026) Report"
https://www.gempartners.com/news/20230217_01/

13. Changes in the music distribution market in Japan



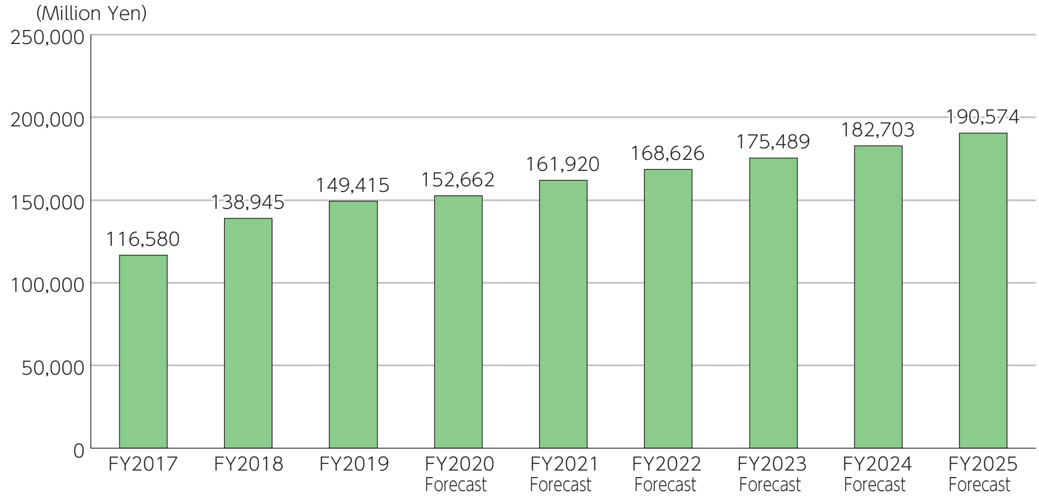
(Source) Recording Industry Association of Japan "Japanese Recording Industry 2023"
https://www.riaj.or.jp/f/pdf/issue/industry/RIAJ2023.pdf

14. Changes in the e-book market in Japan



(Source) The All Japan Magazine and Book Publisher's and Editor's Association/The Research Institute for Publications (2023), "Monthly Report of Publications"
https://shuppankagaku.com/wp/wp-content/uploads/2023/01/
%E3%83%8B%E3%83%A5%E3%83%BC%E3%82%B9%E3%83%AA%E3%83%AA%E3%83%BC%E3%82%B92301%E3%80%80.pdf

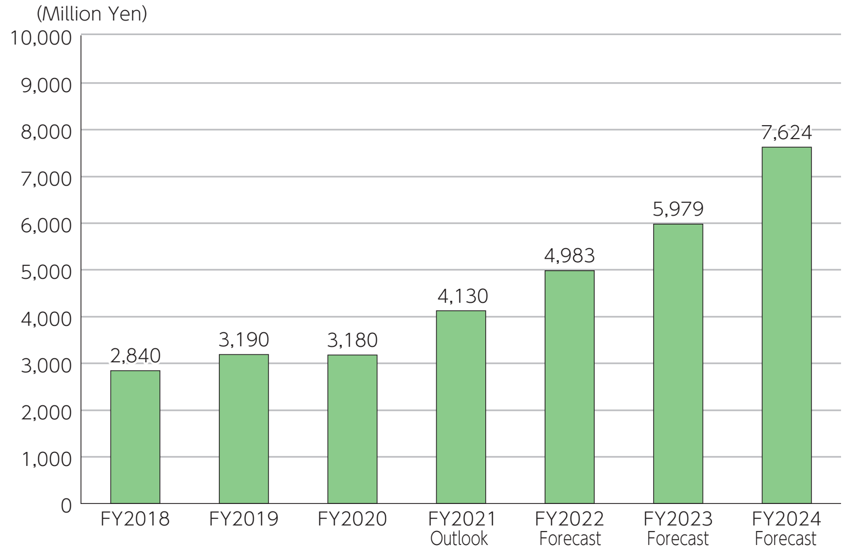
15. Transition and Forecast of Domestic Location and Geographic Information Service Market Size (Figure4-7-5-1 in White Paper)



* 1 Based on sales by business operators.
* 2 The values for fiscal 2020 and later are forecasts.
* 3 Market size was calculated based on (1) map databases, (2) GIS engines, and various GIS applications ((3) traffic related location applications, (4) store development/location advertisements, (5) spot store information/coupons/check-in, (6) location game applications, (7) IoT location applications, (8) delivery/logistics related location applications, (9) Industrial location applications, (10) location applications for infrastructure development, (11) traffic jam prevention location applications, (12) disaster prevention location applications).

(Source) Yano Research Institute Ltd., "Location and Geographic Information Service Market in Japan: Key Research Findings 2020", November 5, 2020

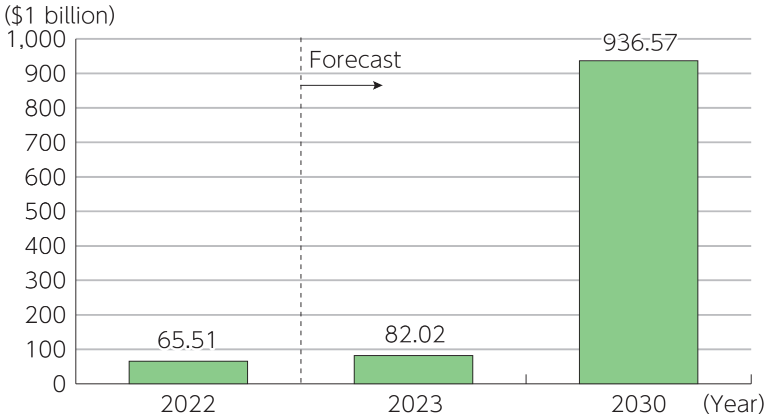
16. Transition and Forecast of Indoor Positioning Solutions Market Size (Figure4-7-5-2 in White Paper)



* 1 Based on the sales of indoor location information service and solution providers
* 2 Market size was calculated based on services and solutions that utilize indoor location information utilization using indoor positioning technology and indoor map information.
* 3 The value for fiscal 2021 is an estimate, and the values for fiscal 2022 and later are forecasts.

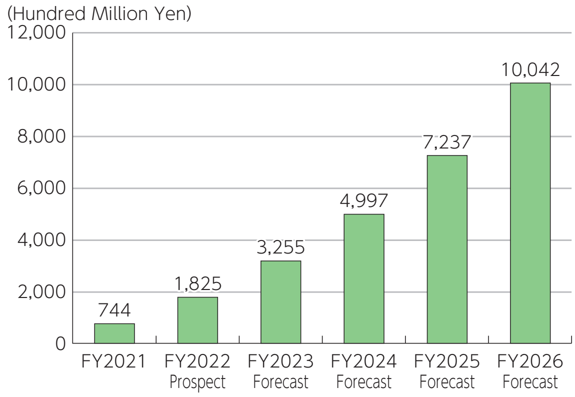
(Source) Yano Research Institute Ltd., "Indoor Positioning Solutions Market in Japan: Key Research Finding 2021", January 7, 2022

17. Changes and forecast in the size of the global metaverse market (Figure4-7-5-3 in White Paper)



(Source) Statista

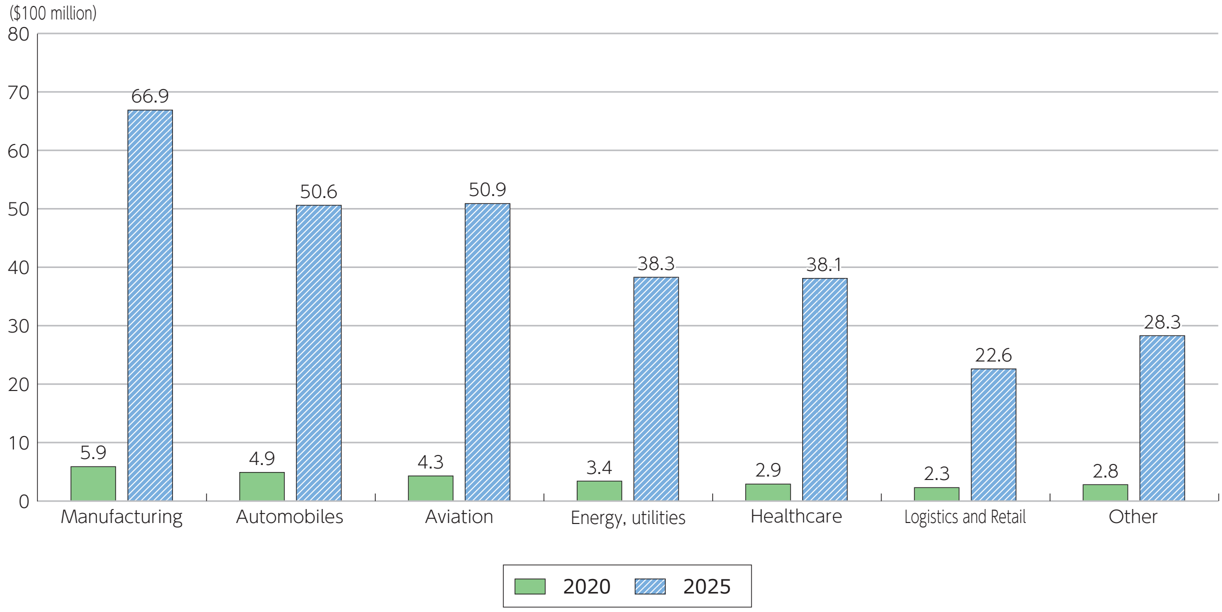
18. Domestic Metaverse Market Size Forecast (Figure4-7-5-4 in White Paper)



* 1 Based on sales by business operators.
* 2 The value for fiscal 2022 is an estimate, and the values for fiscal 2023 and later are forecasts.
* 3 The total market size is the sum of metaverse platforms, non-platforms (content, infrastructure, etc.), and XR (VR, AR, MR) equipment. Note that XR (VR, AR, MR) equipment is calculated on a sales price basis.

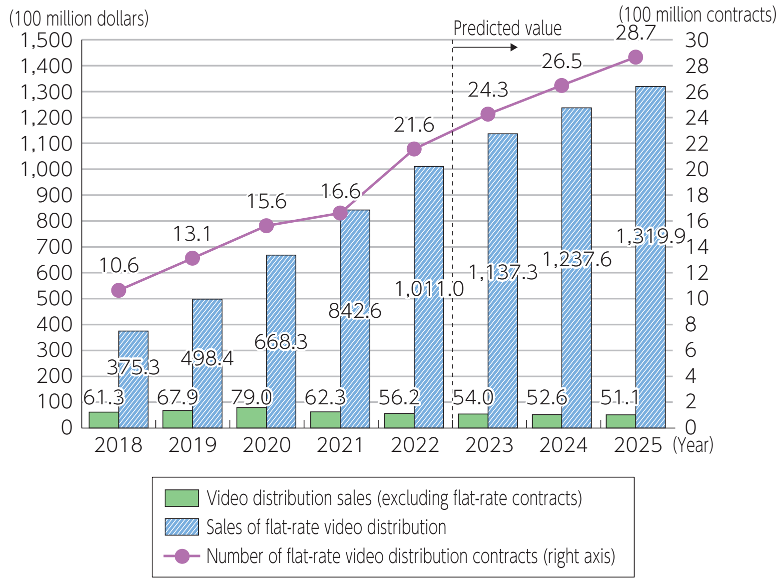
(Source) Yano Research Institute Ltd., "Metaverse Market in Japan: Key Research Findings 2022, September 21", 2022

19. Size of the global digital twin market (by industry) (Figure4-7-5-5 in White Paper)



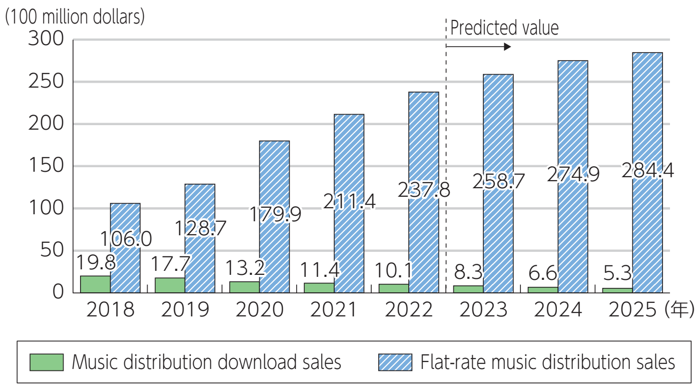
(Source) Statista (BIS Research)

20. Changes and forecasts for the size of the global video distribution markets and the number of contracts



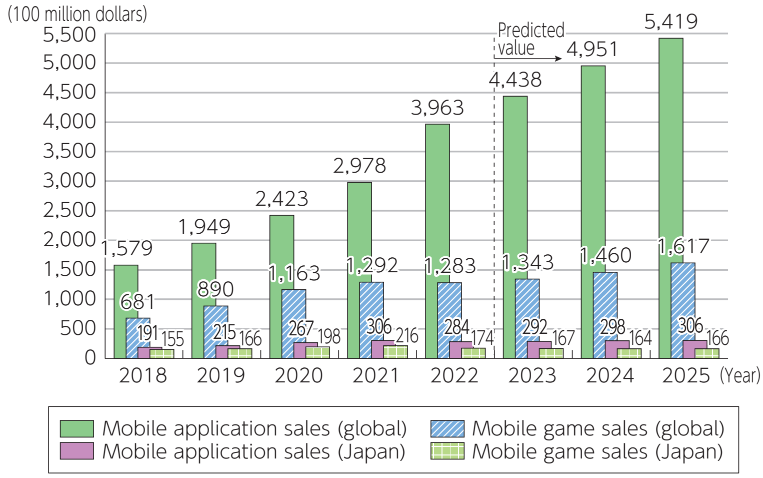
(Source) Omdia

21. Changes and forecasts for the size of the global music distribution market



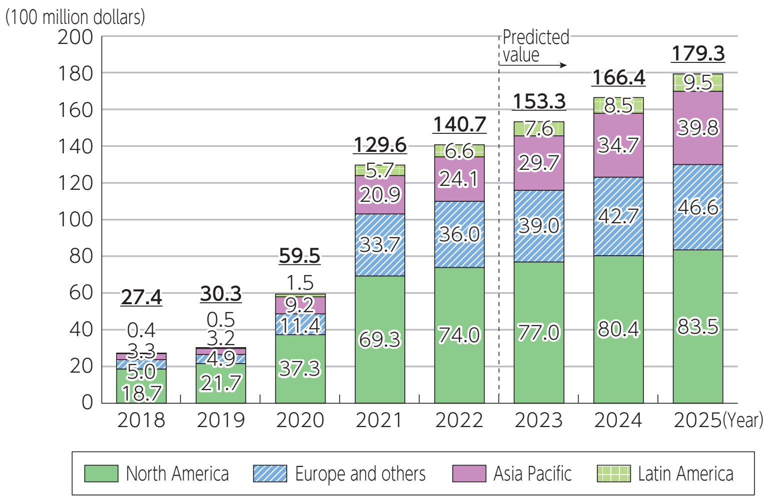
(Source) Omdia

22. Changes and forecasts for the size of the global mobile application market



(Source) Omdia

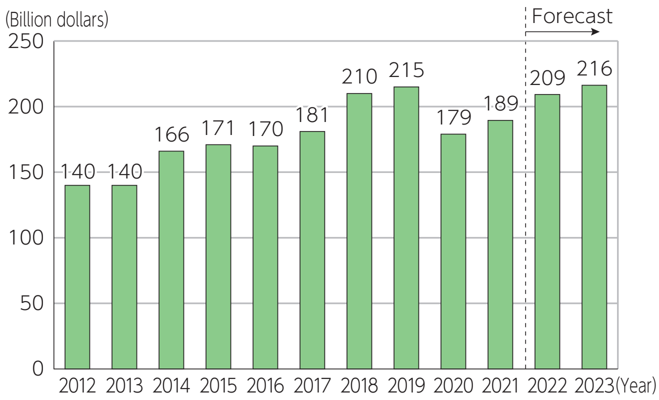
23. Changes and forecasts for the size of the global Web conference market



(Source) Omdia

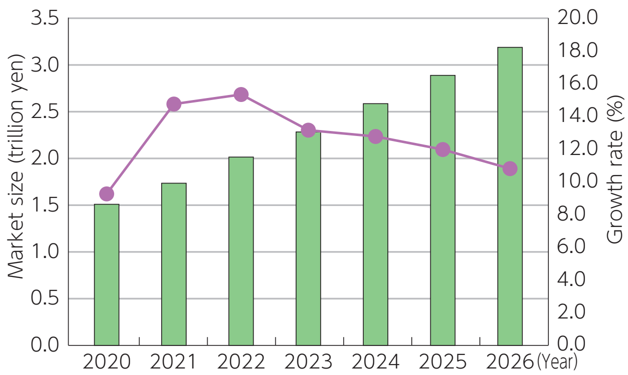
Section 8

1. Changes and forecast in the size of the global data center systems market (in terms of expenditure) (Figure4-8-1-1 in White Paper)



(Source) Statista (Gartner)

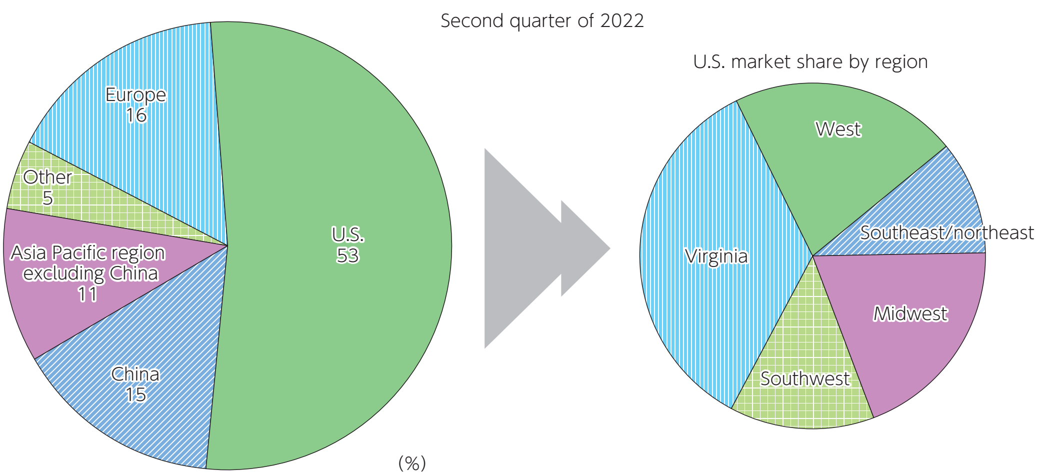
2. Changes and forecast in the size (in terms of sales) of the Japanese data center systems market (Figure4-8-1-2 in White Paper)



* *2022 is an estimate, and 2023 and beyond are forecasts.

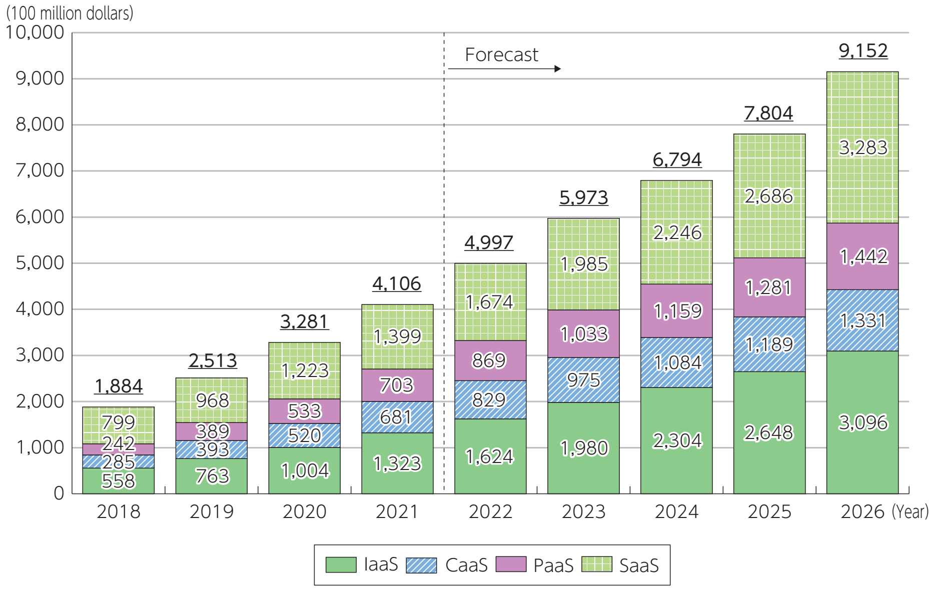
(Source) IDC "Japan Datacenter Services Forecast" (August 29, 2022)

3. Share of global large-scale data center market by region (data capacity)



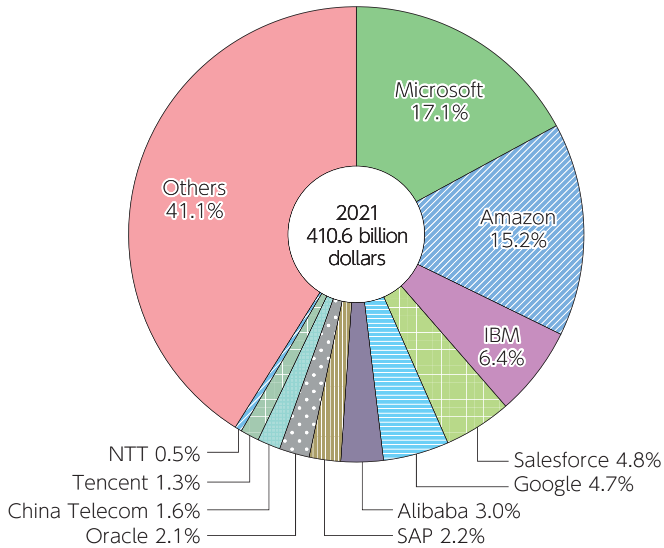
(Source) Synergy "Virginia Still Has More Hyperscale Data Center Capacity Than Either Europe or China"
https://www.srgresearch.com/articles/virginia-still-has-more-hyperscale-data-center-capacity-than-either-europe-or-china

4. Changes and forecast in the size (in terms of sales) of the global public cloud service market (Figure4-8-2-1 in White Paper)



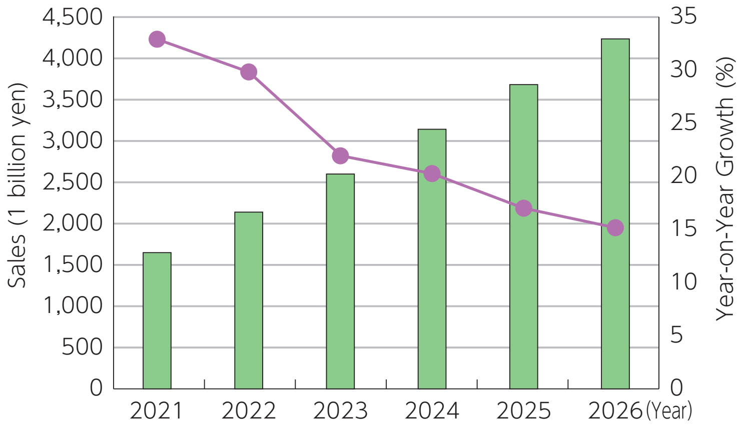
(Source) Omdia

5. Share of the global public cloud services market (Figure4-8-2-2 in White Paper)



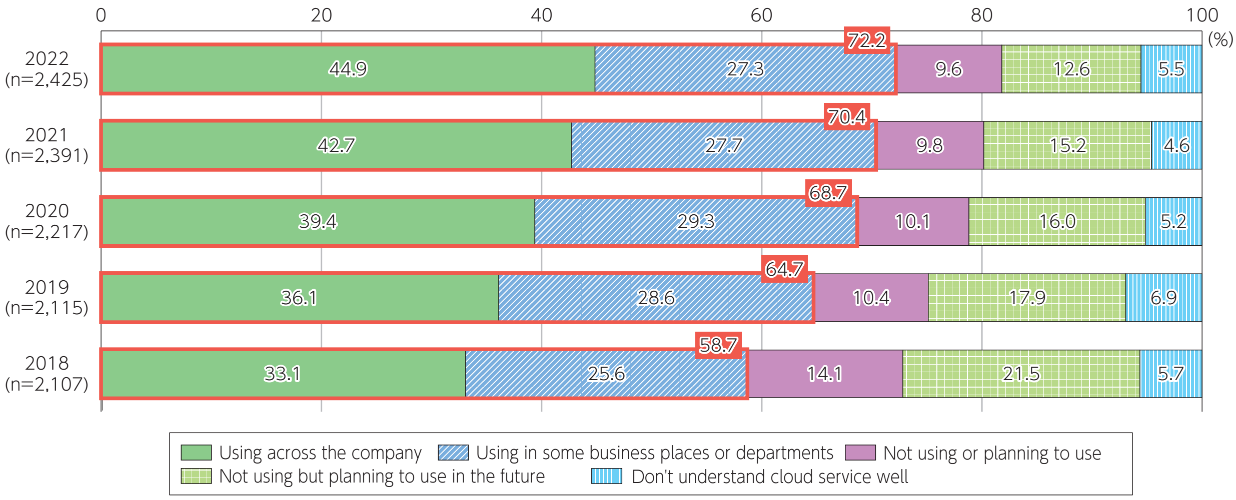
(Source) Omdia

6. Changes and forecast in the size (in terms of sales) of the Japanese public cloud service market (Figure4-8-2-3 in White Paper)



(Source) IDC "Japan Public IT Cloud Services Forecast" (September 15, 2022)

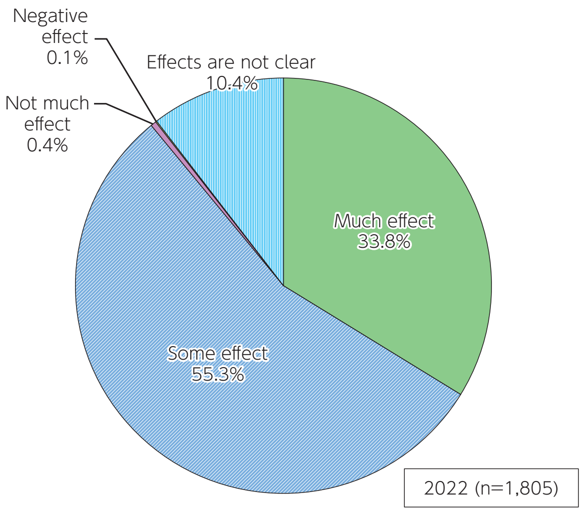
7. Enterprise cloud service usage



	Number of companies totaled	The number of companies totaled after adjustment	Use state of cloud service (S)							
			Using	Using across the company	Using in some business places or departments	Not using	Not using but planning to use in the future	Not using or planning to use	Don't understand cloud service well	No answer
Total	2,428	2,428	1,749	1,087	662	539	233	306	134	6
Industrial classification										
Construction	368	102	86	55	31	14	8	6	2	–
Manufacturing	387	639	455	271	183	153	85	68	28	4
Transportation/postal services	408	227	145	77	67	70	30	40	12	–
Wholesale/retail	364	489	377	245	133	91	35	55	21	–
Finance/insurance	165	29	27	21	6	2	1	1	0	–
Real estate	159	38	32	25	7	4	1	3	2	–
Information and communications	257	132	123	101	22	9	5	4	1	–
Services, other	320	772	505	293	213	197	68	129	68	2

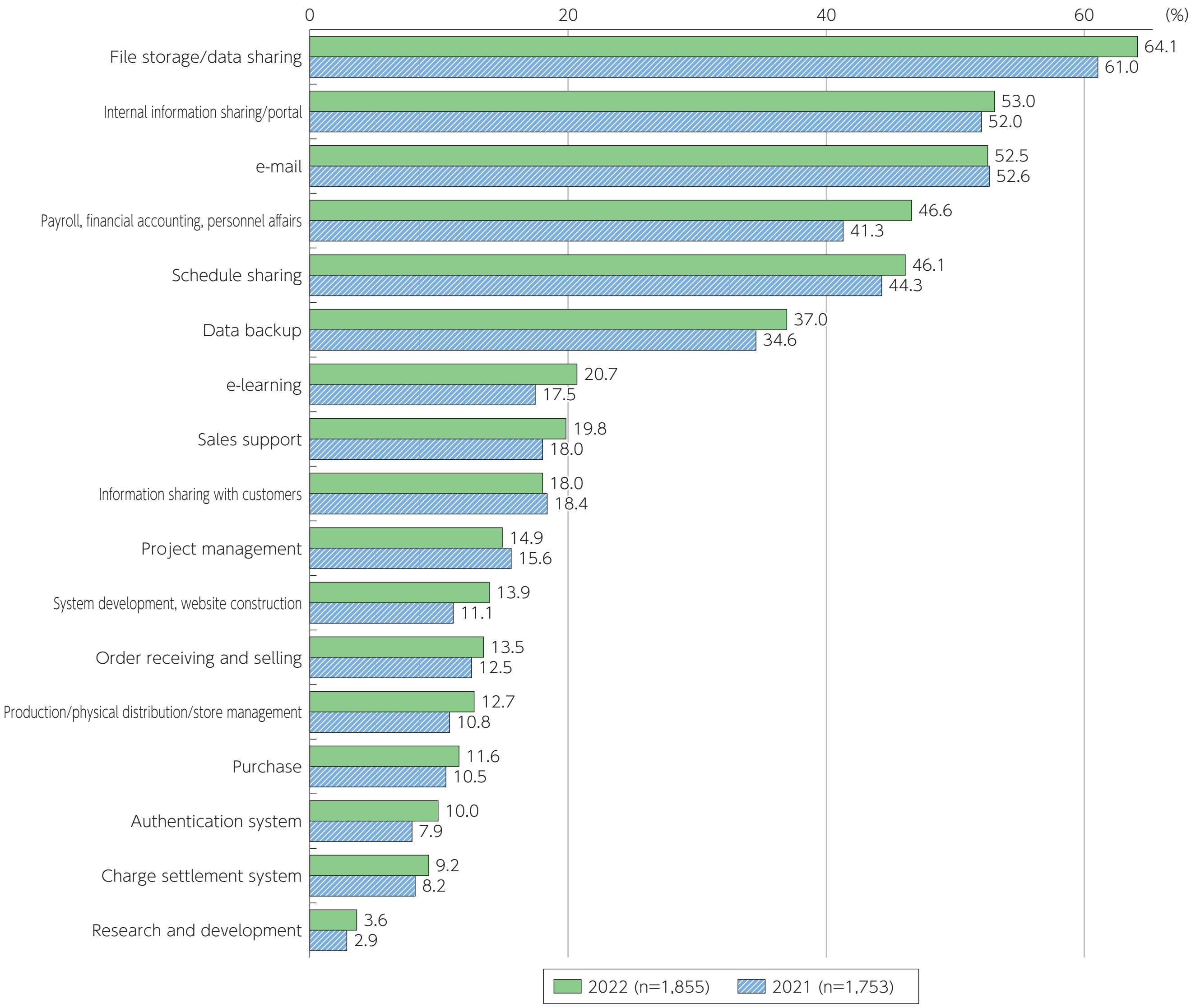
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

8. Effect of cloud service usage in enterprises



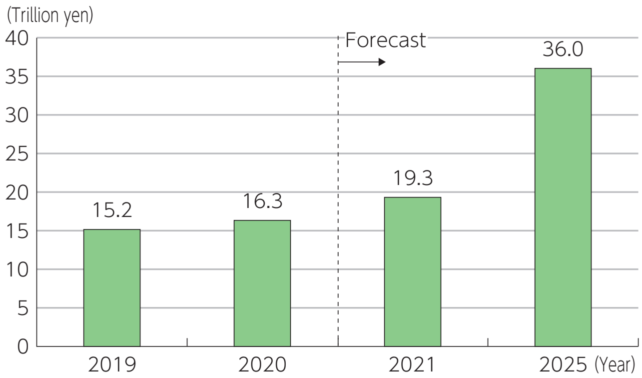
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

9. Cloud services used in enterprises (multiple selections allowed)



(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

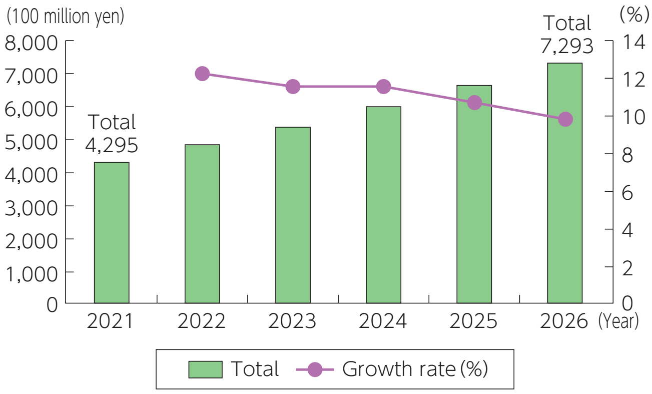
10. Changes and forecast in the size of the global edge infrastructure market (revenue) (Figure4-8-3-1 in White Paper)



* 2025 is calculated at the 2022 exchange rate

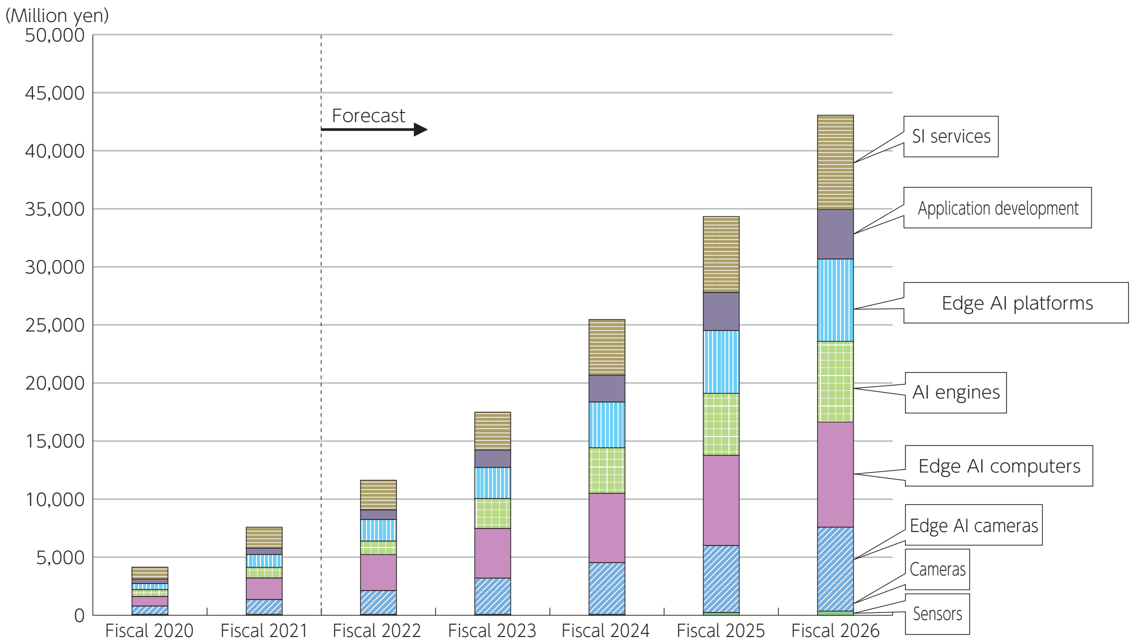
(Source) Statista (IDC)

11. Changes and forecast in the size (in terms of expenditure) of the Japanese edge infrastructure market (Figure4-8-3-2 in White Paper)



(Source) IDC "Japan Edge Infrastructure Forecast" (January 18, 2023)

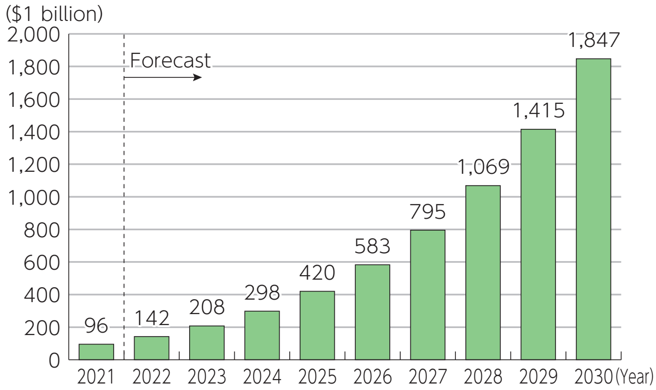
12. Changes and forecast in the size (in terms of sales) of the Japanese edge AI solutions market



(Source) Deloitte Tohmatsu MIC Research Institute "Reality and Future Prospects of Edge AI Computing Market" (October 24, 2022) https://mic-r.co.jp/mr/02530/

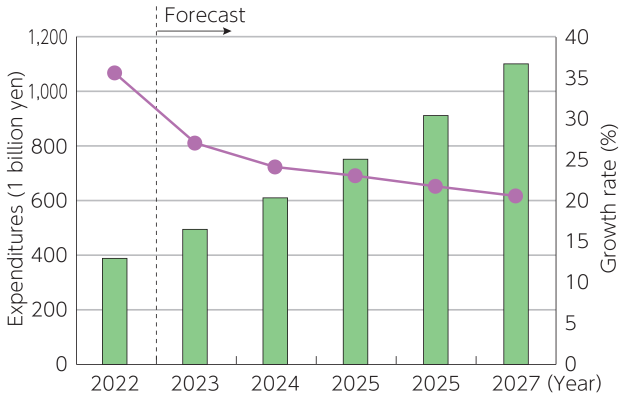
Section 9

1. Changes and forecast in the size (in terms of sales) of the global AI market (Figure4-9-1-1 in White Paper)



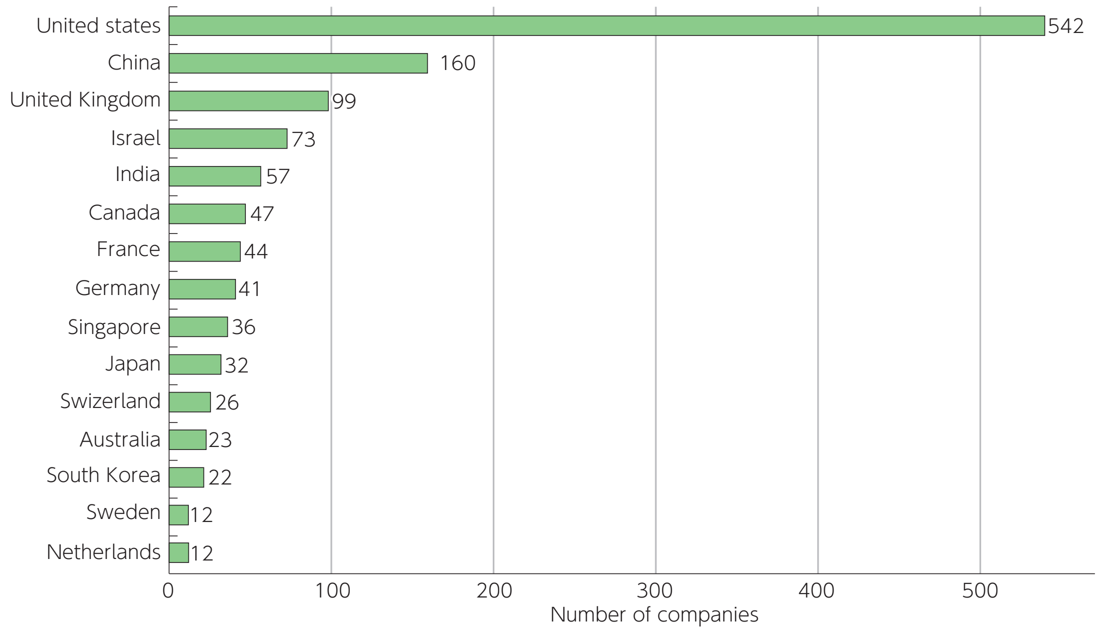
(Source) (Source) Statista (Next Move Strategy Consulting)

2. Size (in terms of expenditure) of the Japanese AI systems market and forecast (Figure4-9-1-2 in White Paper)



(Source) IDC "Japan Artificial Intelligence Systems Forecast" (April 27, 2023)

3. Number of newly funded AI companies by country (2022) (Figure4-9-2-1 in White Paper)



(Source) Stanford University "Artificial Intelligence Index Report 2023"

4. Changes in AI rankings by country (top 10)

	2020	2021	2022
1	US	US	US
2	China	China	China
3	England	England	England
4	France	Canada	Germany
5	Canada	France	Canada
6	Germany	Germany	France
7	Switzerland	Switzerland	South Korea
8	Japan	South Korea	Switzerland
9	South Korea	Japan	Israel
10	Israel	Israel	Japan

* Thundermark Capital ranks leading countries, companies, and universities based on factors such as the number of papers published

(Source) Prepared based on Thundermark Capital's AI Research Ranking 2022
https://thundermark.medium.com/ai-research-rankings-2022-sputnik-moment-for-china-64b693386a4

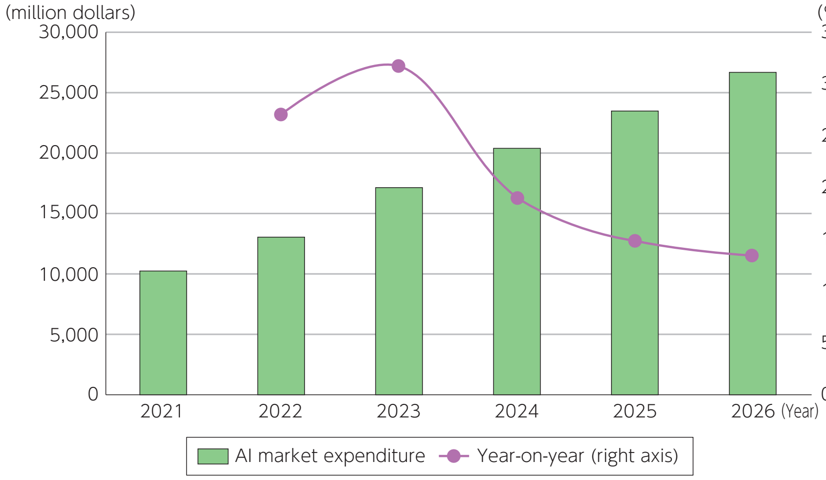
5. Changes in AI rankings by organization (top 10)

	2020	2021	2022
1	Google (U.S.)	Google (U.S.)	Google (U.S.)
2	Stanford University (U.S.)	Stanford University (U.S.)	MIT (U.S.)
3	MIT (U.S.)	MIT (U.S.)	Stanford University (U.S.)
4	Carnegie Mellon University (U.S.)	UC Berkeley (U.S.)	Carnegie Mellon University (U.S.)
5	UC Berkeley (U.S.)	Carnegie Mellon University (U.S.)	UC Berkeley (U.S.)
6	Microsoft (U.S.)	Microsoft (U.S.)	Microsoft (U.S.)
7	University of Oxford (England)	University of Oxford (England)	University of Oxford (England)
8	Facebook (U.S.)	Facebook (U.S.)	Tsinghua University (China)
9	Princeton University (U.S.)	Tsinghua University (China)	Facebook (U.S.)
10	Cornell University (U.S.)	Princeton University (U.S.)	UC Los Angeles (U.S.)

* Thundermark Capital ranks leading countries, companies, and universities based on factors such as the number of papers published

(Source) Prepared based on Thundermark Capital's AI Research Ranking 2022
https://thundermark.medium.com/ai-research-rankings-2022-sputnik-moment-for-china-64b693386a4

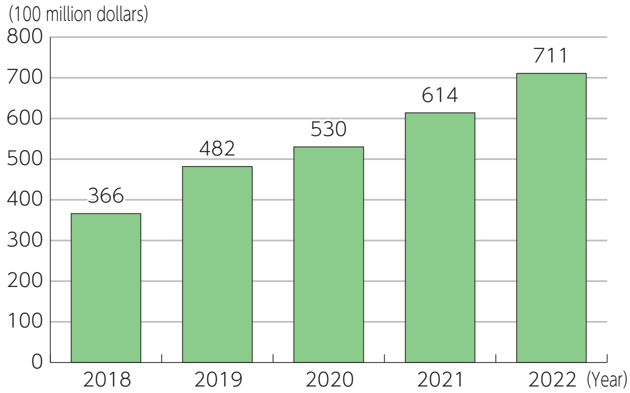
6. China's AI market expenditure forecast



(Source) IDC "China's Artificial Intelligence Market Will Exceed US$26.7 Billion by 2026, according to IDC" (October 4, 2022)
https://www.idc.com/getdoc.jsp?containerId=prAP49740122

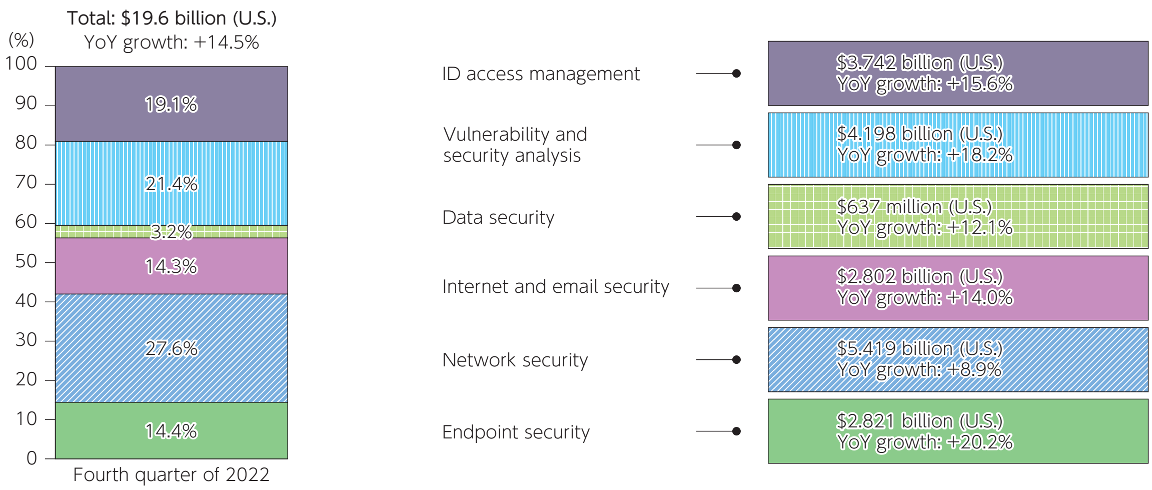
Section 10

1. Changes in global cybersecurity market size (sales) (Figure4-10-1-1 in White Paper)



(Source) Based on Canalys estimates

2. Global cybersecurity market size (by product category)



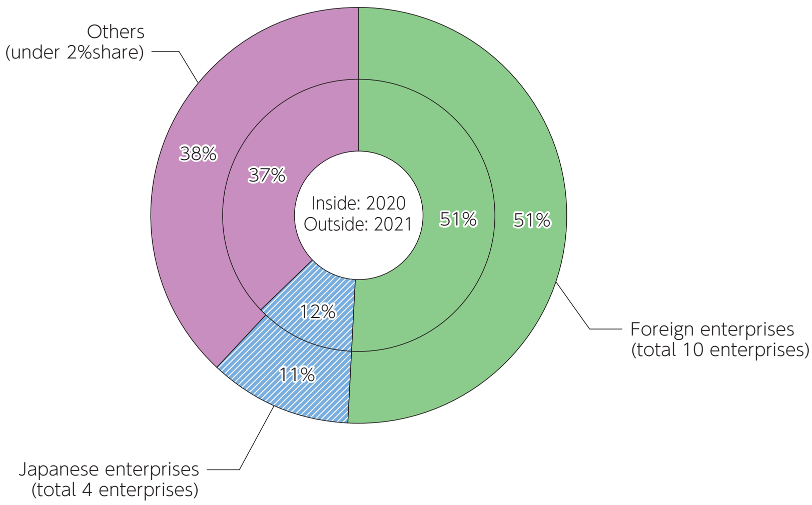
(Source) Based on Canalys "Strong channel sales propel the cybersecurity market to US$20 billion in Q4 2022"

3. Major global cybersecurity companies

Rank	2018		2019		2020		2021		2022	
	Operators	Share	Operators	Share	Operators	Share	Operators	Share	Operators	Share
1	Cisco	8.1%	Cisco	8.4%	Cisco	7.9%	Palo Alto Networks	7.4%	Palo Alto Networks	8.2%
2	Palo Alto Networks	5.6%	Palo Alto Networks	6.3%	Palo Alto Networks	6.7%	Cisco	7.1%	Cisco	6.6%
3	Symantec	4.9%	Fortinet	4.8%	Fortinet	5.2%	Fortinet	5.8%	Fortinet	6.6%
4	Check Point	4.9%	Check Point	4.8%	Check Point	4.5%	Check Point	4.1%	Check Point	3.8%
5	Fortinet	4.4%	Symantec	4.5%	Trellix	4.1%	Trellix	3.6%	Trellix	3.1%

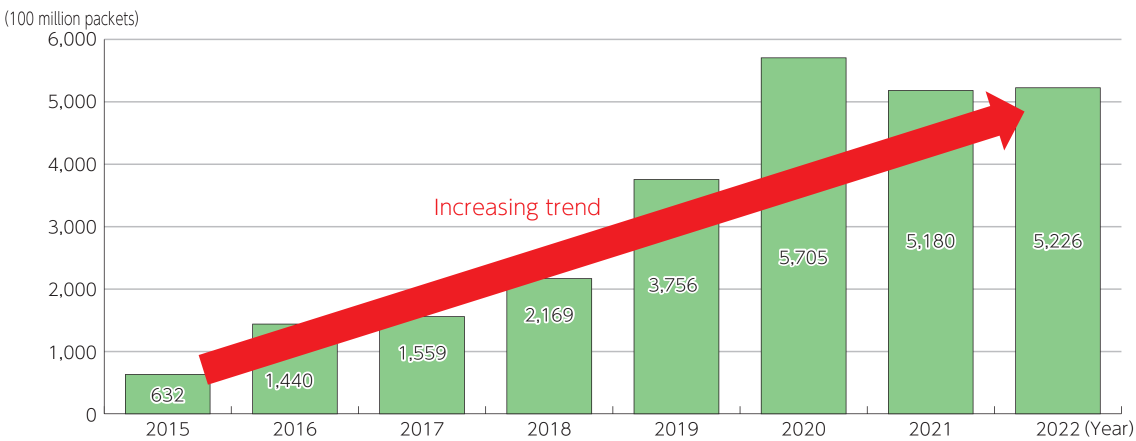
(Source) Based on Canalys data

4. Domestic information security products market share (sales), 2020-2021 (Figure4-10-1-2 in White Paper)



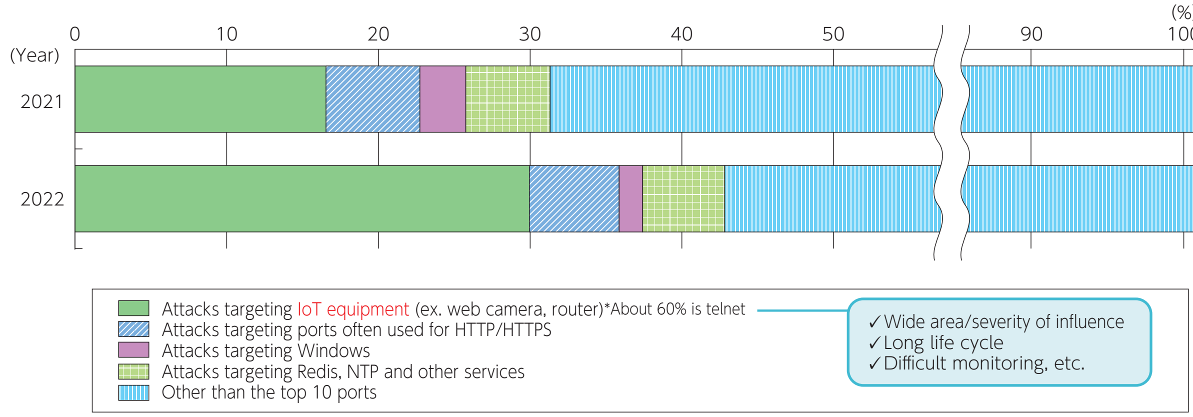
(Source) Based on IDC Japan, July 2022 "Japan IT Security Products Market Shares, 2021: External Threat Measures and Internal Threat Measures" (JPJ47880222)

5. Changes in the number of cyberattack-related communications detected by NICTER (Figure4-10-2-1 in White Paper)



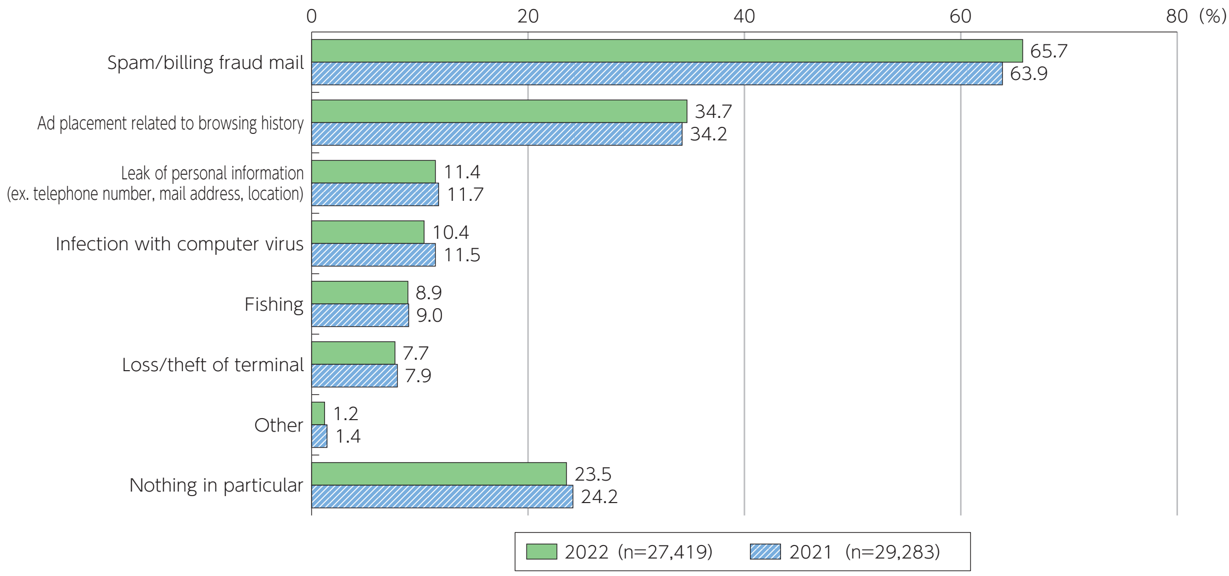
(Source) Based on NICT "NICTER Observation Report 2022"

6. Targets of cyberattack-related communications detected by NICTER (Figure4-10-2-2 in White Paper)



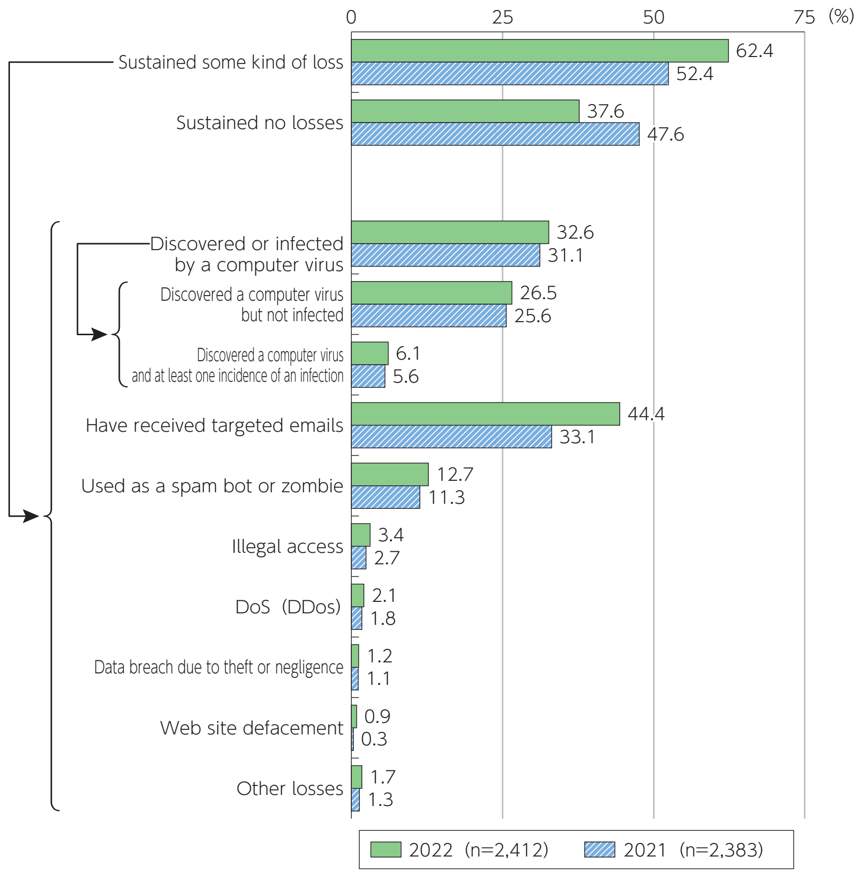
(Source) Based on "NICTER Observation Report 2022" of National Institute of Information and Communications Technology

7. Damage when using personal information and communication equipment (multiple answers)



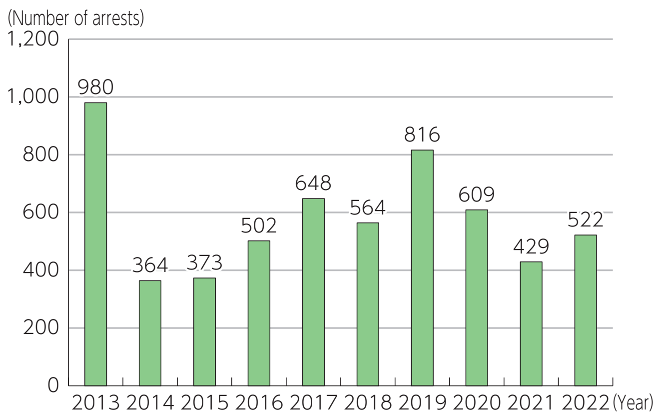
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

8. Security intrusion when using an information and communication network in enterprises (multiple answers)



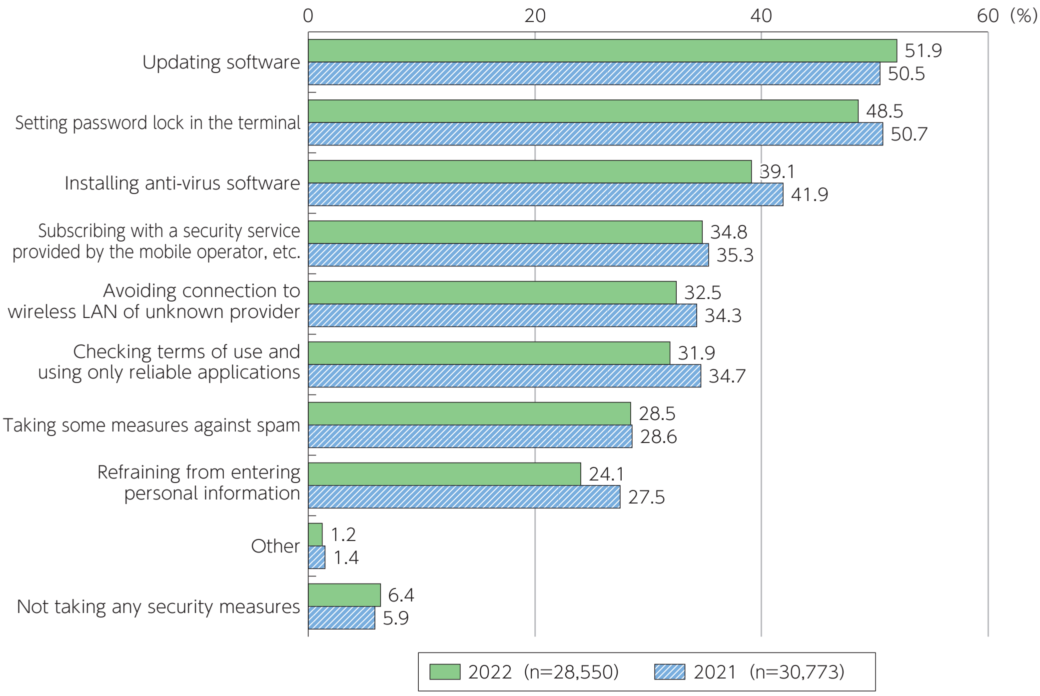
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

9. Changes in arrests for violation of the Unauthorized Access Prohibition Act



(Source) Based on NPA/MIC/METI "Unauthorized Access Activities and Status of Research and Development of Access Control Technology"
https://www.soumu.go.jp/menu_news/s-news/01cyber01_02000001_00161.html

10. Implementation status of information security measures by individuals (multiple answers)



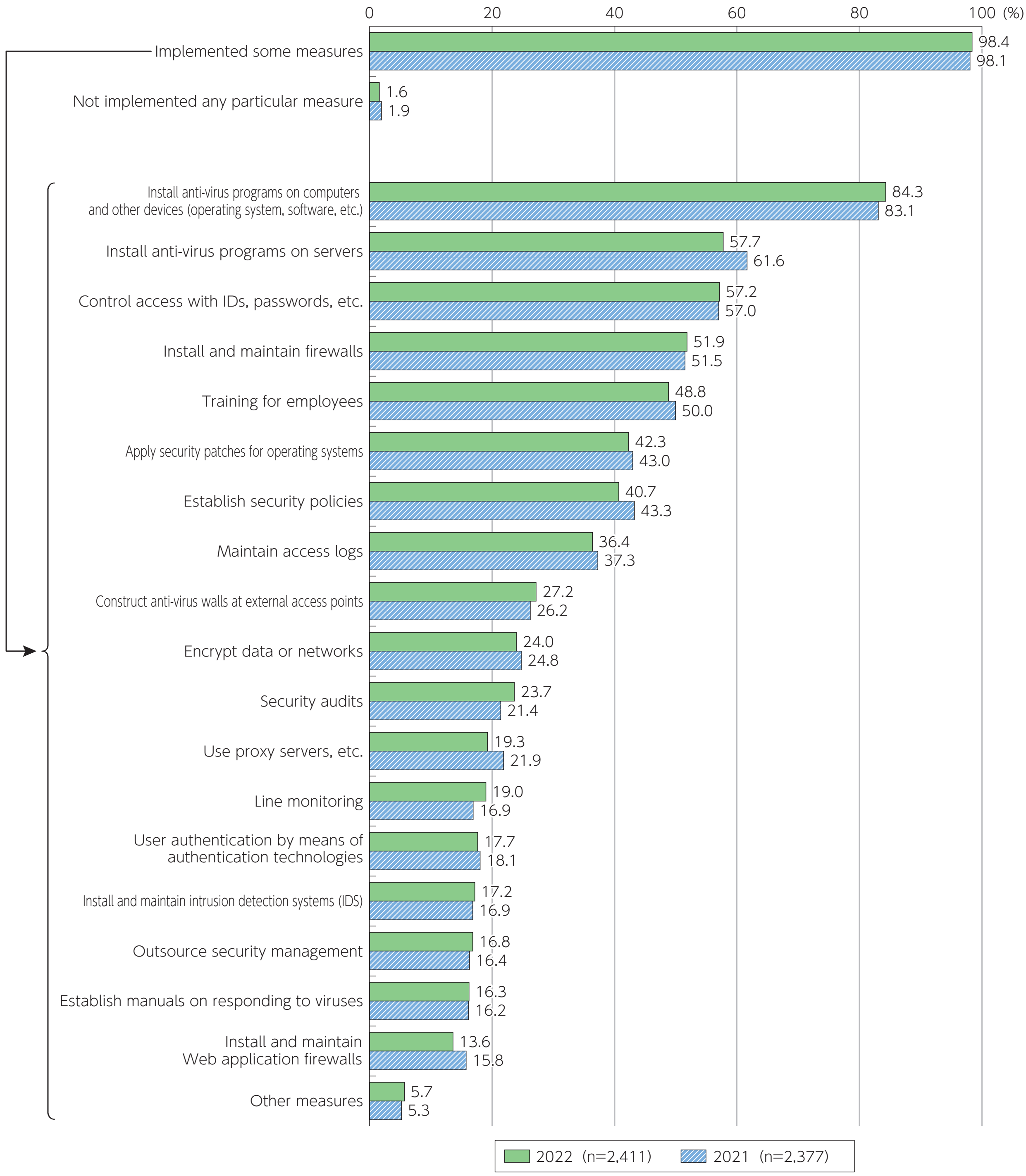
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

11. Economic losses caused by cybersecurity issues (Figure4-10-2-3 in White Paper)

Investigation/ analysis entity	Target area	Period covered	Overview of economic loss	Loss amount
Trend Micro	Japan	Fiscal 2021	Average annual damage per organization resulting from security incidents	328.5 million yen
National Police Agency	Japan	First half of 2022	Total investigation and recovery costs associated with ransomware damage	20%: < 1 million yen 14%: 1 million to < 5 million yen 10%: 5 million to < 10 million yen 37%: 10 million yen to < 50 million yen 18%: 50 million yen or more
FBI	U.S.	2021	Total amount of damage reported for cybercrime incidents	$6.9 billion
NFIB	UK	2022	Total amount of damage reported for cybercrime	£6.3 million
Sophos	31 countries	2021	Average annual cost per organization to recover from most recent ransomware attack	$1.4 million
IBM	World	2022	Global average cost of single data breach for an organization	$4.35 million
Cybersecurity Ventures	World	2023 [expected]	Cost of cybercrime	$8 trillion
McAfee, CSIS	World	2020	Cost of cybercrime	$945 billion

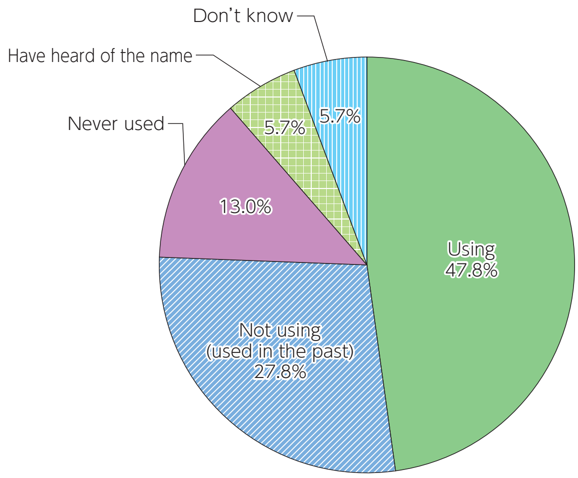
(Source) Based on the published materials of each company

12. Implementation status of information security measures by enterprises (multiple answers)



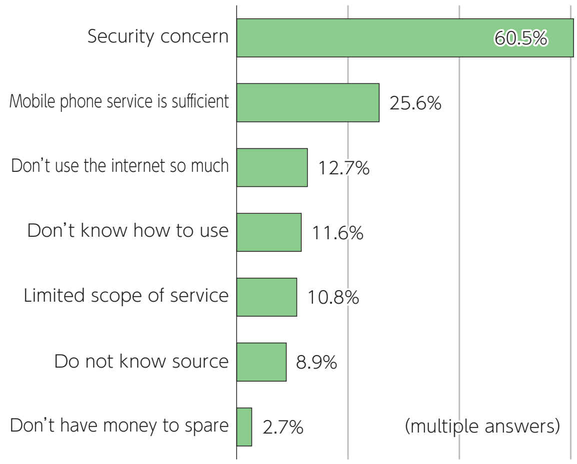
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

13. Using or not using public wireless LAN



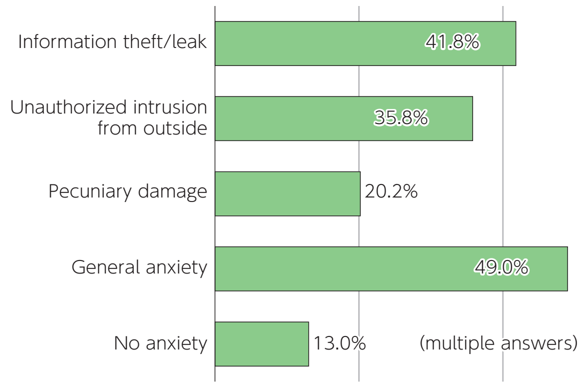
(Source) Prepared from MIC, "Fiscal 2022 Result of Survey of Wireless LAN Users"

14. Reasons for not using public wireless LAN (multiple answers)



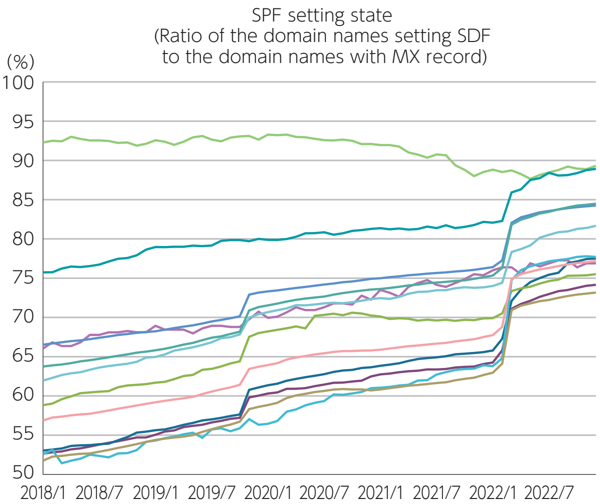
(Source) Prepared from MIC, "Fiscal 2022 Result of Survey of Wireless LAN Users"

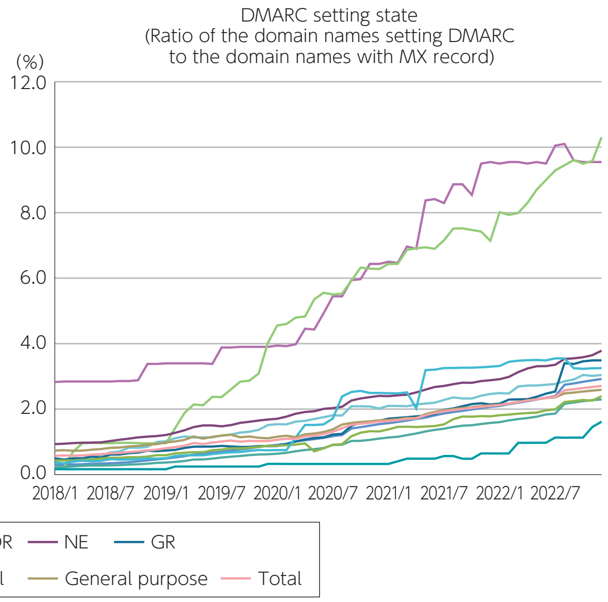
15. Anxiety about security of public wireless LAN (multiple answers)



(Source) Prepared from MIC, "Fiscal 2022 Result of Survey of Wireless LAN Users"

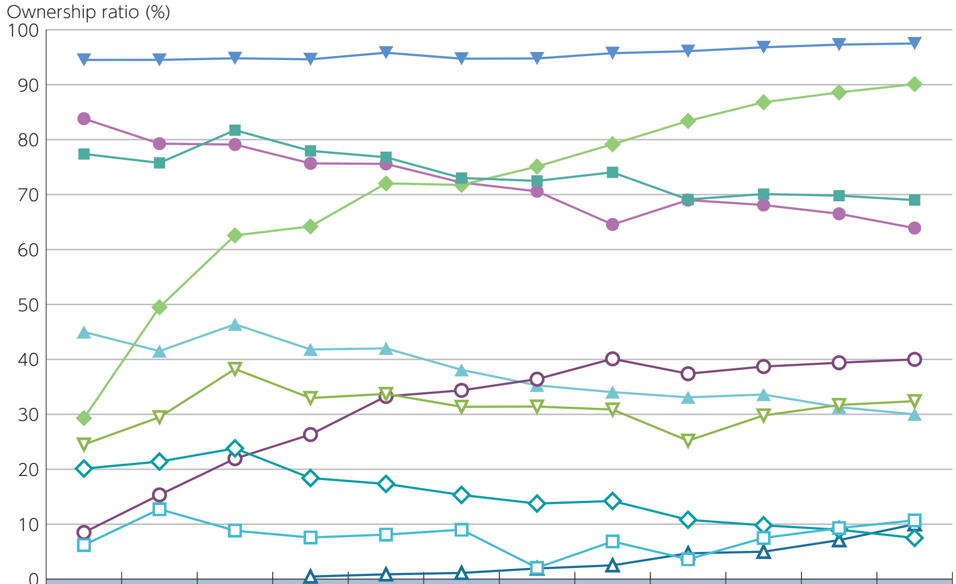
16. Introduction of sender domain authentication technologies for JP domains





Section 11

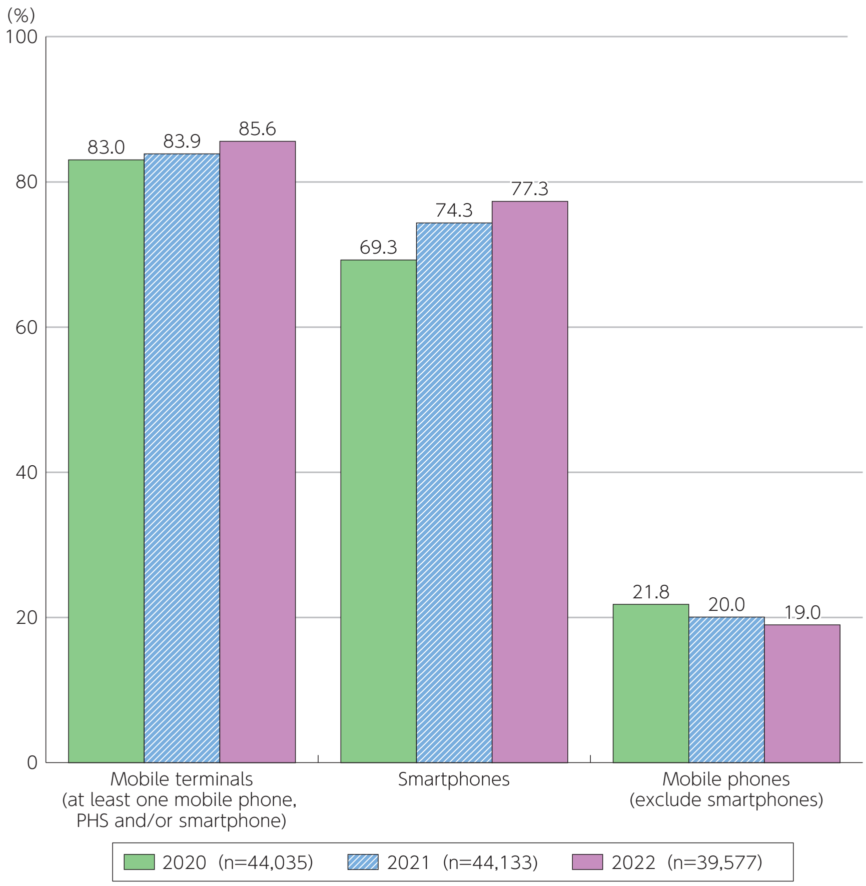
1. Changes in household ownership of ICT devices (Figure4-11-1-1 in White Paper)



	2011 (n=16,530)	2012 (n=20,418)	2013 (n=15,599)	2014 (n=16,529)	2015 (n=14,765)	2016 (n=17,040)	2017 (n=16,117)	2018 (n=16,255)	2019 (n=15,410)	2020 (n=17,345)	2021 (n=17,365)	2022 (n=15,951)
Fixed-line telephone	83.8	79.3	79.1	75.7	75.6	72.2	70.6	64.5	69.0	68.1	66.5	63.9
FAX	45.0	41.5	46.4	41.8	42.0	38.1	35.3	34.0	33.1	33.6	31.3	30.0
Mobile devices (overall)	94.5	94.5	94.8	94.6	95.8	94.7	94.8	95.7	96.1	96.8	97.3	97.5
Smartphones	29.3	49.5	62.6	64.2	72.0	71.8	75.1	79.2	83.4	86.8	88.6	90.1
Computers	77.4	75.8	81.7	78.0	76.8	73.0	72.5	74.0	69.1	70.1	69.8	69.0
Tablets	8.5	15.3	21.9	26.3	33.3	34.4	36.4	40.1	37.4	38.7	39.4	40.0
Wearable devices	–	–	–	0.5	0.9	1.1	1.9	2.5	4.7	5.0	7.1	10.0
Home game consoles	24.5	29.5	38.3	33.0	33.7	31.4	31.4	30.9	25.2	29.8	31.7	32.4
Portable music players	20.1	21.4	23.8	18.4	17.3	15.3	13.8	14.2	10.8	9.8	9.0	7.5
Smart appliances	6.2	12.7	8.8	7.6	8.1	9.0	2.1	6.9	3.6	7.5	9.3	10.7

(Source) MIC "Communications Usage Trend Survey"

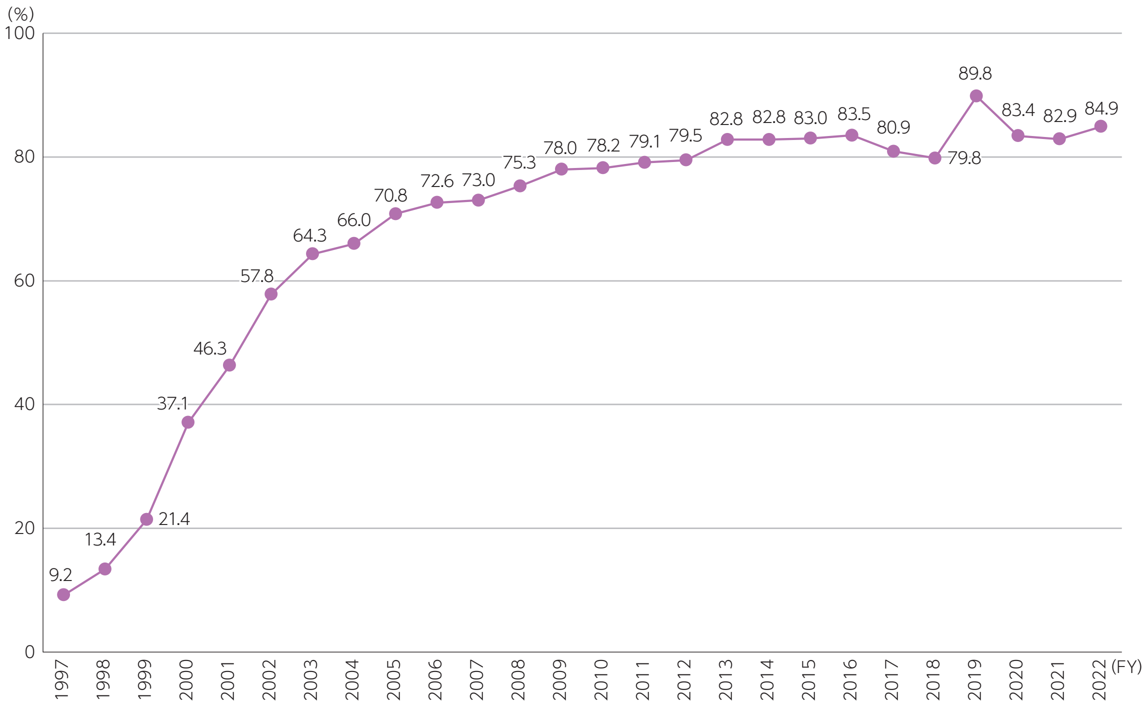
2. Mobile device ownership



* "Mobile devices" and "mobile phones (excluding smartphones)" in 2020 include PHS.
"Smartphones" in 2020 excludes 5G devices.

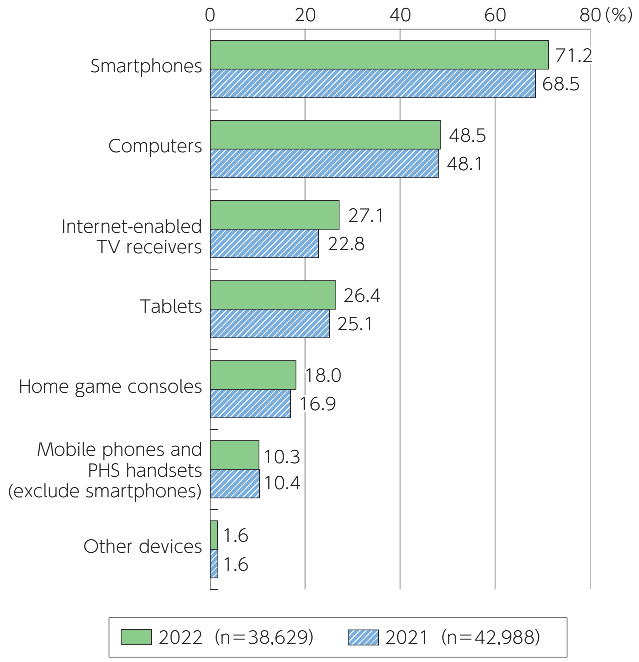
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

3. Changes in Internet usage rate (individuals) (Figure4-11-1-2 in White Paper)



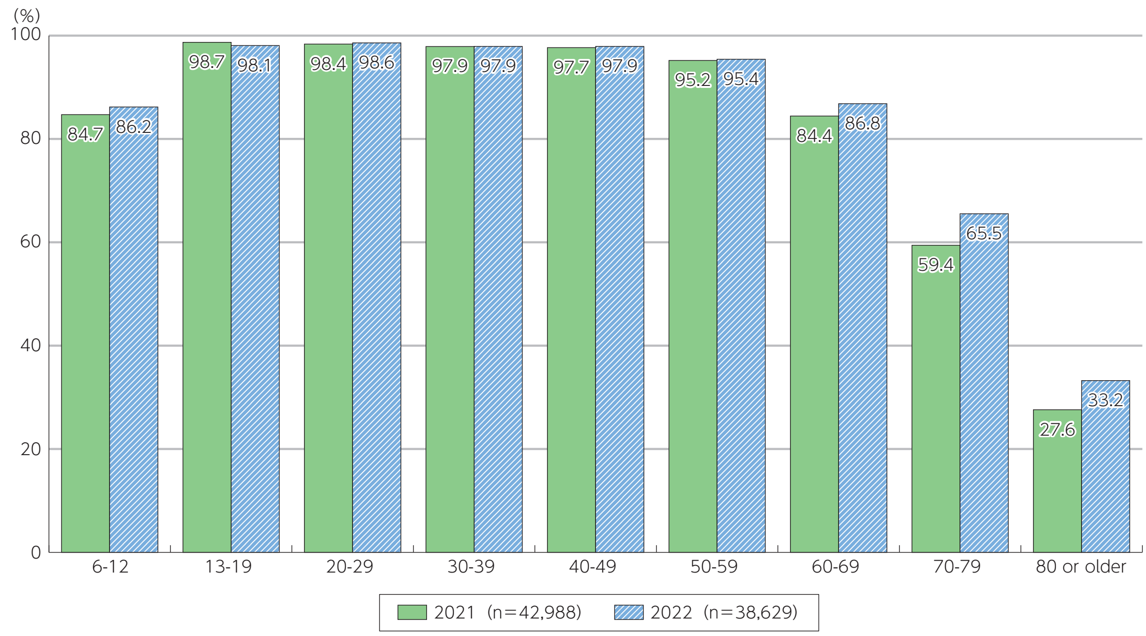
(Source) MIC "Communications Usage Trend Survey"

4. Types of Internet devices (individual)



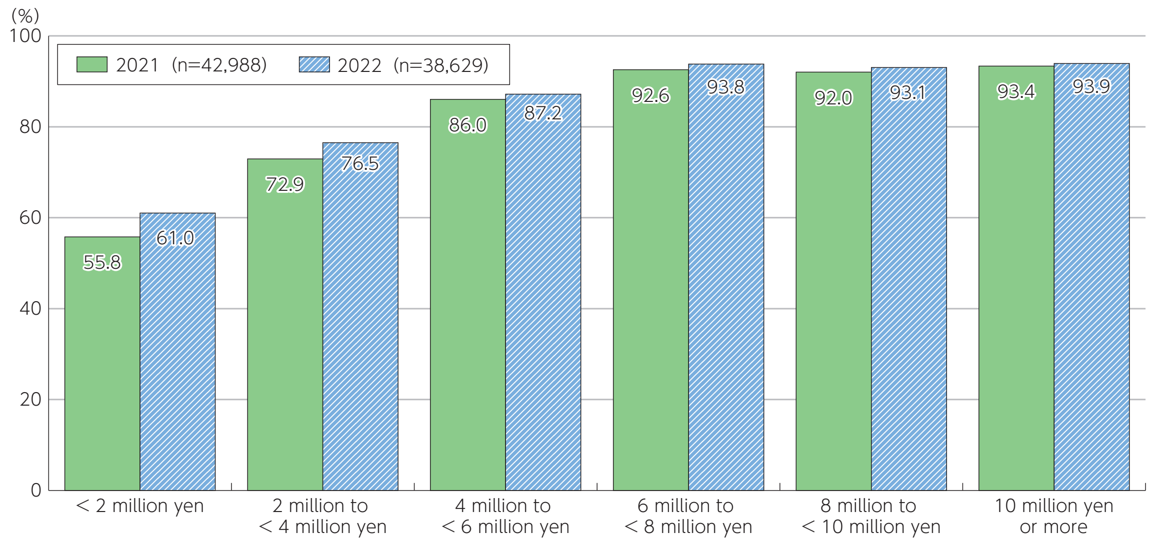
(Source) MIC "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

5. Internet usage by age group (Figure4-11-1-3 in White Paper)



(Source) MIC "Communications Usage Trend Survey"

6. Internet usage by annual household income (Figure4-11-1-4 in White Paper)



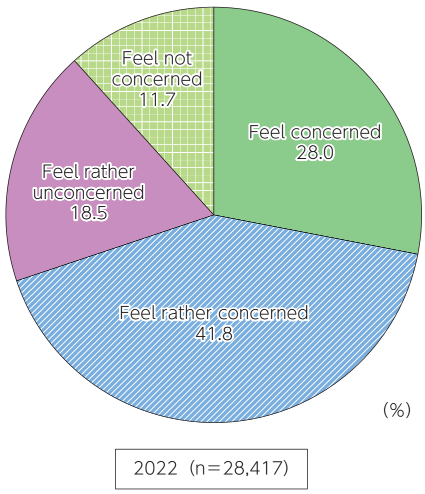
(Source) MIC "Communications Usage Trend Survey"

7. Internet usage by prefecture and usage by device (individual) (2022)

Prefecture	(n)	Percentage of internet users: Total	Computes	Mobile phones (including PHS)	Smartphones	Tablets
Hokkaido	(726)	87.6	51.2	10.3	70.7	24.1
Aomori	(776)	75.2	35.0	7.4	60.7	19.1
Iwate	(838)	73.8	33.3	12.7	57.1	17.4
Miyagi	(787)	85.2	51.7	10.3	72.1	28.6
Akita	(936)	74.9	37.7	9.3	56.8	16.8
Yamagata	(1,063)	77.3	37.8	9.3	57.5	17.0
Fukushima	(766)	77.4	42.8	8.1	64.9	22.7
Ibaraki	(715)	80.9	36.6	11.9	60.9	23.5
Tochigi	(954)	82.6	45.0	9.3	66.4	24.2
Gunma	(982)	82.4	44.6	11.3	67.6	24.1
Saitama	(844)	84.8	43.2	9.2	70.2	24.5
Chiba	(809)	89.4	59.1	10.1	79.3	27.7
Tokyo	(841)	90.4	62.4	11.2	81.3	42.2
Kanagawa	(758)	87.7	56.9	10.7	75.5	27.2
Niigata	(1,002)	81.1	37.3	8.7	62.8	20.0
Toyama	(1,150)	84.1	46.7	6.9	67.3	21.5
Ishikawa	(997)	83.6	46.6	7.8	69.1	22.4
Fukui	(874)	80.5	42.7	9.7	59.8	21.1
Yamanashi	(981)	84.4	47.0	9.9	70.9	25.7
Nagano	(936)	82.6	43.3	8.5	66.2	26.6
Gifu	(976)	82.7	40.6	10.3	70.0	24.2
Shizuoka	(998)	84.1	45.6	8.9	71.0	24.4
Aichi	(810)	86.6	50.8	10.8	73.3	27.2
Mie	(801)	85.7	47.1	8.8	69.9	27.3
Shiga	(820)	88.0	52.3	9.4	74.0	28.3
Kyoto	(763)	87.0	50.1	9.8	73.8	26.4
Osaka	(725)	88.8	49.9	11.9	76.4	25.3
Hyogo	(600)	81.8	48.6	12.8	66.3	22.6
Nara	(871)	89.7	51.4	9.4	77.2	23.5
Wakayama	(772)	80.4	41.6	8.8	65.8	20.1
Tottori	(804)	78.2	39.8	8.8	63.1	22.8
Shimame	(874)	79.5	44.1	9.4	64.9	21.7
Okayama	(816)	81.4	42.9	9.1	66.0	22.1
Hiroshima	(844)	87.8	48.3	9.5	72.5	23.4
Yamaguchi	(879)	77.6	39.8	6.1	63.1	22.6
Tokushima	(784)	80.6	43.2	8.9	67.9	24.1
Kagawa	(850)	82.3	43.1	9.6	66.6	24.3
Ehime	(746)	82.3	41.3	10.7	67.5	25.7
Kochi	(691)	76.3	40.6	6.8	64.5	16.6
Fukuoka	(544)	83.8	43.5	11.4	69.5	26.0
Saga	(821)	82.3	42.3	8.2	65.7	20.0
Nagasaki	(788)	82.8	38.0	7.9	67.1	21.1
Kumamoto	(794)	76.5	37.7	9.4	58.9	19.9
Oita	(707)	77.9	36.6	10.3	63.0	22.7
Miyazaki	(772)	78.2	33.0	11.8	58.6	18.5
Kagoshima	(587)	78.0	38.2	9.8	65.9	25.1
Okinawa	(457)	83.3	40.9	12.2	67.5	23.1
Total	(38,629)	84.9	48.5	10.3	71.2	26.4

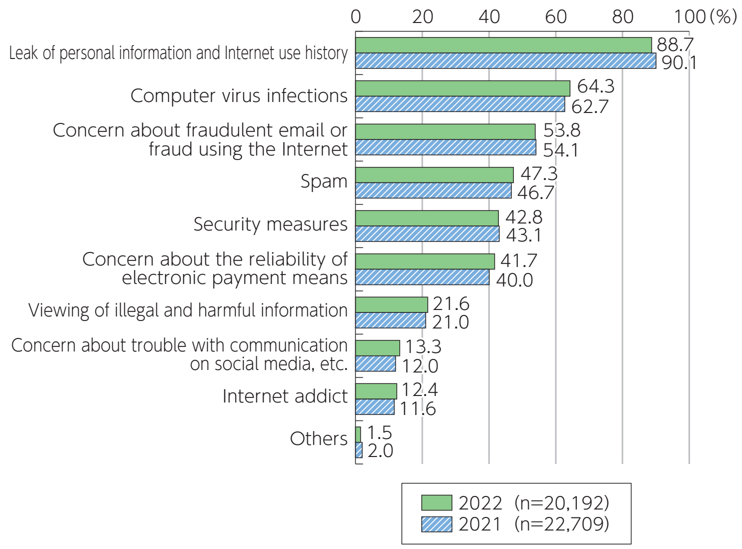
(Source) MIC "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

8. Percentage of individuals who feel anxiety when using the Internet (Figure4-11-1-5 in White Paper)



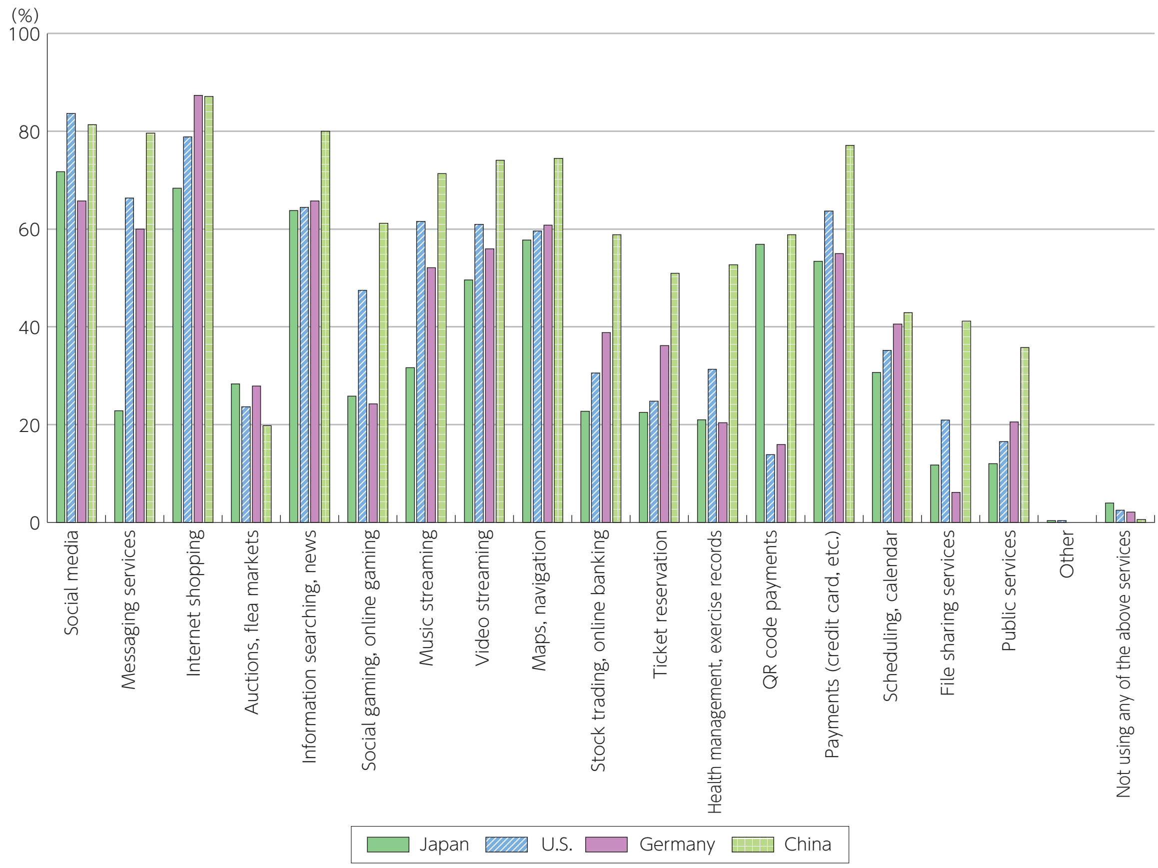
(Source) MIC "Communications Usage Trend Survey"

9. Anxiety felt when using the Internet (multiple answers allowed) (Figure4-11-1-6 in White Paper)



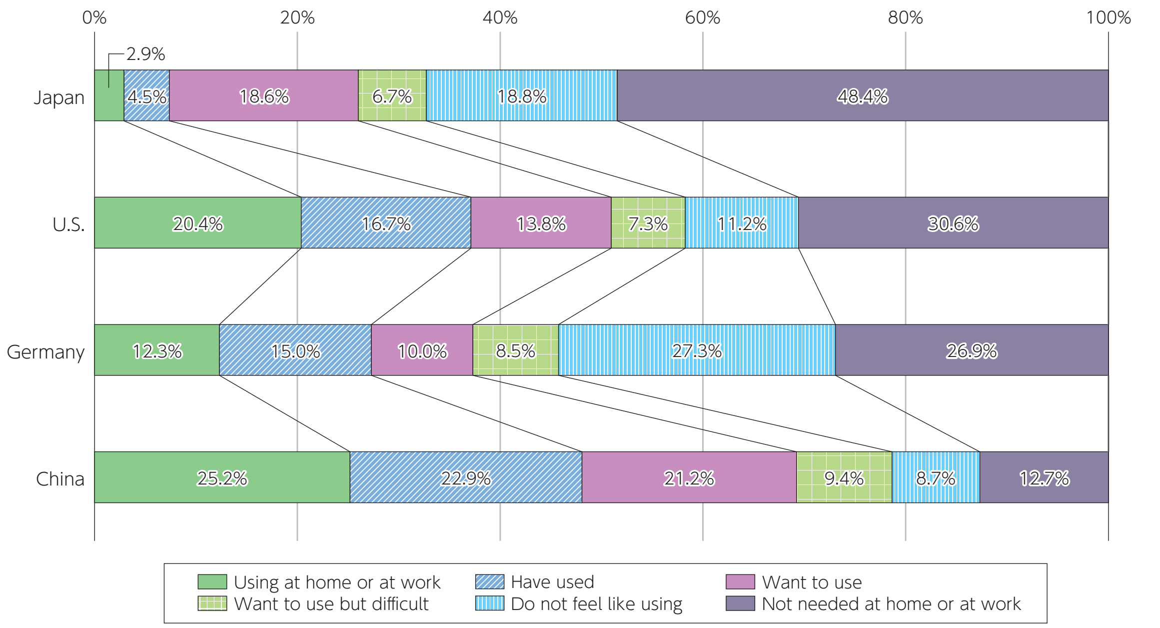
(Source) MIC "Communications Usage Trend Survey"

10. Overall usage of digital services (Figure4-11-1-7 in White Paper)



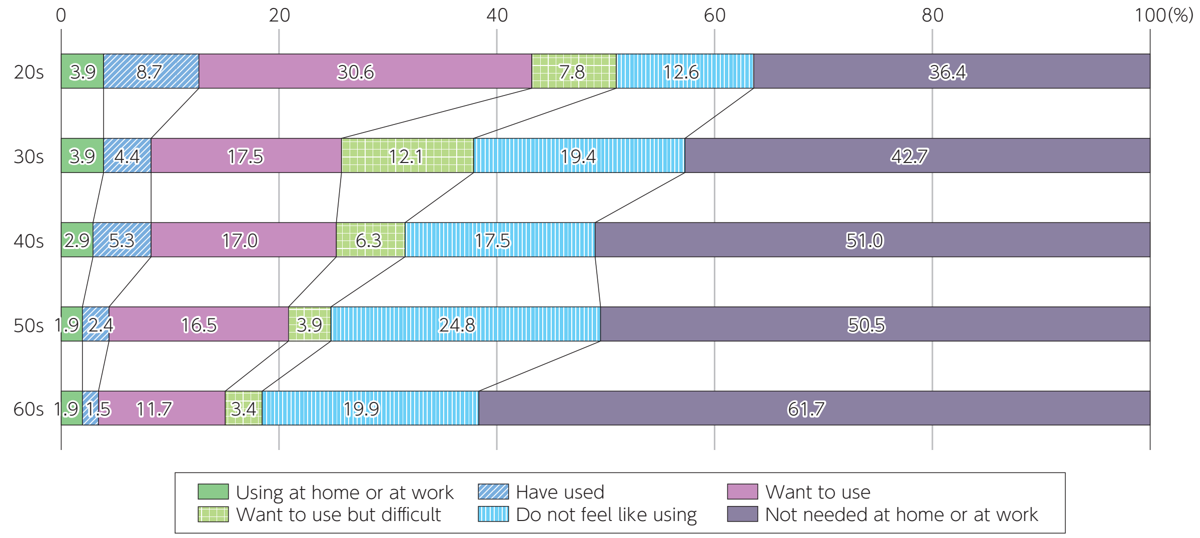
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

11. Usage of interactive entertainment services in virtual spaces (comparison by country) (Figure4-11-1-8 in White Paper)



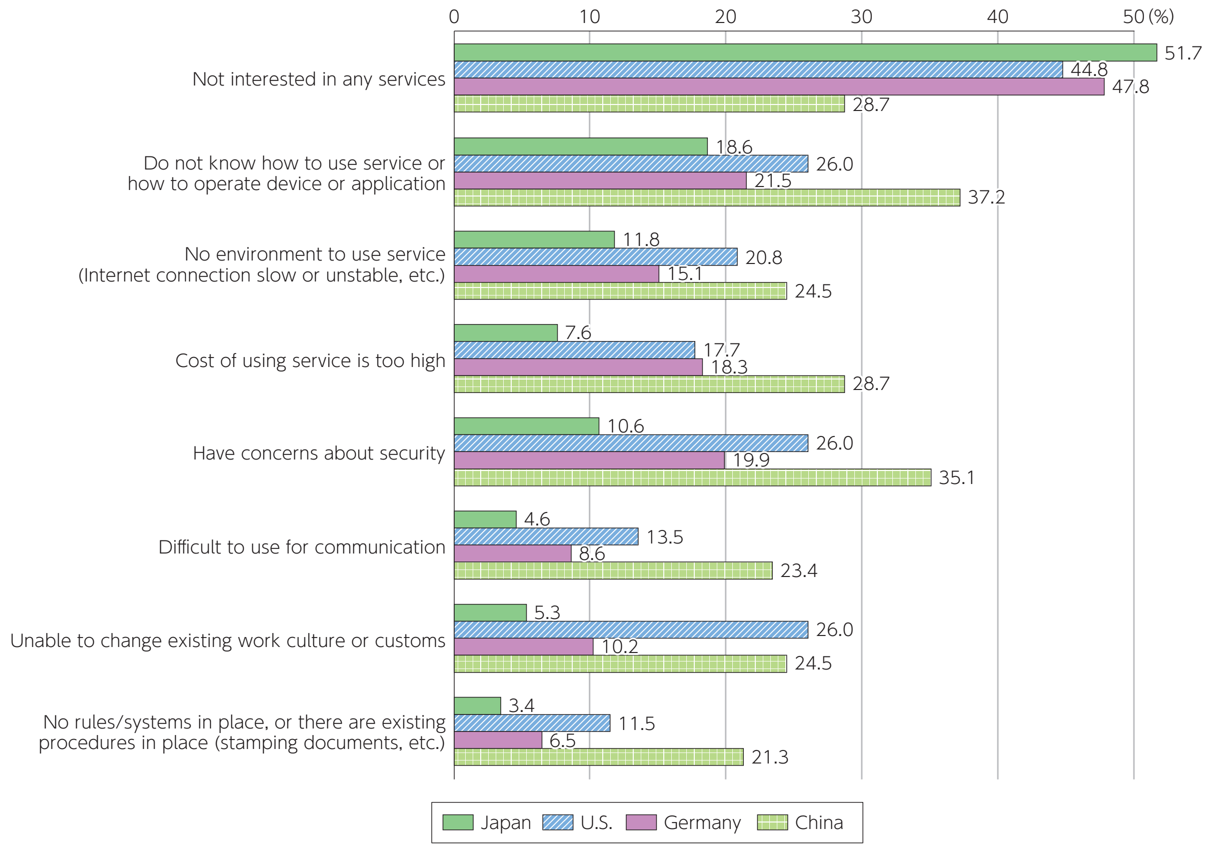
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

12. Usage of interactive entertainment services in virtual spaces (by age)



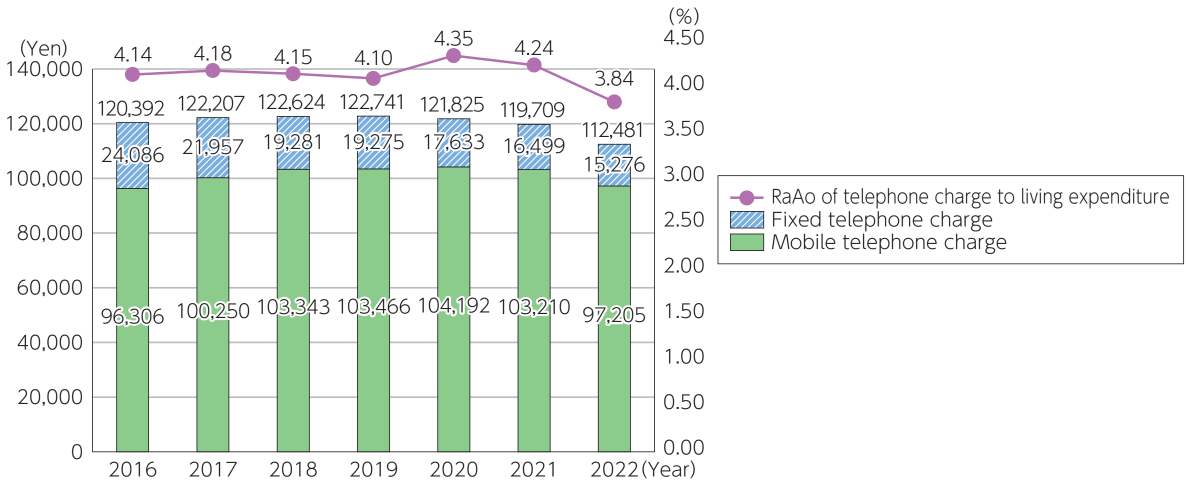
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

13. Reasons why entertainment services in virtual spaces are unavailable



(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

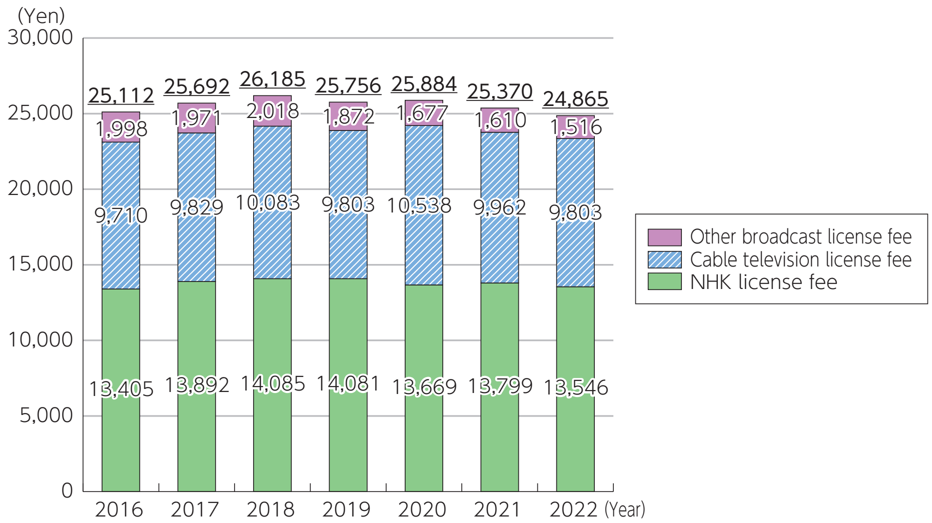
14. Changes in telephone charge and its ratio to living expenditure



* Household accounts used in the survey have been revised since January 2018, and care should be taken when making chronological comparisons over a period that includes 2018 or covers 2018, as changes due to the revision are included.
Certain figures for 2021 differ from previously published figures due to revisions.

(Source) Prepared from MIC, "Family Income and Expenditure Survey" (all households)
https://www.stat.go.jp/data/kakei/index.html

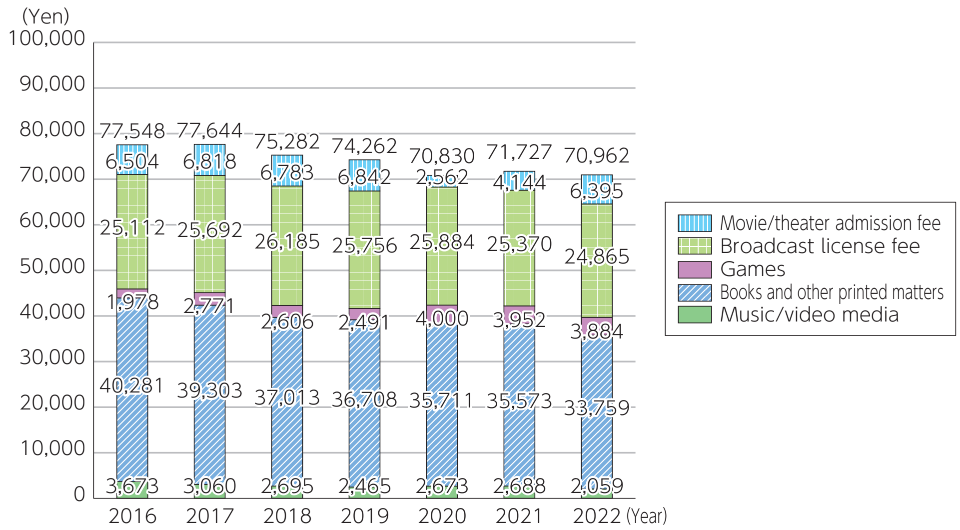
15. Household expenditure for broadcast services



* Household accounts used in the survey have been revised since January 2018, and care should be taken when making chronological comparisons over a period that includes 2018 or covers 2018, as changes due to the revision are included.
Certain figures for 2021 differ from previously published figures due to revisions.

(Source) Based on MIC "Survey on Household Income and Expenditures" (total households):
Annual Report on Survey on Household Income and Expenditures (household income and expenditure)
(Item classification) Table 10 Annual income five categories per household by class
https://www.stat.go.jp/data/kakei/index.html

16. Annual content-related expenditure per household



* "Game" is sum of "Game device" and "Game software, etc."
Household accounts used in the survey have been revised since January 2018, and care should be taken when making chronological comparisons over a period that includes 2018 or covers 2018, as changes due to the revision are included.
Certain figures for 2021 differ from previously published figures due to revisions.

(Source) Prepared from MIC, "Family Income and Expenditure Survey" (all households)
https://www.stat.go.jp/data/kakei/index.html

17. Average usage time for major media and user ratio (Figure4-11-1-9 in White Paper)

<Weekday (one day)>

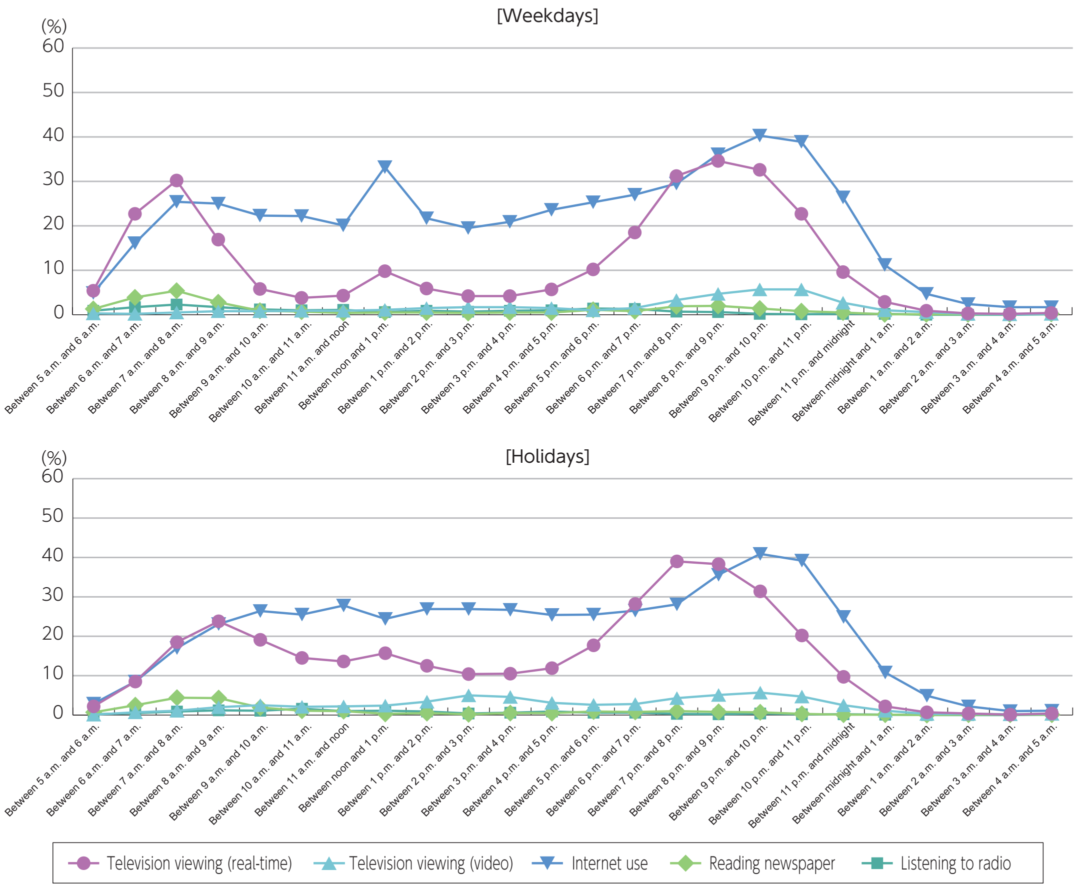
		Average usage time (minute)					Doers' ratio				
		Television viewing (real-time)	Television viewing (recorded program)	Internet use	Newspaper reading	Radio listening	Television viewing (real-time)	Television viewing (recorded program)	Internet use	Newspaper reading	Radio listening
All age groups	2018	156.7	20.3	112.4	8.7	13.0	79.3	18.7	82.0	26.6	6.5
	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
	2021	146.0	17.8	176.8	7.2	12.2	74.4	18.6	89.6	22.1	6.2
	2022	135.5	18.2	175.2	6.0	8.1	73.7	17.5	90.4	19.2	6.0
10s	2018	71.8	12.7	167.5	0.3	0.2	63.1	15.2	89.0	2.5	1.1
	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
	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
20s	2018	105.9	18.7	149.8	1.2	0.9	67.5	16.5	91.4	5.3	0.7
	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
	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
30s	2018	124.4	17.4	110.7	3.0	9.4	74.1	19.1	91.1	13.0	4.3
	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
	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
40s	2018	150.3	20.2	119.7	4.8	16.6	79.2	18.8	87.0	23.1	7.4
	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
	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
50s	2018	176.9	20.8	104.3	12.9	17.2	88.5	20.6	82.0	43.9	9.3
	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
	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
60s	2018	248.7	27.3	60.9	23.1	22.8	91.6	19.7	59.0	52.8	11.7
	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
	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

<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
All age groups	2018	219.8	31.3	145.8	10.3	7.5	82.2	23.7	84.5	27.6	5.1
	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
	2021	193.6	26.3	176.5	7.3	7.0	75.0	21.3	86.7	19.3	4.2
	2022	182.9	30.2	187.3	5.6	5.5	72.2	22.7	88.5	17.7	4.1
10s	2018	113.4	28.6	271.0	0.9	0.7	67.4	27.7	91.5	3.5	2.1
	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
	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
20s	2018	151.0	32.8	212.9	2.1	2.1	66.5	24.9	95.7	6.2	2.4
	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
	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
30s	2018	187.2	26.6	150.2	3.5	3.9	79.8	19.1	92.6	11.7	3.5
	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
	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
40s	2018	213.9	39.0	145.3	6.4	8.2	82.7	25.9	90.4	25.3	3.4
	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
	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
50s	2018	260.8	22.9	115.0	15.3	10.4	91.9	21.5	80.7	42.2	7.0
	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
	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
60s	2018	315.3	34.6	64.3	26.1	14.1	93.0	24.4	63.2	56.9	10.0
	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
	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

(Source) MIC Institute for Information and Communications Policy "Fiscal 2022 Survey on Information and Communications Media Usage Time and Information Behavior"

18. User ratio of major media by time of day (all ages) (2022)



(Source) Institute for Information and Communications Policy, MIC, "FY2022 Survey on Usage Time of Information and Communication Media and Information Behavior"

19. Internet usage time and doers' ratio with major equipment

Weekday		Average time of internet use (minute)			Internet doers' ratio		
		PC	Mobile	Tablet	PC	Mobile	Tablet
All age groups	2018	34.0	72.9	6.3	24.6	74.3	7.5
	2019	35.4	85.4	6.3	24.1	80.2	7.4
	2020	58.1	105.8	9.7	30.2	81.6	8.4
	2021	57.6	110.0	12.4	30.7	83.5	10.4
	2022	56.5	113.3	10.9	28.3	84.9	8.6
10s	2018	8.3	144.7	9.5	9.2	81.2	8.2
	2019	13.1	150.1	5.8	9.2	87.7	6.3
	2020	34.0	186.8	6.4	15.5	84.5	8.1
	2021	14.7	154.2	19.9	11.0	84.0	12.8
	2022	32.6	160.5	12.9	15.7	89.3	11.8
20s	2018	21.8	122.0	4.6	17.2	89.0	6.7
	2019	30.5	147.3	5.5	20.1	91.5	7.8
	2020	73.8	177.4	15.6	31.0	93.9	7.5
	2021	76.1	201.0	16.9	32.3	94.0	10.2
	2022	65.0	207.7	15.0	27.2	95.6	9.2
30s	2018	28.5	76.2	5.4	22.8	87.5	6.0
	2019	48.3	98.5	6.2	24.3	89.3	6.7
	2020	64.4	114.0	9.4	30.8	90.8	7.0
	2021	56.1	121.0	13.2	31.0	91.3	10.3
	2022	66.6	120.2	8.9	25.7	91.4	7.8
40s	2018	45.1	69.8	6.4	29.9	81.6	8.8
	2019	35.5	69.4	7.7	27.0	86.2	8.1
	2020	59.0	98.2	8.0	30.1	89.3	7.7
	2021	67.6	101.0	10.3	36.6	89.7	9.4
	2022	63.5	111.5	9.5	33.2	88.1	7.1
50s	2018	51.9	53.1	5.4	34.8	69.3	8.0
	2019	44.0	68.3	5.8	31.8	77.2	9.4
	2020	62.9	64.6	9.2	36.9	74.2	10.6
	2021	65.7	79.1	6.3	34.2	81.1	7.9
	2022	61.9	70.0	13.5	34.2	80.5	10.4
60s	2018	31.2	23.3	7.3	23.7	46.0	7.4
	2019	30.2	31.7	6.1	23.6	56.7	5.7
	2020	46.9	54.1	9.7	29.6	61.5	8.9
	2021	46.1	50.3	13.2	28.8	63.6	13.0
	2022	38.7	58.4	7.3	25.6	69.3	6.8

Holiday		Average time of internet use (minute)			Internet doers' ratio		
		PC	Mobile	Tablet	PC	Mobile	Tablet
All age groups	2018	27.5	107.7	8.7	18.9	76.9	8.6
	2019	22.2	99.4	8.9	15.0	75.9	6.7
	2020	31.1	126.4	12.5	18.9	77.9	8.7
	2021	30.5	126.8	13.8	18.9	80.5	8.9
	2022	32.4	139.7	11.6	18.0	82.9	7.8
10s	2018	3.7	242.4	12.3	4.3	85.1	9.9
	2019	32.8	197.1	11.0	12.0	85.9	6.3
	2020	28.9	247.5	18.9	12.0	85.2	9.2
	2021	27.6	200.6	23.4	13.5	82.3	10.6
	2022	54.5	234.3	17.6	17.9	89.3	7.9
20s	2018	29.7	177.3	6.6	12.9	93.3	8.6
	2019	29.4	186.9	9.6	12.8	87.2	6.6
	2020	40.2	230.7	16.3	15.0	94.4	7.0
	2021	52.0	251.3	12.8	20.5	96.3	6.5
	2022	48.9	276.5	17.4	21.2	93.5	9.2
30s	2018	27.7	108.6	8.5	14.4	89.1	7.8
	2019	29.2	108.8	11.1	13.0	87.7	5.9
	2020	31.1	137.1	9.6	15.6	84.8	8.0
	2021	32.5	147.2	15.6	17.4	89.1	8.5
	2022	34.2	148.1	8.5	15.5	88.6	6.5
40s	2018	28.9	102.4	12.1	22.2	84.0	9.9
	2019	14.6	73.8	7.9	15.0	80.1	6.7
	2020	26.0	109.8	12.3	19.9	84.7	8.0
	2021	23.4	110.8	13.4	14.8	87.3	8.3
	2022	14.1	118.8	9.8	11.0	85.3	6.0
50s	2018	39.1	74.2	5.0	27.8	69.3	8.5
	2019	22.2	74.6	10.4	19.4	68.3	7.6
	2020	34.1	77.2	14.8	24.4	70.4	11.5
	2021	24.9	75.8	8.8	21.5	73.4	7.7
	2022	30.0	86.1	12.4	22.5	76.5	9.8
60s	2018	25.0	30.8	8.1	22.4	50.2	7.4
	2019	14.0	32.4	5.3	15.5	55.2	6.9
	2020	28.4	46.5	6.9	21.3	55.7	8.2
	2021	28.0	47.3	14.1	23.6	59.4	12.3
	2022	30.6	59.2	7.7	21.0	70.2	7.7

(Source) Institute for Information and Communications Policy, MIC, "FY2022 Survey on Usage Time of Information and Communication Media and Information Behavior"

20. Usage time and doers' ratio of major means of communication

Weekday

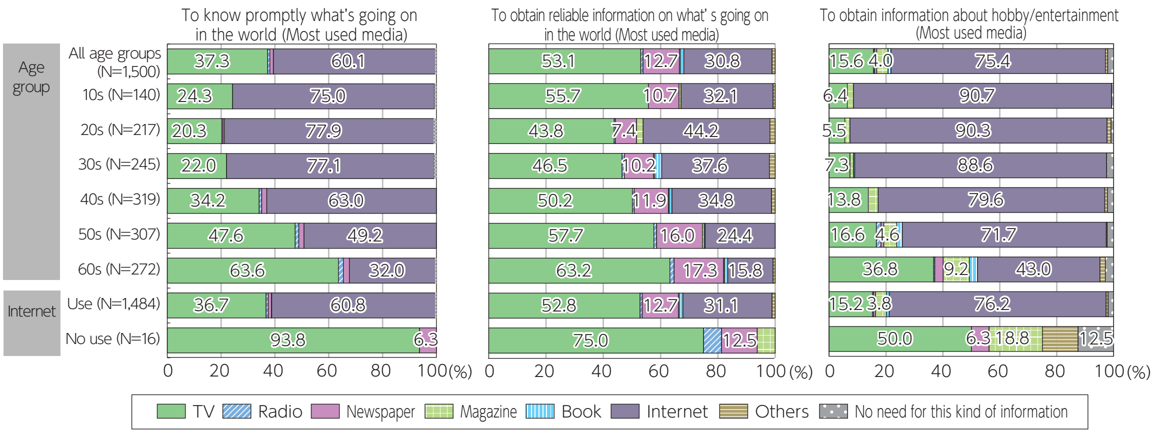
		Average usage time (minute)					Doers' ratio				
		Mobile-phone call	Fixed-phone call	Internet call	Social media	メール	Mobile-phone call	Fixed-phone call	Internet call	Social media	e-mail
All age groups	2018	5.0	0.7	2.2	26.7	30.8	15.8	2.4	4.3	38.8	46.4
	2019	6.2	1.5	3.1	32.3	34.6	19.8	3.4	5.4	44.0	48.4
	2020	7.4	2.3	3.8	37.9	40.8	18.4	3.4	5.5	47.0	49.5
	2021	6.4	1.1	4.2	40.2	35.7	17.0	2.5	5.0	50.0	47.9
	2022	6.4	0.5	4.8	43.3	40.3	14.9	1.5	4.5	49.9	44.3
10s	2018	3.1	0.0	5.1	71.6	13.5	6.4	0.7	6.4	55.3	22.7
	2019	3.3	0.4	9.2	64.1	16.0	8.5	1.4	9.2	63.0	24.6
	2020	6.7	0.0	8.8	72.3	18.4	9.9	0.4	9.9	61.3	22.9
	2021	8.4	0.0	5.3	64.4	19.6	11.0	0.0	7.4	62.8	23.1
	2022	6.3	0.2	19.0	64.2	16.1	4.6	0.7	9.3	60.0	22.9
20s	2018	3.1	0.0	6.1	51.9	21.4	8.6	0.2	7.4	63.6	39.0
	2019	6.3	0.1	7.8	71.4	25.9	16.1	0.9	9.0	65.9	36.0
	2020	4.8	4.1	7.9	84.6	39.6	10.8	2.6	8.2	69.5	42.3
	2021	6.0	1.7	14.0	84.1	20.1	12.6	0.5	9.3	72.1	30.5
	2022	5.8	0.0	10.5	87.3	39.2	9.2	0.2	8.3	70.0	32.3
30s	2018	4.3	1.3	1.6	23.5	32.0	16.5	2.9	4.9	49.0	54.3
	2019	7.2	3.6	2.2	35.3	45.3	17.4	2.2	6.3	51.2	50.8
	2020	6.4	2.1	2.9	40.9	39.7	20.8	2.2	6.8	54.2	51.2
	2021	4.3	2.7	5.1	46.2	36.0	17.4	3.4	5.1	60.5	45.3
	2022	4.9	1.3	1.1	48.2	41.1	13.7	1.6	3.3	59.6	41.8
40s	2018	4.9	0.6	1.6	23.2	39.6	18.1	1.9	4.2	42.3	49.1
	2019	6.1	1.3	1.3	19.5	34.1	21.8	3.2	3.8	45.6	56.9
	2020	10.7	3.1	2.1	27.5	44.8	18.7	3.4	3.1	51.1	56.3
	2021	8.4	0.7	1.5	32.2	39.9	17.1	2.2	3.1	53.1	56.6
	2022	8.5	0.2	1.7	38.6	52.4	18.5	1.1	3.6	47.0	49.2
50s	2018	7.5	0.1	0.3	15.8	43.2	17.8	1.7	1.5	28.5	56.9
	2019	5.9	1.0	0.9	23.9	45.8	22.5	4.5	2.9	38.3	55.0
	2020	6.1	1.5	1.3	20.1	45.4	20.0	4.5	4.5	37.3	55.4
	2021	4.7	0.8	1.7	25.7	50.9	16.3	3.0	4.4	38.9	58.1
	2022	7.9	0.6	3.5	26.6	48.4	19.1	1.8	3.3	45.1	53.7
60s	2018	5.7	1.3	1.1	4.5	23.5	20.2	5.5	3.5	10.2	43.8
	2019	7.3	1.7	1.7	8.2	30.5	25.5	6.2	4.3	16.0	51.0
	2020	8.4	2.0	3.5	12.9	44.5	24.3	5.5	3.9	21.5	53.0
	2021	6.8	0.7	1.2	13.3	34.5	23.7	4.5	3.4	25.2	55.4
	2022	4.2	0.4	1.2	17.4	29.8	16.7	2.8	2.6	28.5	50.7

Holiday

		Average usage time (minute)					Doers' ratio				
		Mobile-phone call	Fixed-phone call	Internet call	Social media	メール	Mobile-phone call	Fixed-phone call	Internet call	Social media	e-mail
All age groups	2018	4.6	0.2	3.4	35.6	23.6	16.5	1.5	6.1	39.1	42.9
	2019	4.0	0.3	3.7	36.2	22.4	16.8	1.3	4.7	42.9	40.9
	2020	6.2	0.3	2.8	44.2	22.0	14.9	1.3	5.1	44.9	37.5
	2021	3.8	0.2	3.7	45.1	18.3	13.5	1.1	5.0	46.5	37.9
	2022	4.4	0.2	4.3	54.8	22.9	11.3	0.7	4.7	49.9	34.0
10s	2018	6.2	0.5	10.9	98.7	27.7	10.6	1.4	10.6	58.2	26.2
	2019	3.0	0.4	13.8	83.4	20.6	9.9	1.4	13.4	64.1	19.7
	2020	8.4	0.0	8.7	85.4	14.5	9.2	0.0	10.6	60.6	18.3
	2021	6.3	1.5	6.8	74.2	22.5	8.5	0.7	6.4	60.3	24.8
	2022	11.8	0.0	21.3	100.3	24.6	10.7	0.0	12.1	61.4	18.6
20s	2018	2.8	0.0	8.1	64.6	20.5	12.4	0.0	10.5	64.1	36.8
	2019	3.4	0.3	10.7	81.1	20.5	12.8	0.5	7.6	67.3	32.2
	2020	3.4	0.0	4.3	110.8	27.0	9.9	0.0	6.1	70.0	32.9
	2021	3.4	0.1	12.3	114.2	6.8	10.7	0.5	7.4	71.2	21.9
	2022	7.3	0.0	8.0	115.7	35.9	6.5	0.0	7.4	71.4	24.0
30s	2018	5.5	0.0	1.2	38.4	23.1	18.3	0.0	5.4	52.5	47.5
	2019	5.3	0.0	2.1	38.4	26.4	17.0	0.0	4.0	52.6	41.5
	2020	3.5	0.0	2.7	43.8	14.3	13.6	0.0	5.2	51.2	34.0
	2021	2.8	0.0	3.9	50.5	14.1	11.3	0.0	4.5	58.7	32.4
	2022	2.8	0.0	1.3	62.8	16.0	9.0	0.0	4.1	59.6	26.5
40s	2018	3.8	0.1	2.4	27.3	22.4	15.1	1.2	6.2	40.7	41.0
	2019	2.5	0.2	0.6	19.5	19.3	17.2	0.6	2.1	42.3	43.6
	2020	4.2	0.1	1.3	28.2	24.3	14.7	0.6	3.1	47.2	42.6
	2021	4.0	0.0	2.0	32.0	18.2	13.0	0.6	6.2	50.9	41.7
	2022	2.5	0.5	1.3	38.9	18.3	10.0	1.6	3.1	48.6	32.9
50s	2018	4.0	0.4	1.6	20.2	28.8	17.0	2.6	3.7	25.6	48.9
	2019	5.7	0.2	0.6	24.0	21.6	19.1	1.4	2.9	34.5	45.7
	2020	6.6	0.3	2.0	22.5	22.4	17.1	2.4	4.9	34.5	42.2
	2021	3.0	0.1	0.8	22.7	21.6	14.5	1.3	3.0	31.0	45.8
	2022	3.5	0.3	1.5	32.6	25.3	14.0	1.0	2.9	39.4	42.7
60s	2018	5.7	0.5	1.0	6.1	20.9	21.7	3.0	3.3	11.7	47.8
	2019	3.7	0.7	1.3	9.1	25.3	20.3	3.8	3.8	14.8	49.3
	2020	11.8	1.0	1.4	14.3	25.9	20.9	3.9	4.3	20.6	43.3
	2021	4.4	0.3	0.4	11.3	25.3	19.6	2.9	3.6	21.0	48.9
	2022	2.6	0.1	1.8	19.0	20.6	16.2	0.7	2.9	31.3	48.2

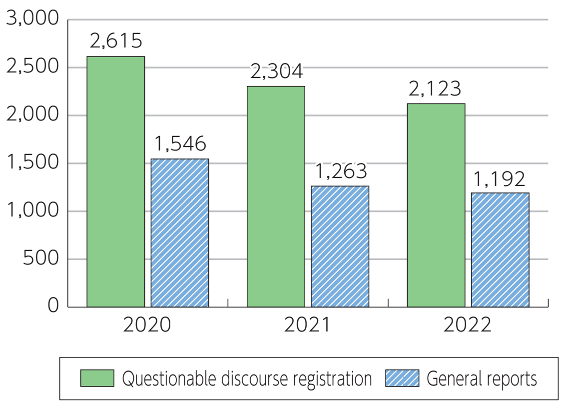
(Source) Institute for Information and Communications Policy, MIC, "FY2022 Survey on Usage Time of Information and Communication Media and Information Behavior"

21. Media used by purpose (most used media; for all age groups, by age group, and by using or not using the Internet) (Figure4-11-1-10 in White Paper)



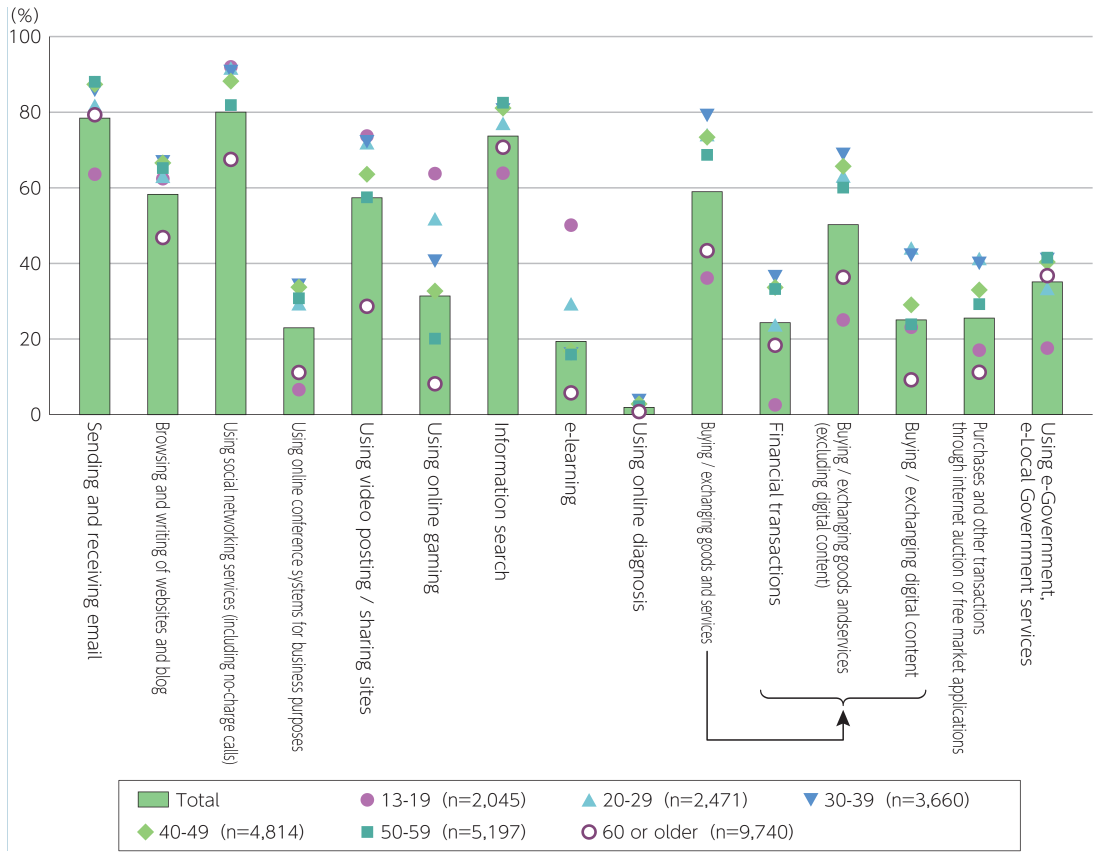
(Source) MIC Institute for Information and Communications Policy "Fiscal 2022 Survey on Information and Communications Media Usage Time and Information Behavior"

22. Questionable discourse database registrations



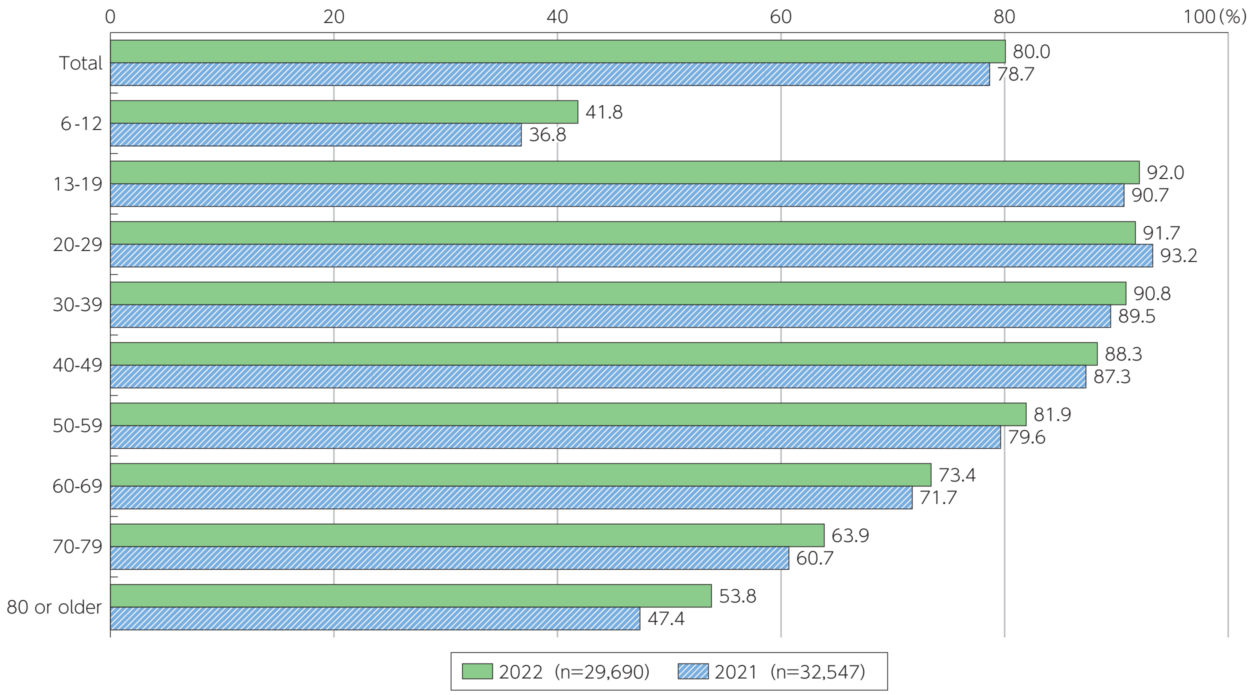
(Source) FactCheck Initiative "Questionable Discourse Database (ClaimMonitor)"

23. Purpose of internet usage by age group (multiple answers) (2022)



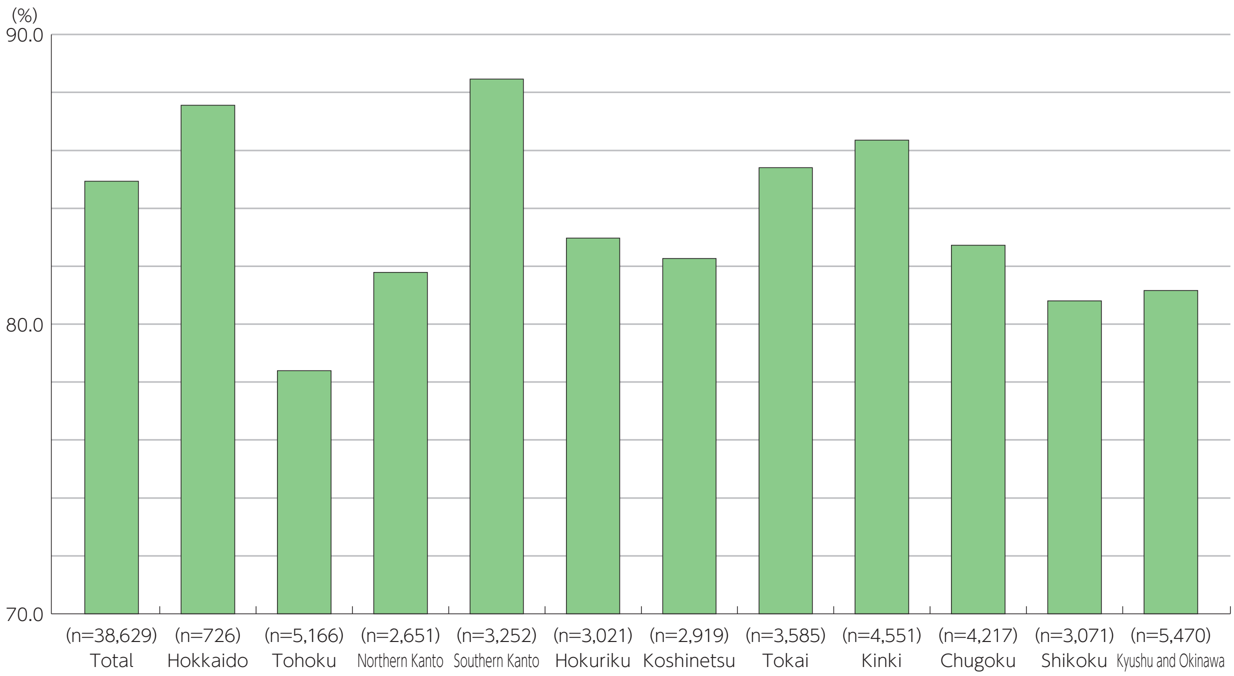
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

24. SNS usage state by age group



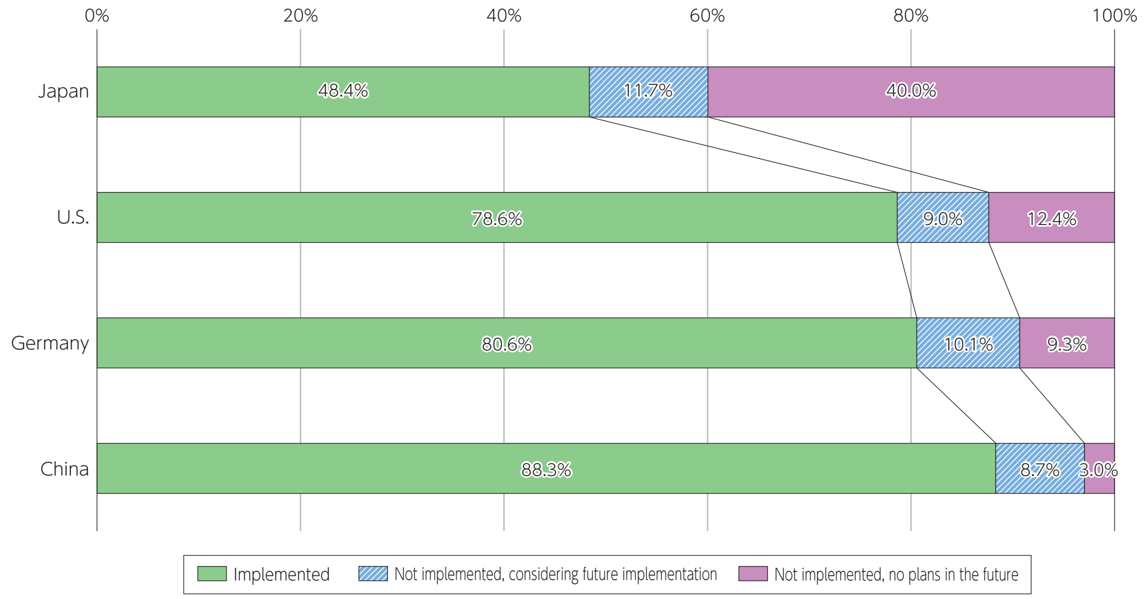
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

25. Internet usage rate by region



(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

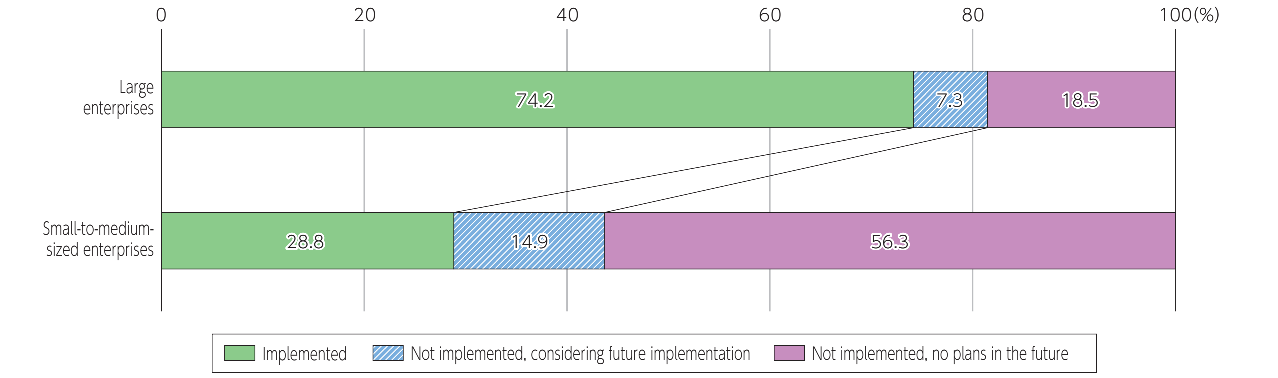
26. Status of digitalization (comparison by country) (Figure4-11-2-1 in White Paper)



* Based on the results of a screening survey conducted to identify companies engaged in digitalization

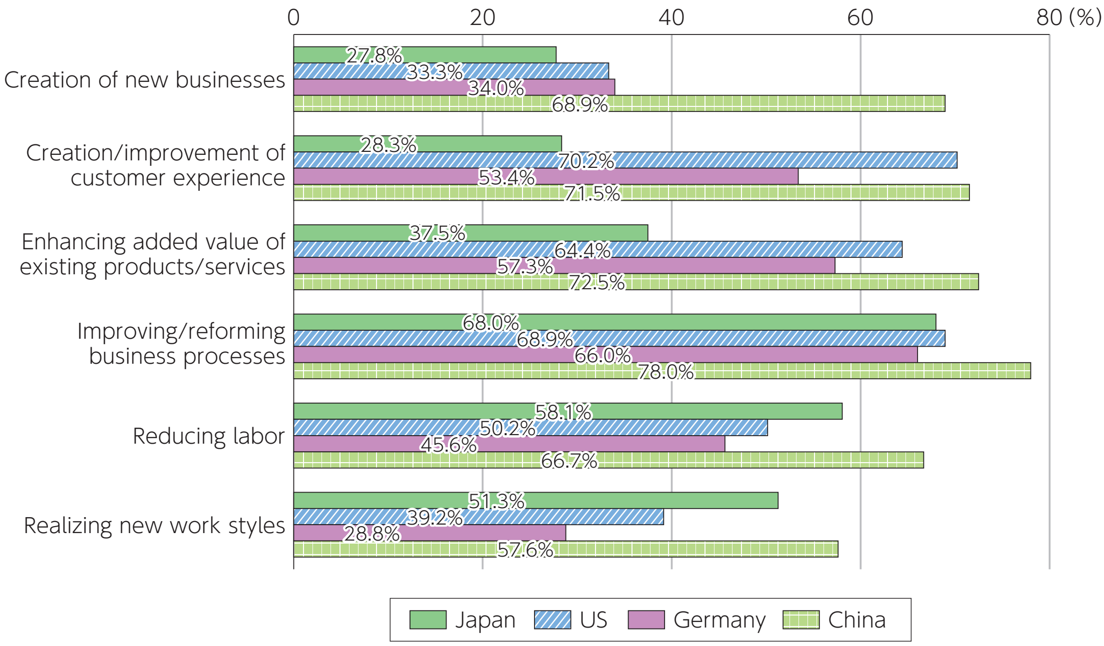
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

27. Status of digitalization (Japan: Comparison by company size)



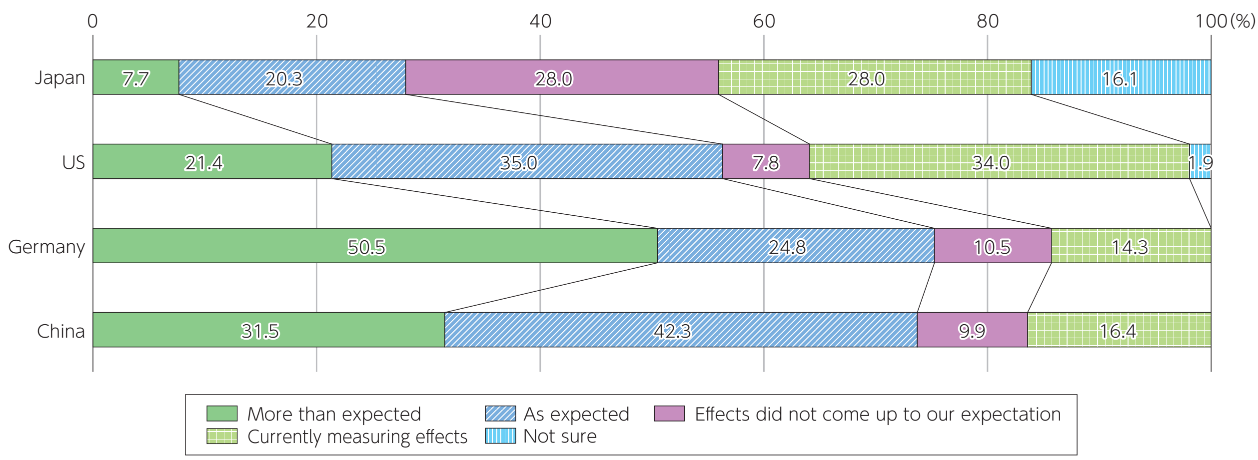
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

28. Initiatives to promote digitalization (comparison by country) (Figure4-11-2-2 in White Paper)



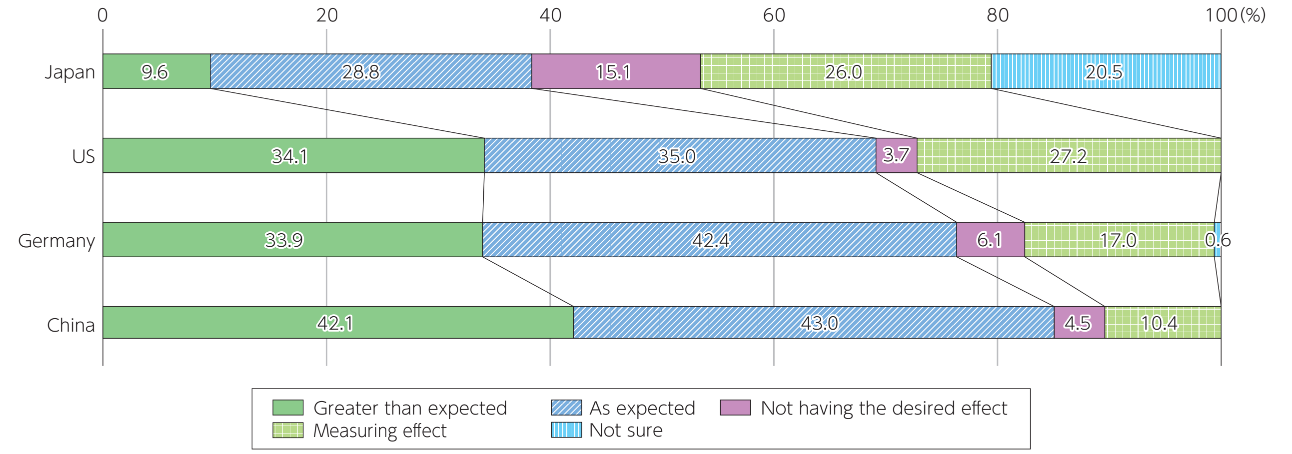
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

29. Results of digitalization in creating new business



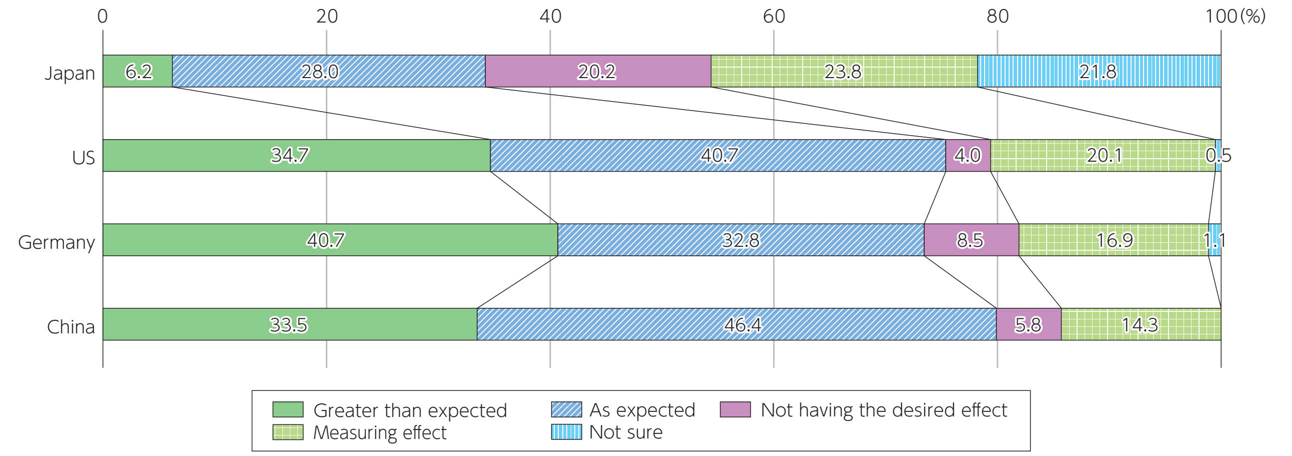
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and the Trends of Use of Digital"

30. Results of digitalization in creating/improving customer experiences



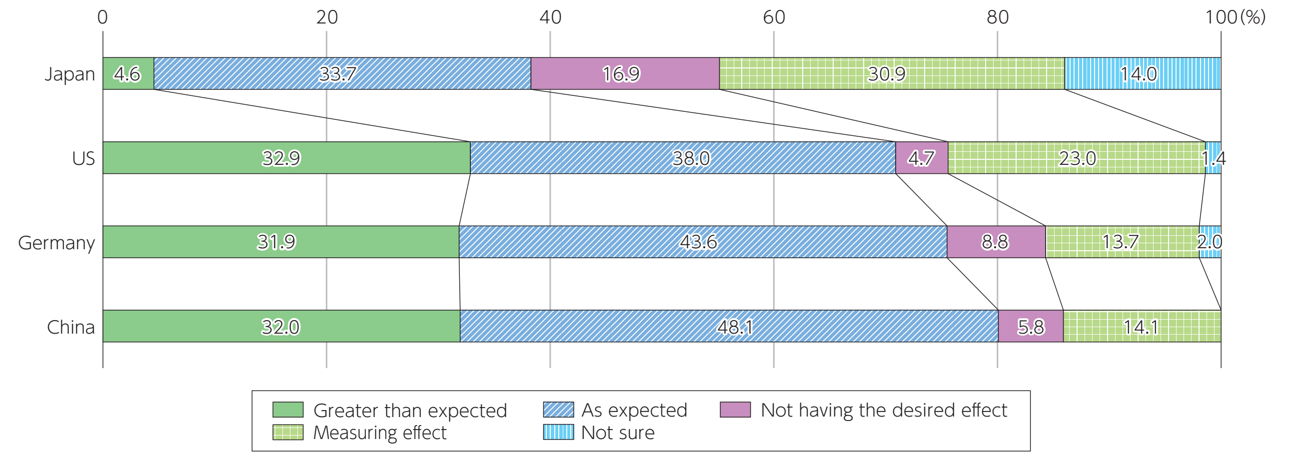
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

31. Results of digitalization in enhancing added value of existing products/services



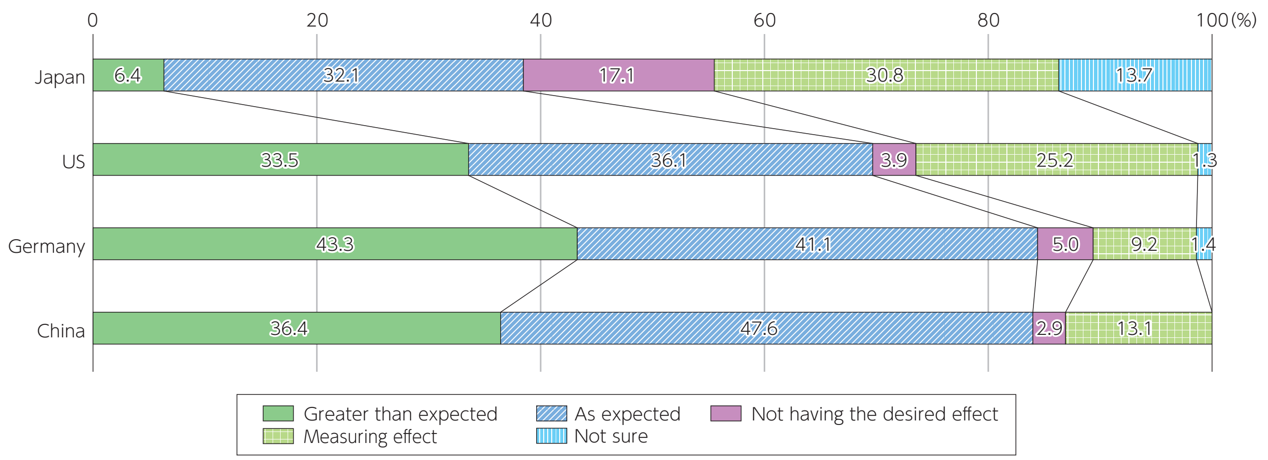
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

32. Results of digitalization in improving/reforming business processes



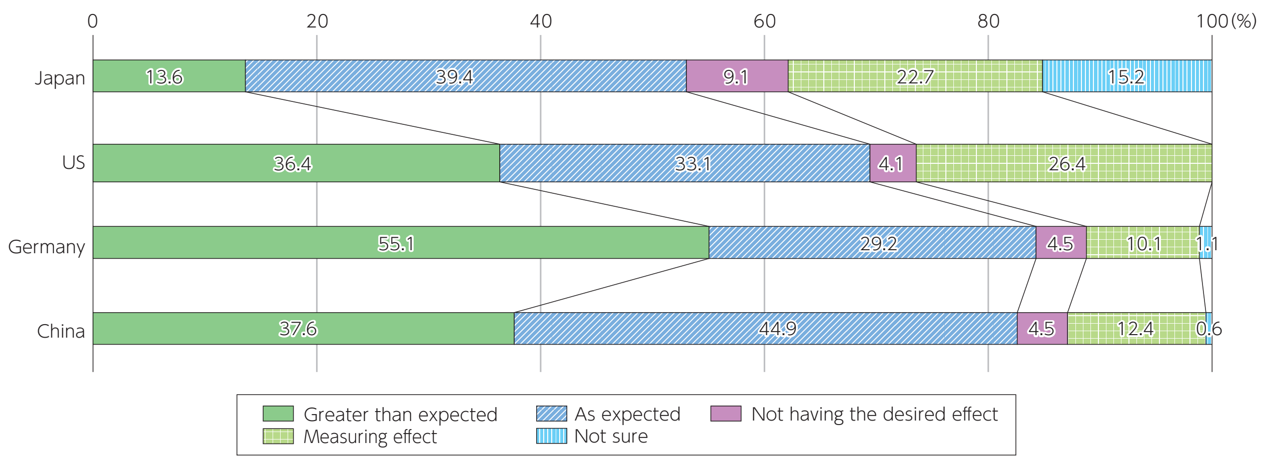
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

33. Results of digitalization in reducing labor



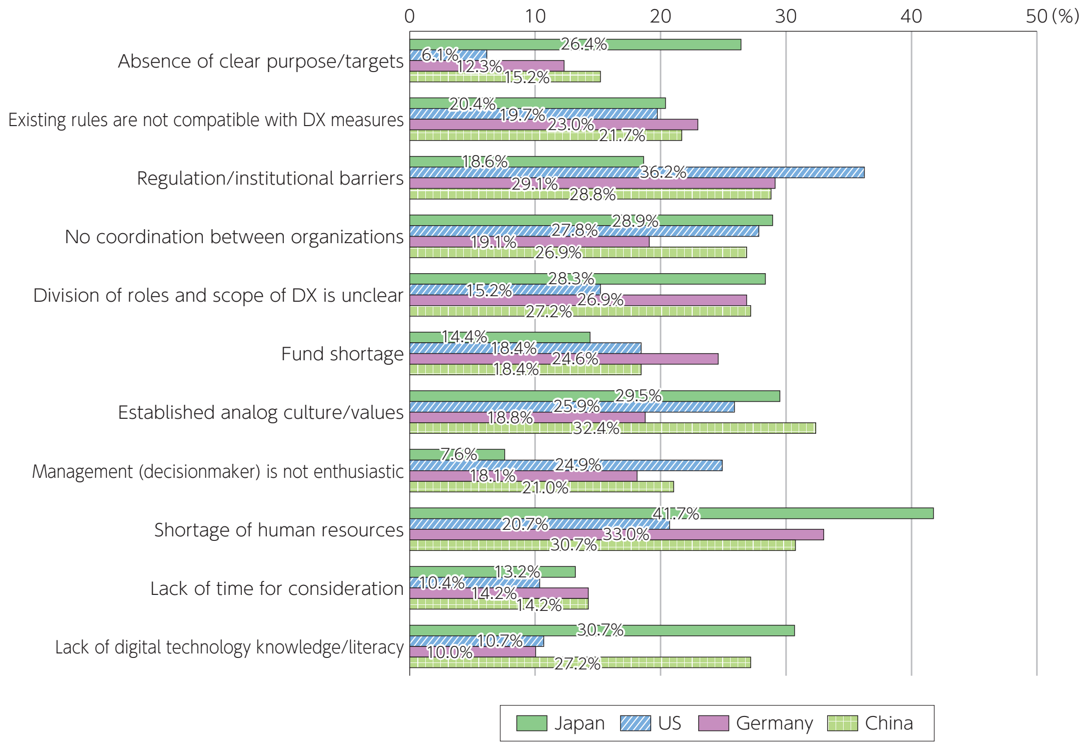
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

34. Results of digitalization in realizing new work styles



(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

35. Challenges in promoting digitalization (comparison by country) (Figure4-11-2-3 in White Paper)

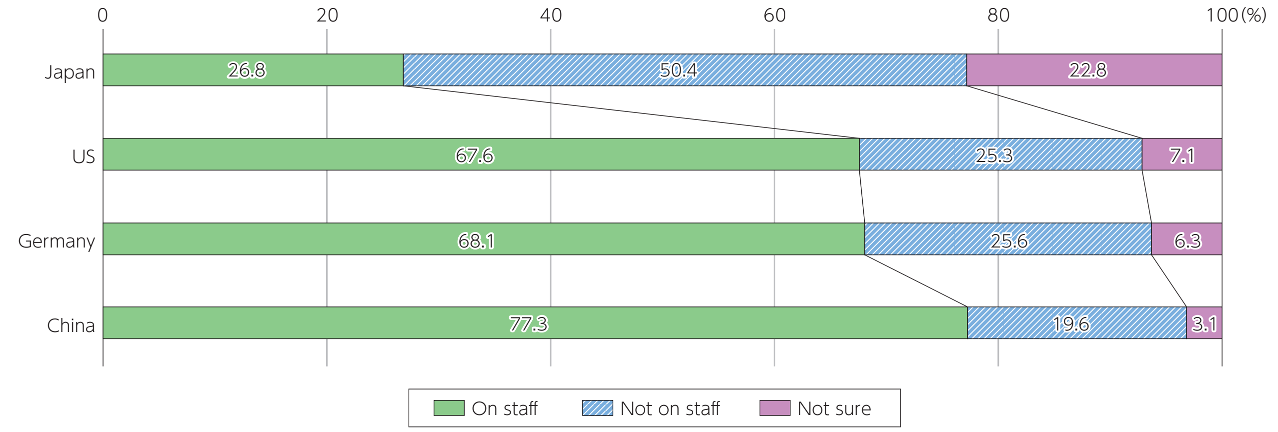


(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

36. Specialized digital human resources on staff (Figure4-11-2-4 in White Paper)

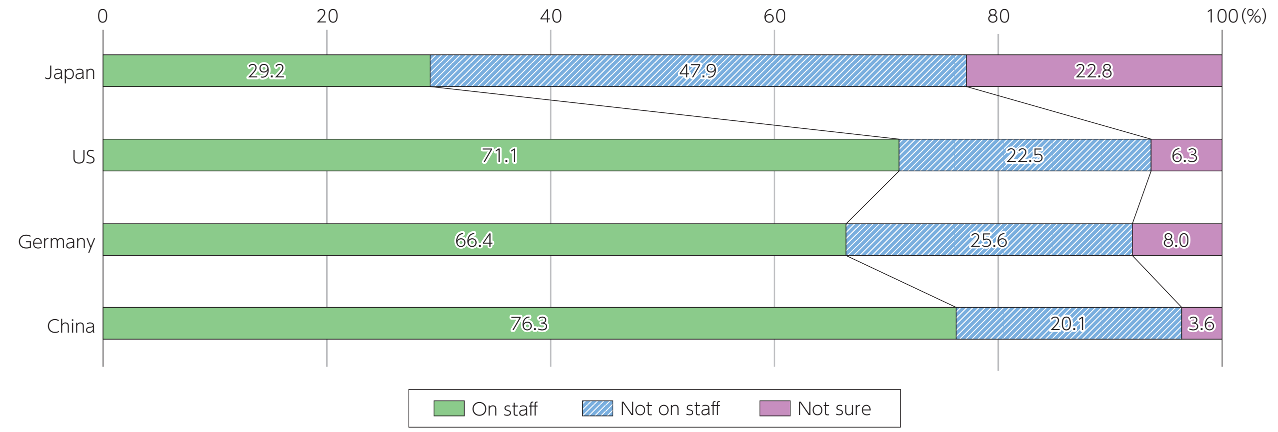
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

37. "AI/data analysis experts" in companies making use of personal data



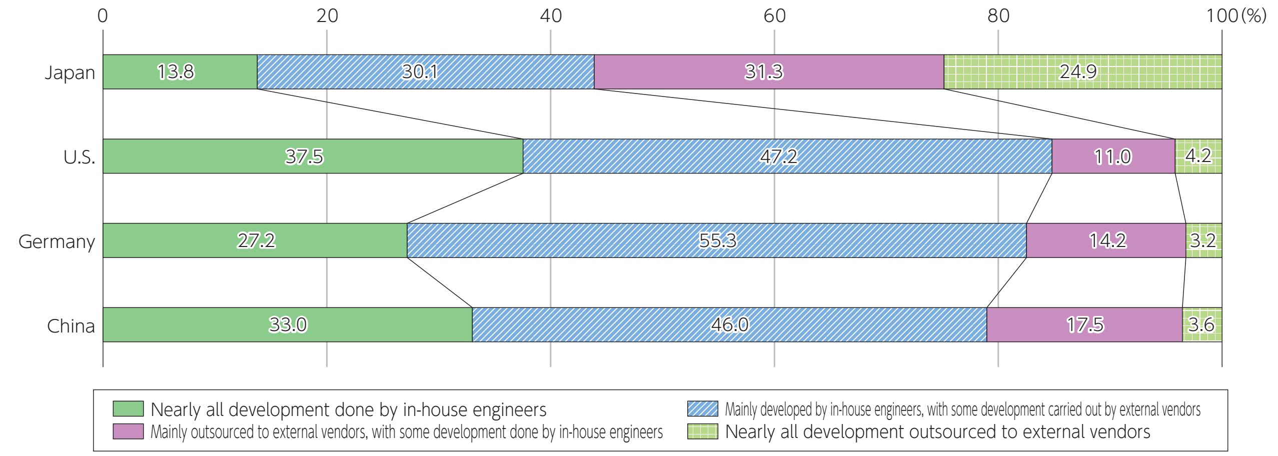
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

38. "AI/data analysis experts" in companies making use of information other than personal data



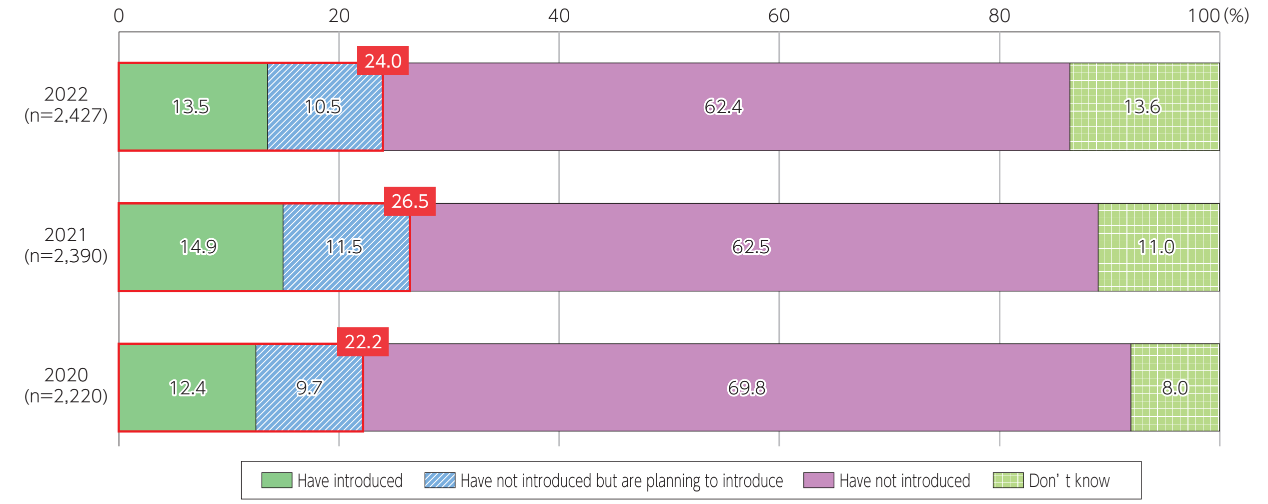
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

39. In-house development of systems (comparison by country)



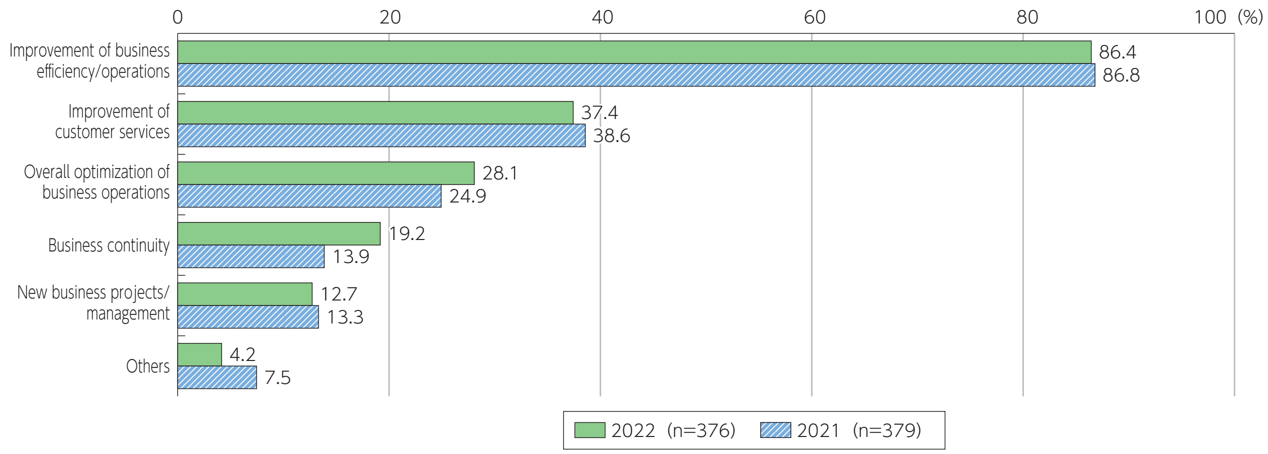
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

40. Introduction of IoT, AI, and other systems and services in enterprises



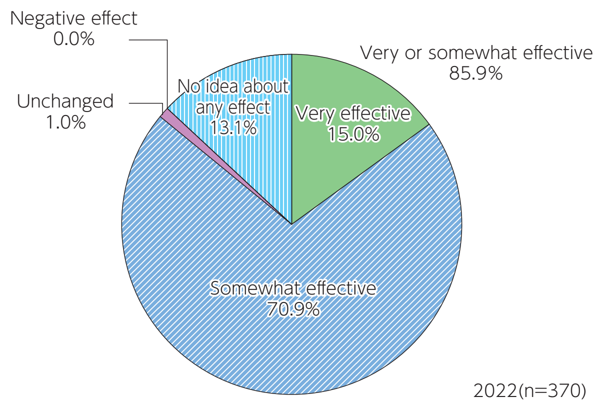
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

41. Purpose of enterprise collecting and analyzing data through IoT, AI, and other system services



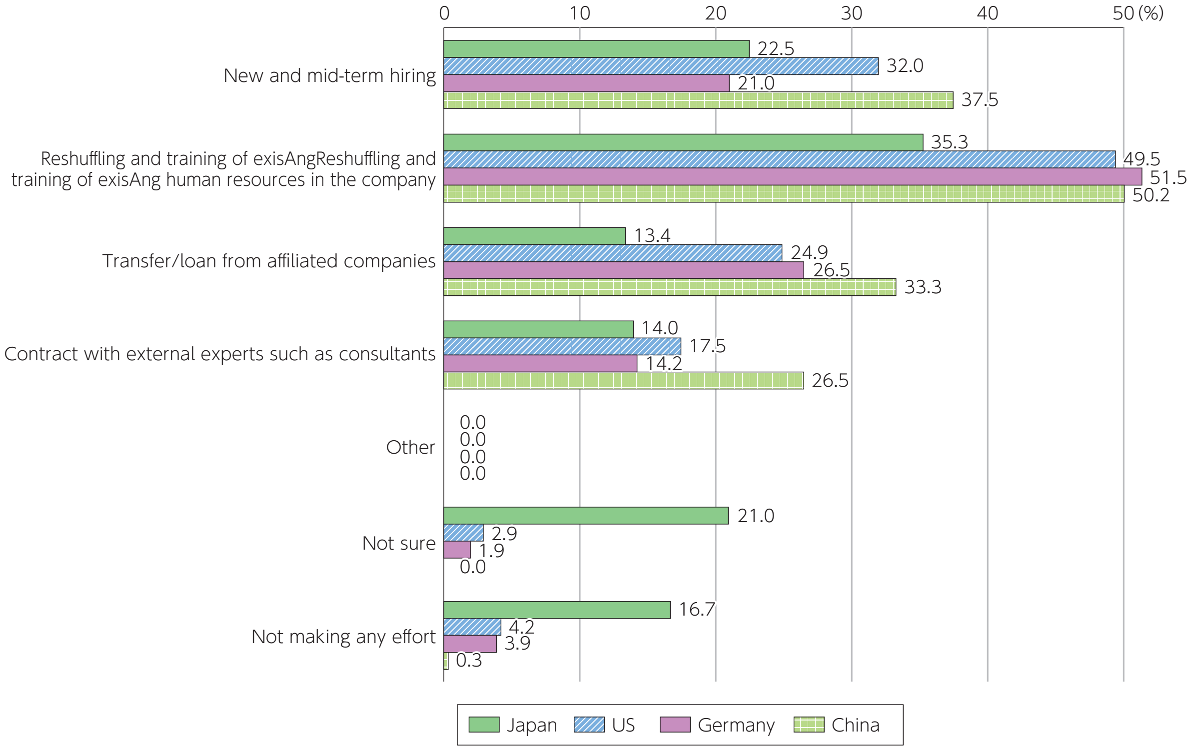
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

42. Results of introducing IoT, AI, and other systems and services in enterprises



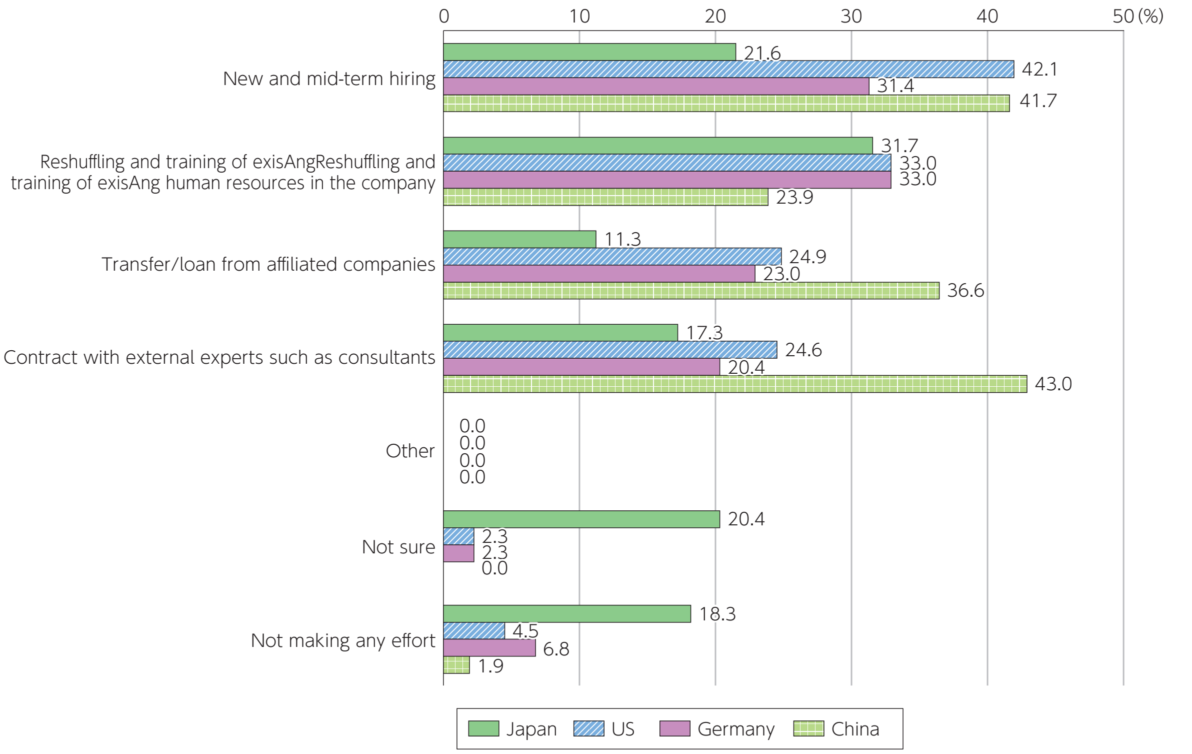
(Source) MIC, "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

43. Initiatives to secure digital human resources (by country; individuals capable of integrating digital human resources with business division personnel to build systems for DX)



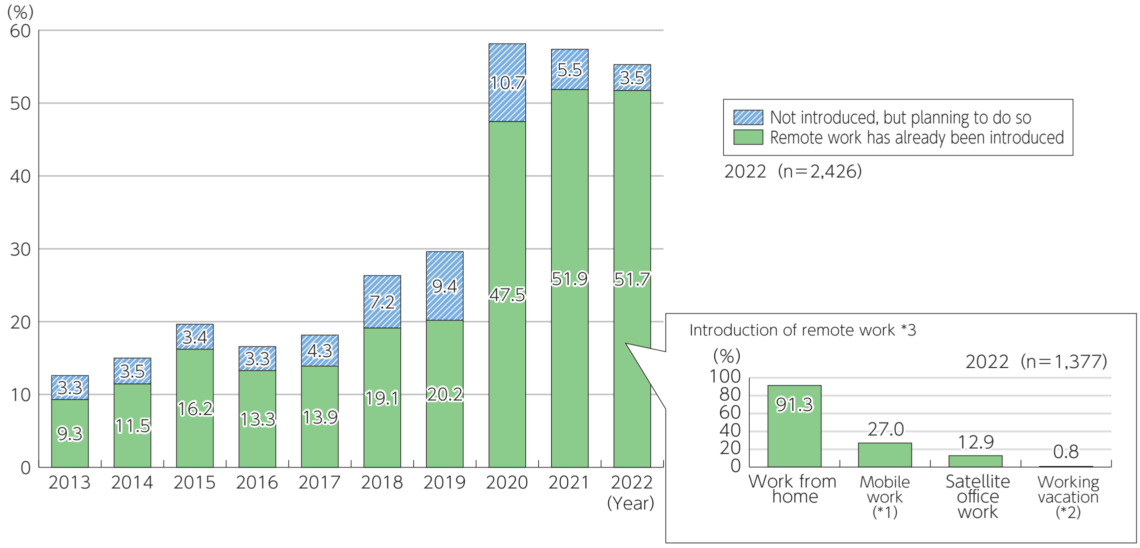
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and the Trends of Use of Digital Technologies in Japan and Abroad"

44. Initiatives to secure digital human resources (by country; AI/data analysis experts)



(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and the Trends of Use of Digital Technologies in Japan and Abroad"

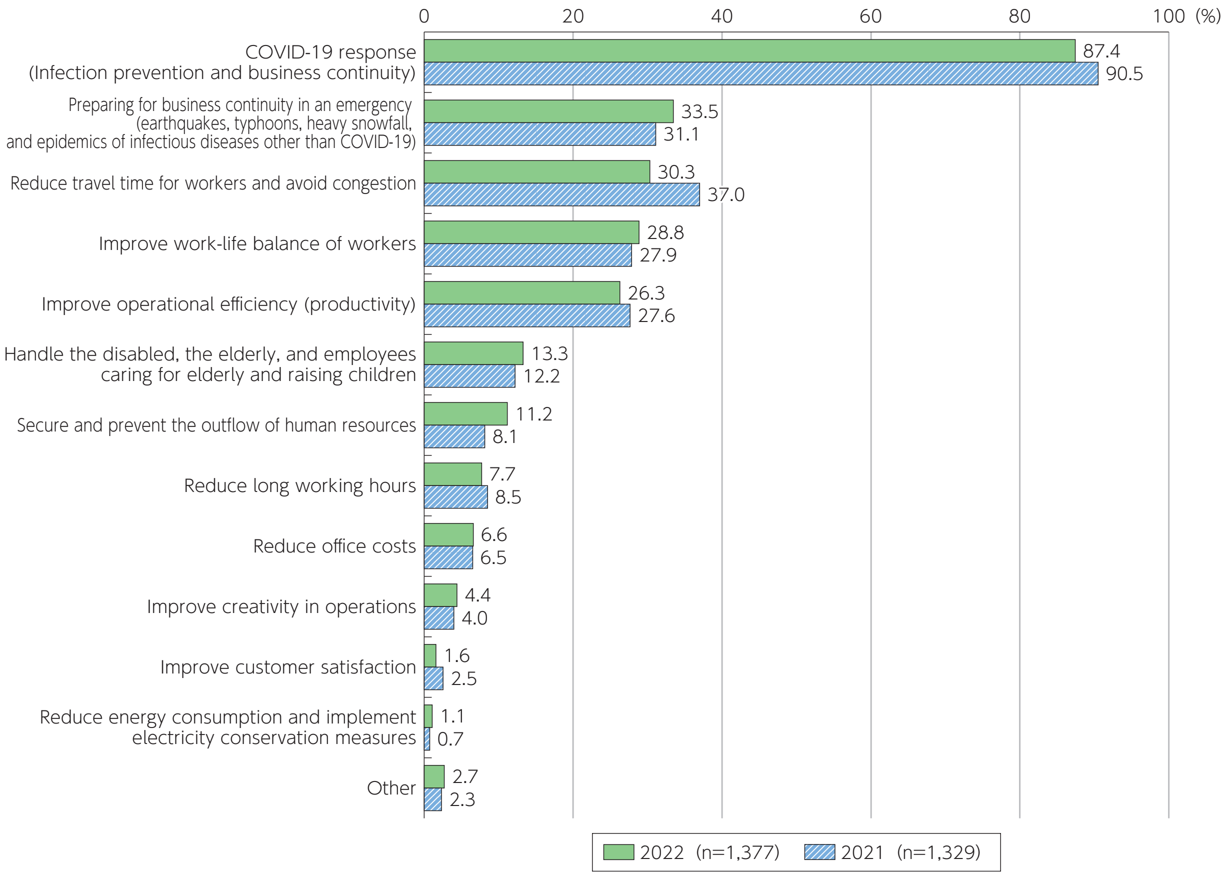
45. Changes in introducing remote work (Figure4-11-2-5 in White Paper)



* 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 the usual workplace or the home, combined with personal time.
* 3 Total includes entities that provided no response to introduction type.

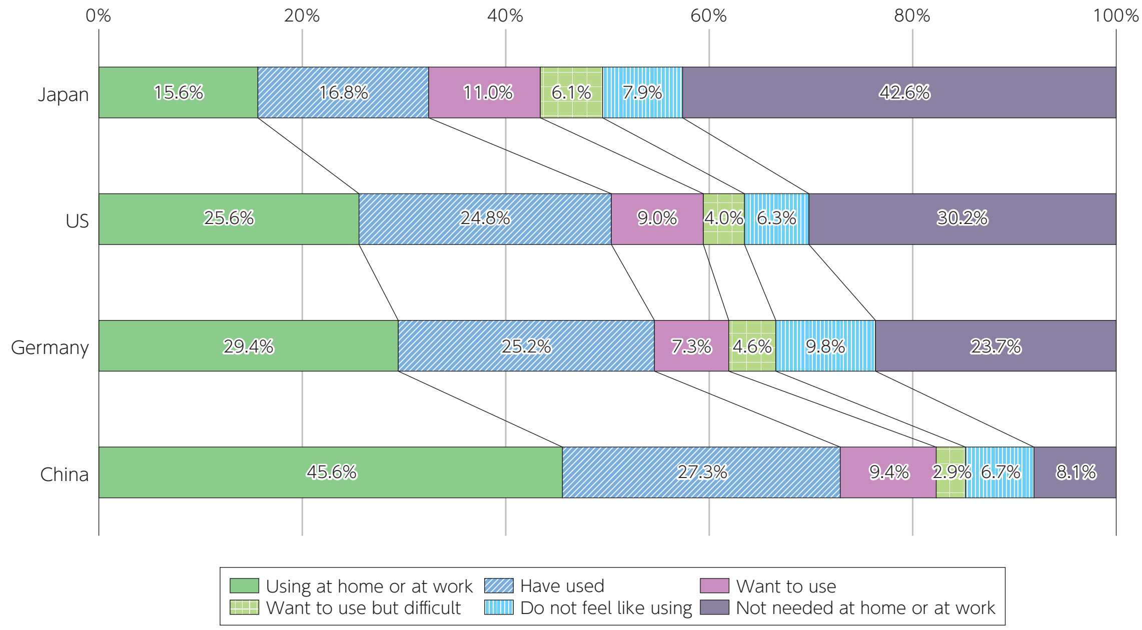
(Source) MIC "Communications Usage Trend Survey"

46. Purpose for introducing remote work (multiple answers allowed)



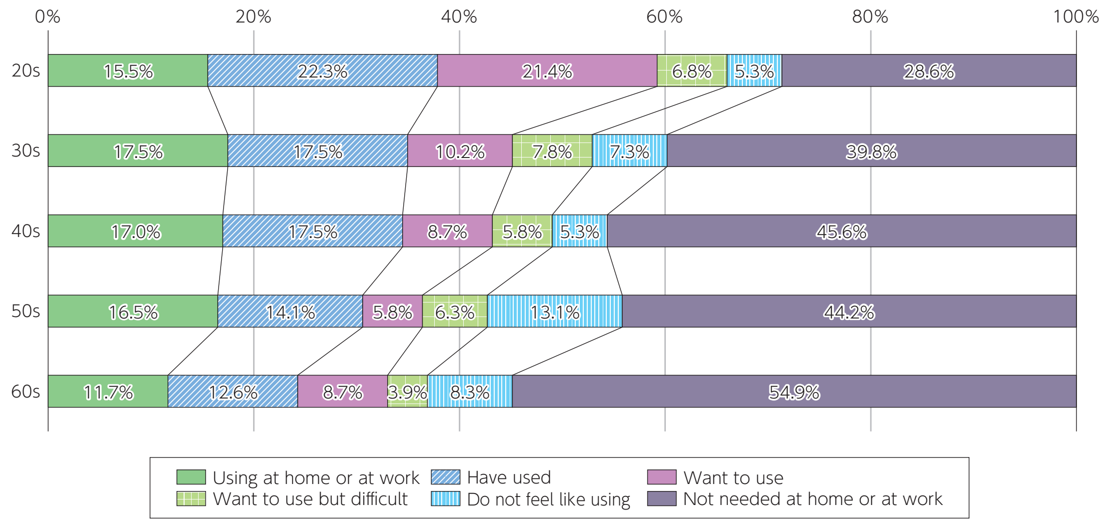
(Source) MIC "Communications Usage Trend Survey"
https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html

47. Usage of remote work and online meetings (international comparison) (Figure4-11-2-6 in White Paper)



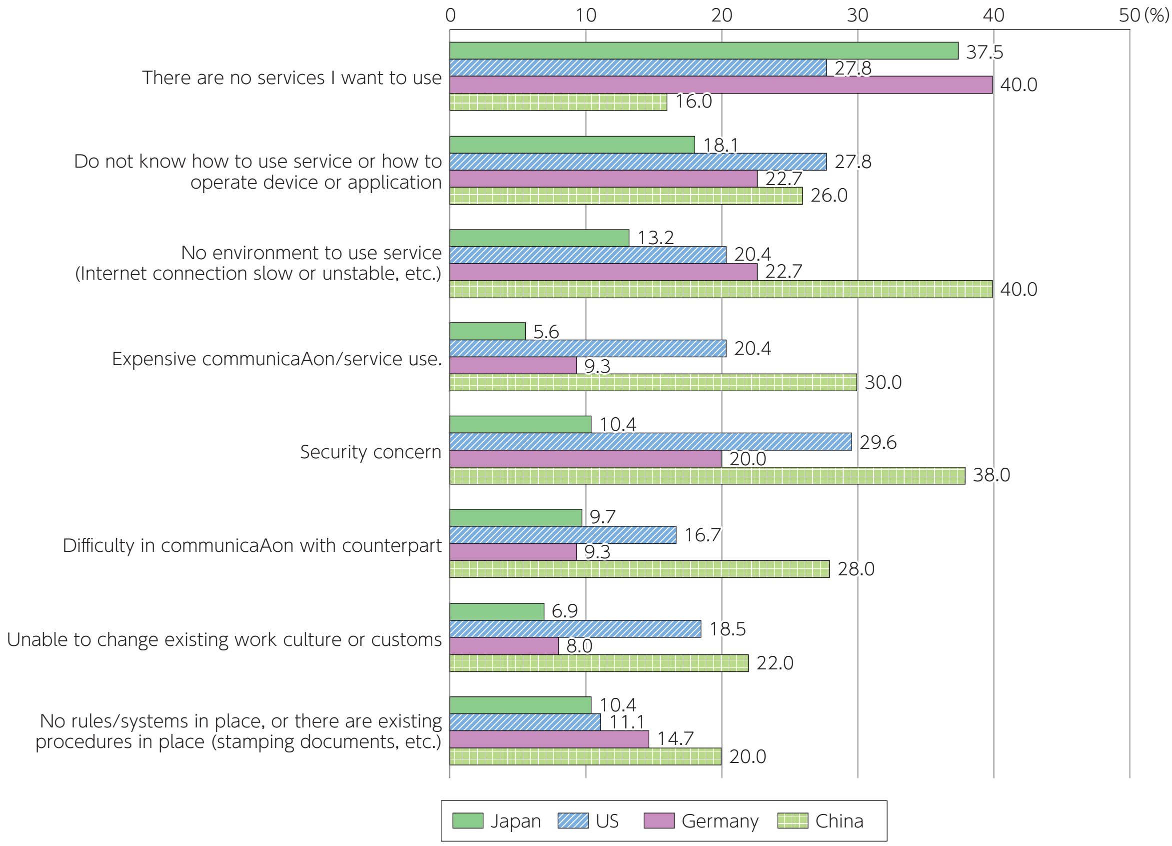
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

48. Usage of remote work and online meetings (Japan; by age) (Figure4-11-2-7 in White Paper)



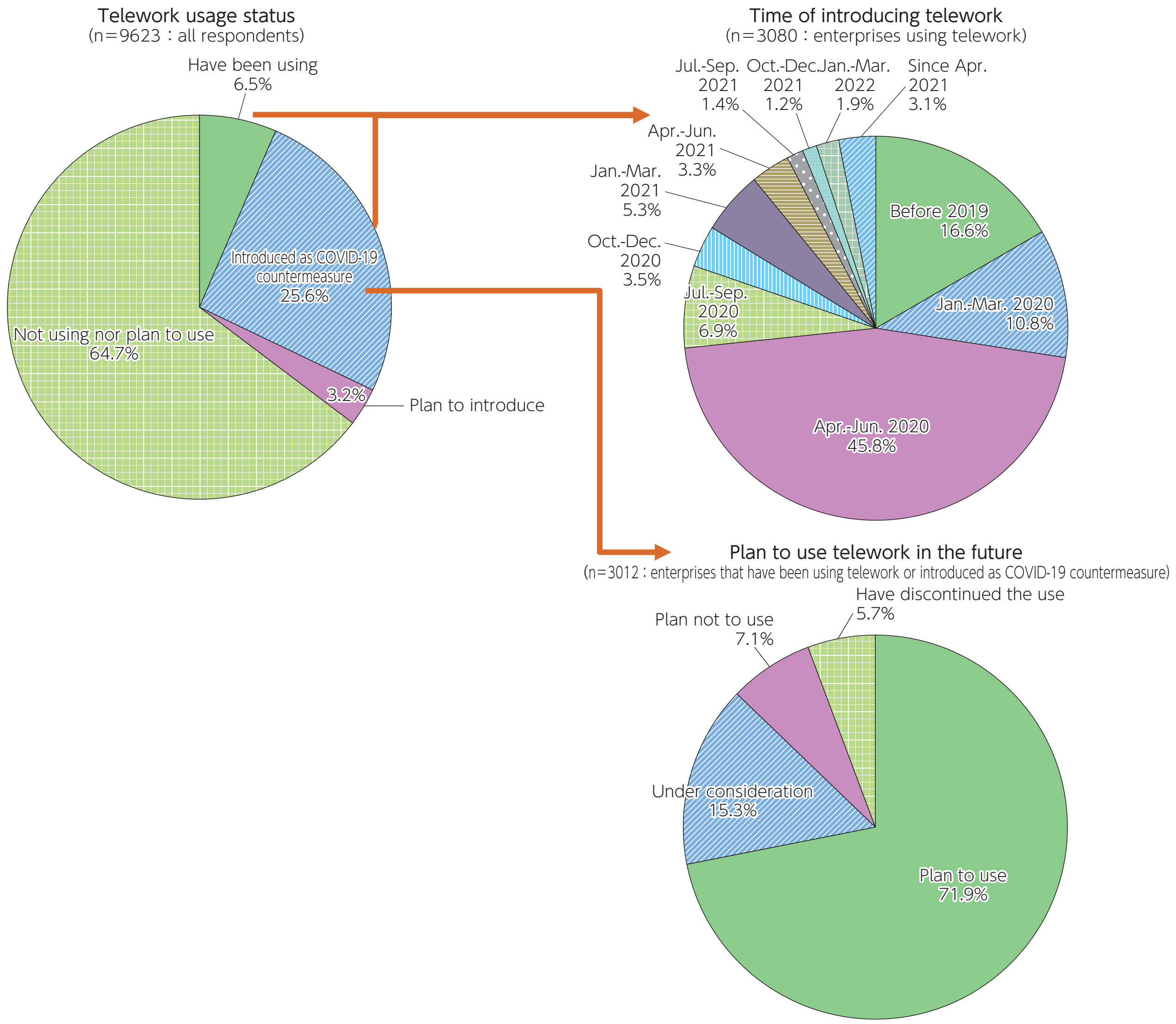
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

49. Reasons why remote work or online meetings are unavailable



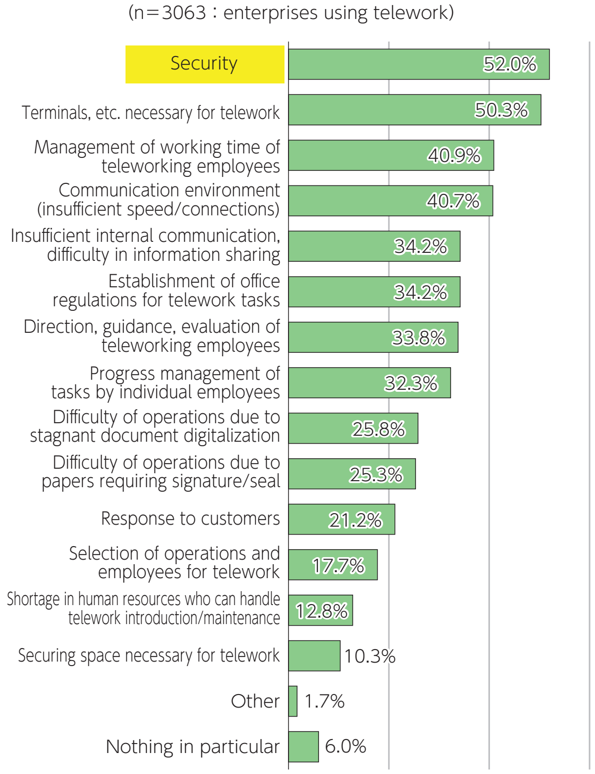
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and the Trends of Use of Digital Technologies in Japan and Abroad"

50. Telework usage status



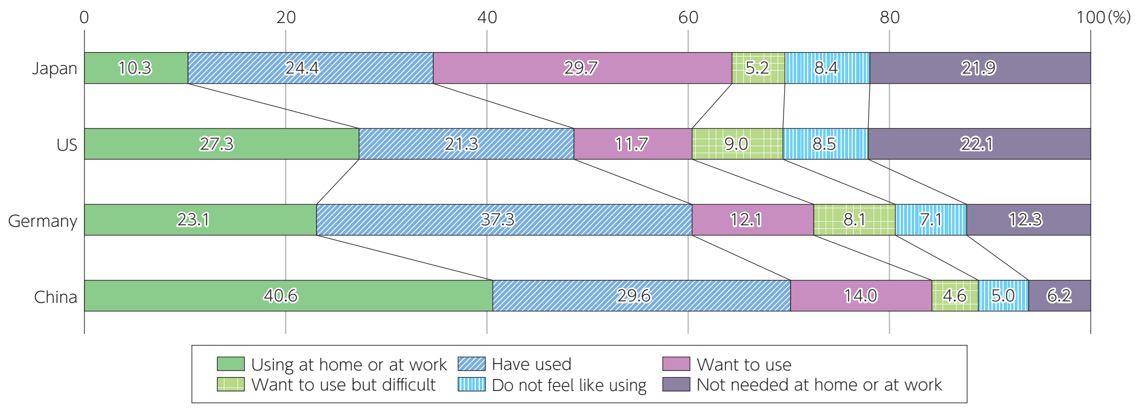
(Source) Prepared from MIC "Fiscal 2022 Result of Survey on Actual Condition of Telework Security"

51. Challenges for introducing telework (multiple answers)



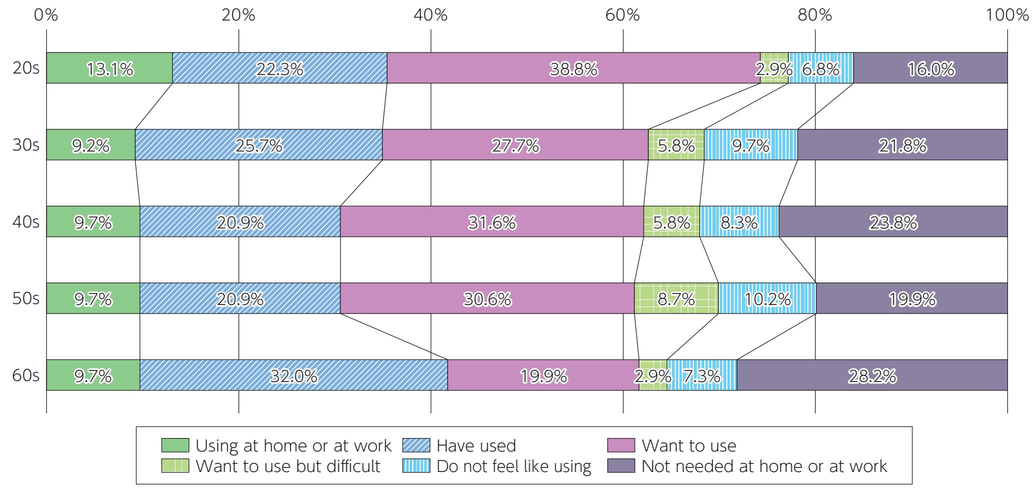
(Source) Prepared from MIC "Fiscal 2022 Result of Survey on Actual Condition of Telework Security"

52. Usage of digital administrative services (by country) (Figure4-11-3-1 in White Paper)



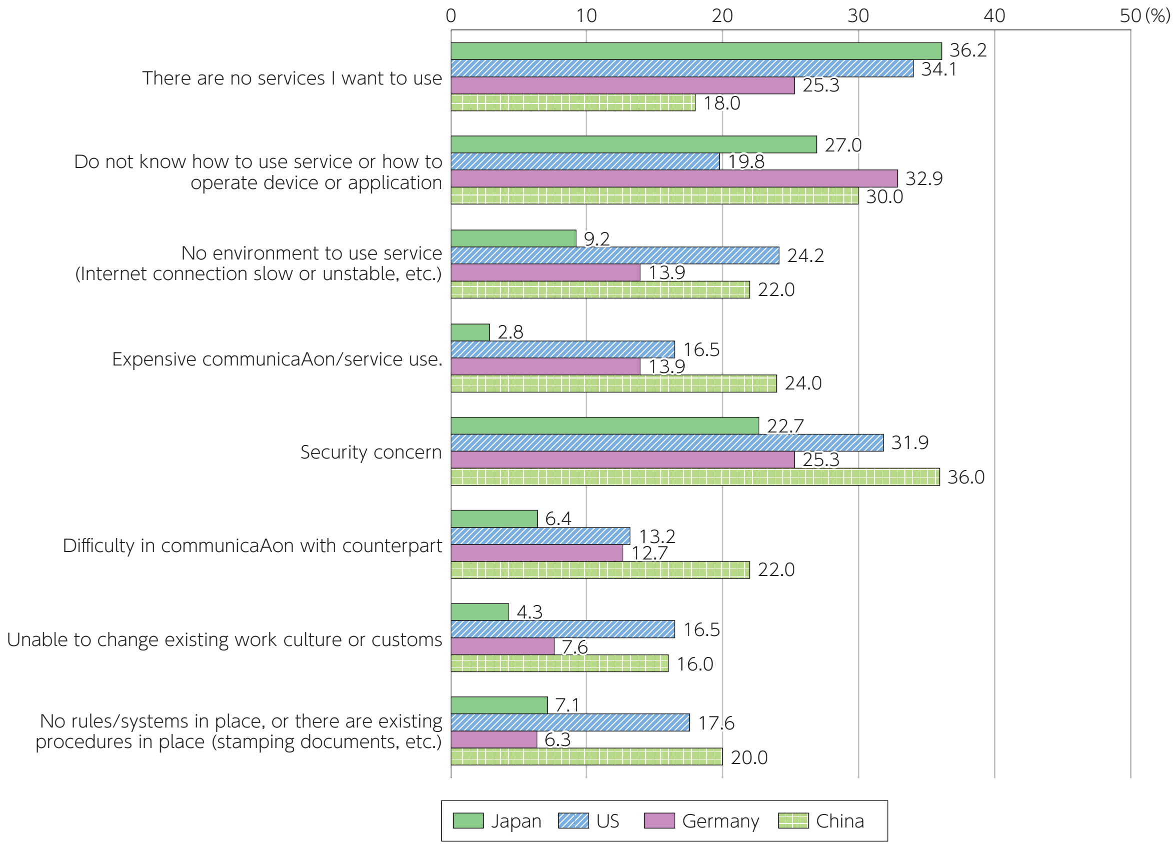
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

53. Usage of digital administrative services (Japan; by age) (Figure4-11-3-2 in White Paper)



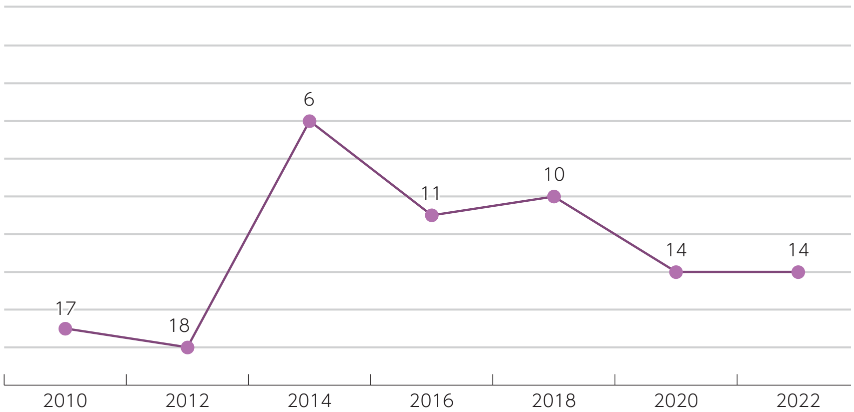
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and Trends of Use of Digital Technologies in Japan and Abroad"

54. Reason why public digital services are unavailable (by country)



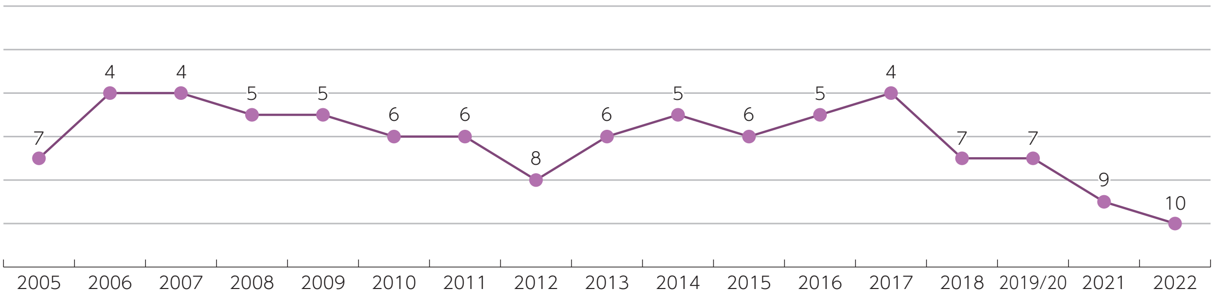
(Source) MIC (2023) "Survey Research on R&D on the Latest Information and Communications Technologies and the Trends of Use of Digital Technologies in Japan and Abroad"

55. Changes in Japan's ranking in the UN (UNDESA) "World E-Government Ranking" (Figure4-11-3-3 in White Paper)



(Source) Changes in Japan's individual indicator scores in the UN (UNDESA) "World E-Government Ranking" (data collection)

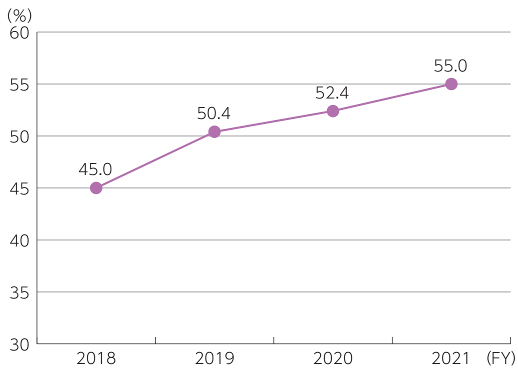
56. Changes to Japan's ranking in Waseda University's "World Digital Government Rankings"



(Source) Waseda University Institute of d-Government
https://idg-waseda.jp/ranking_jp.htm

57. Changes in online usage of 59 procedures local governments must prioritize taking online (Figure4-11-3-4 in White Paper)

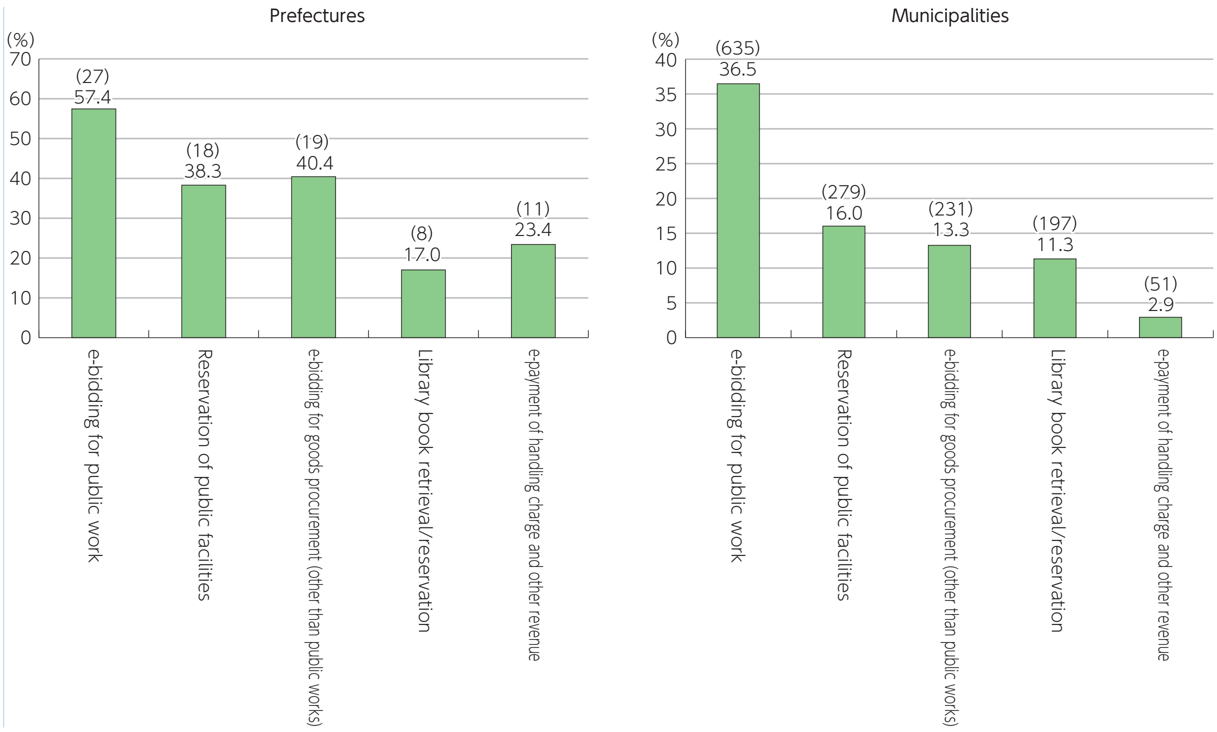
FY	Annual numver of all procedures (10,000)	Number of online use (10,000)	Online usage (%)
2018	47,749	21,507	45.0
2019	47,635	24,007	50.4
2020	47,287	24,781	52.4
2021	50,595	27,810	55.0



* 1 Online usage for fiscal 2020 and fiscal 2019 was calculated based on a resurvey of the 59 procedures that local governments should prioritize in taking procedures 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 × 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.

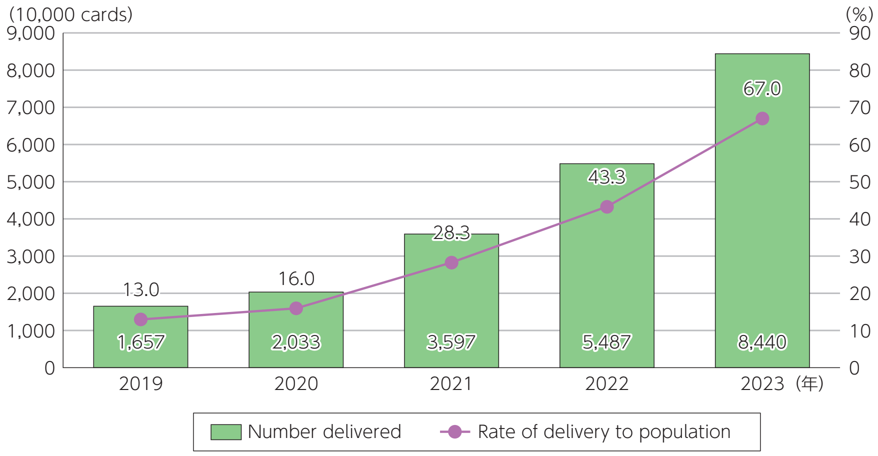
(Source) Based on MIC "Overview of Promotion of DX and Use of Information by Local Governments: Summary of Fiscal 2022 Survey on Promotion of Use of Administrative Information by Local Governments"

58. Joint use of various online systems (as of April 1, 2022)



(Source) Based on MIC "Overview of Promotion of DX and Use of Information by Local Governments: Summary of Fiscal 2022 Survey on Promotion of Use of Administrative Information by Local Governments"
https://www.soumu.go.jp/denshijiti/060213_02.html

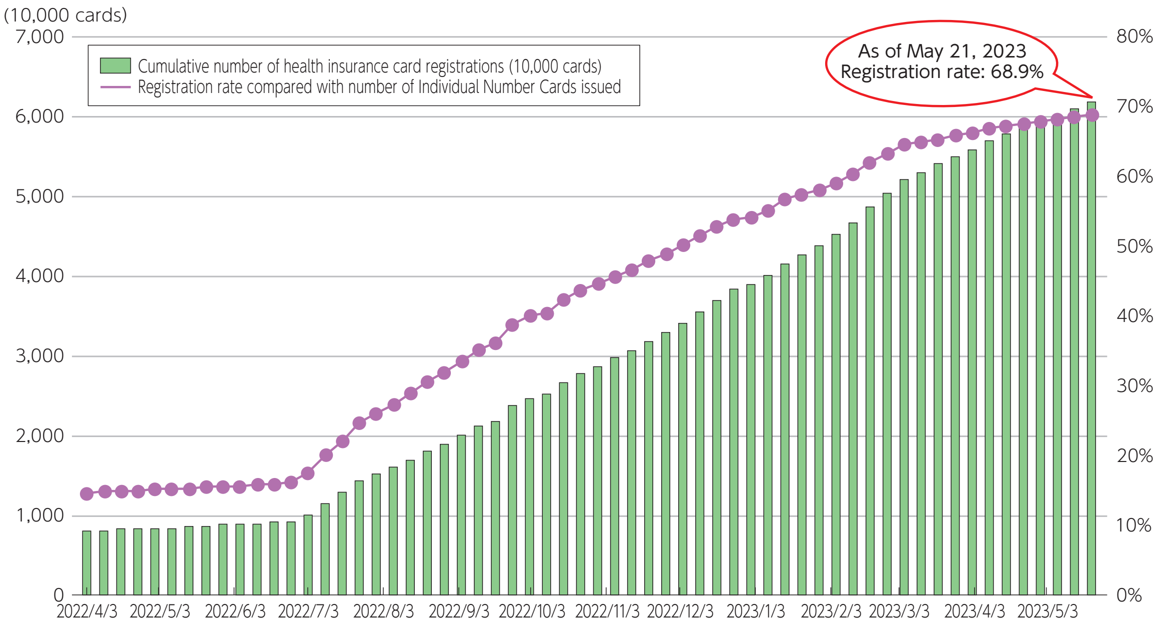
59. Individual Number Card delivery rate



* Number of tickets issued as of April 1 each year (as of March 31 for 2023)

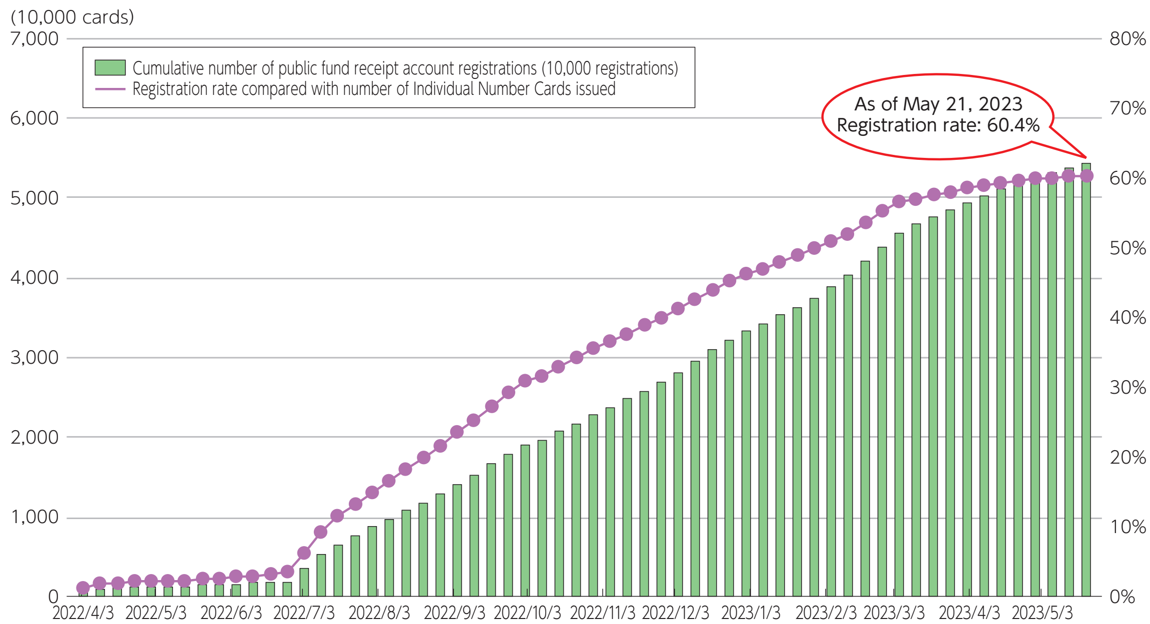
(Source) Prepared from MIC, "issuance status of Individual Number Card"

60. Changes in registrations of Individual Number Cards for use as health insurance cards



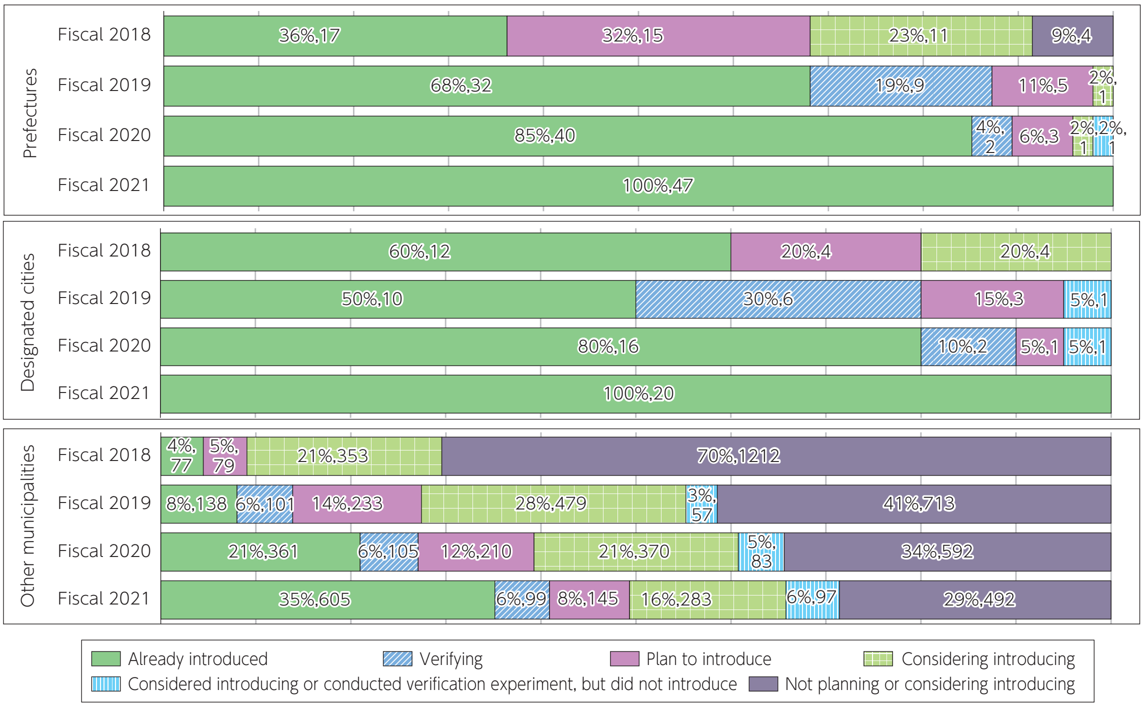
(Source) Based on Digital Agency "Policy Data Dashboard (Beta)" (data obtained May 30)
https://www.digital.go.jp/resources/govdashboard/

61. Changes in public fund receipt account registrations



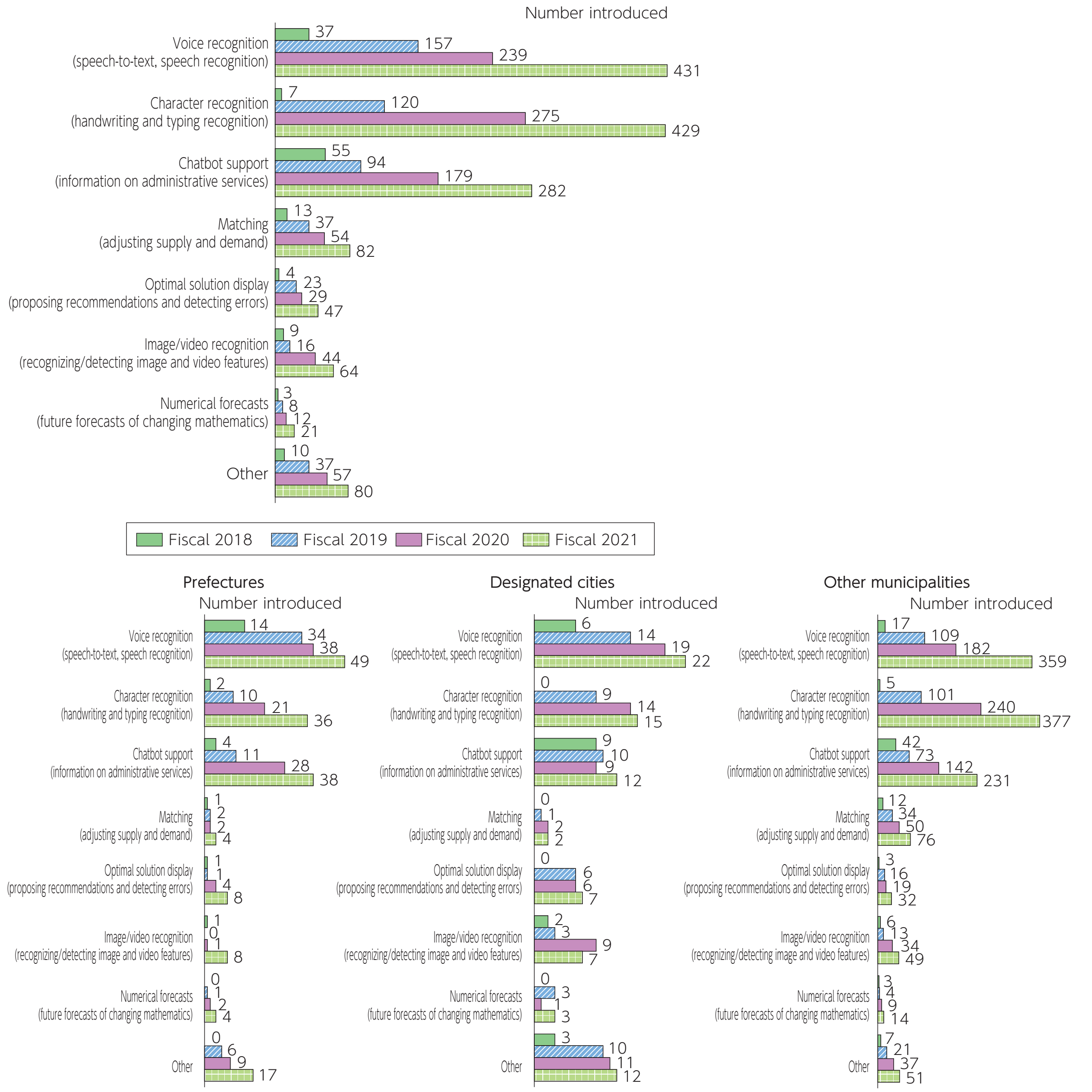
(Source) Based on Digital Agency "Policy Data Dashboard (Beta)" (data obtained May 30)
https://www.digital.go.jp/resources/govdashboard/

62. Introduction of AI in local governments (Figure4-11-3-5 in White Paper)



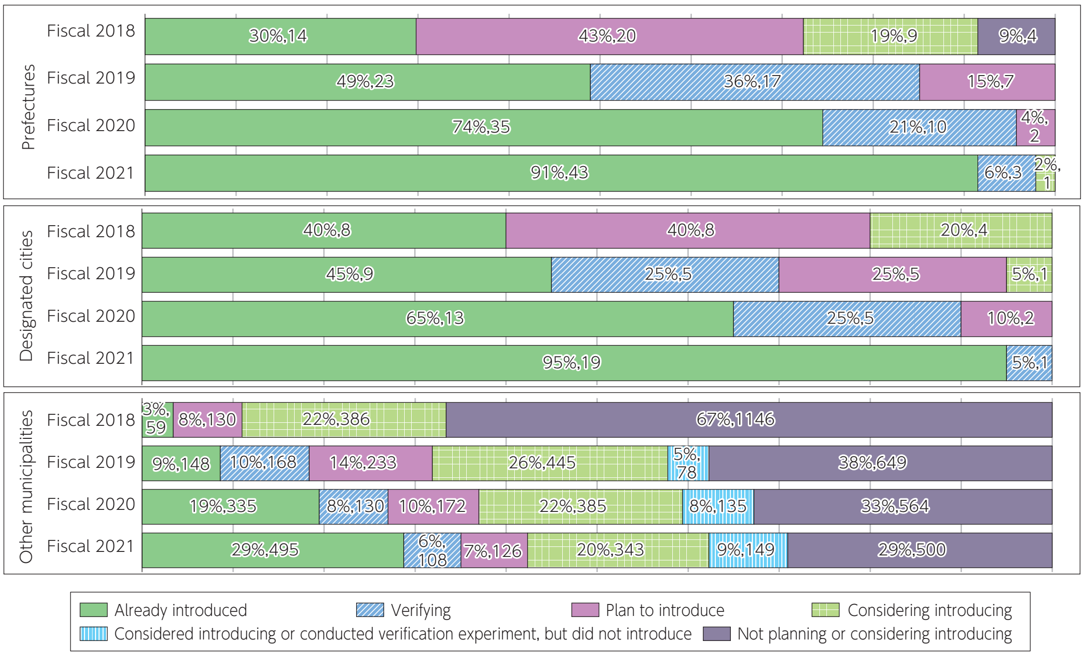
(Source) MIC "Promotion of AI/RPA Usage by Local Governments" (June 27, 2022)

63. Status of Introduction of AI in local governments (introduction by AI function)



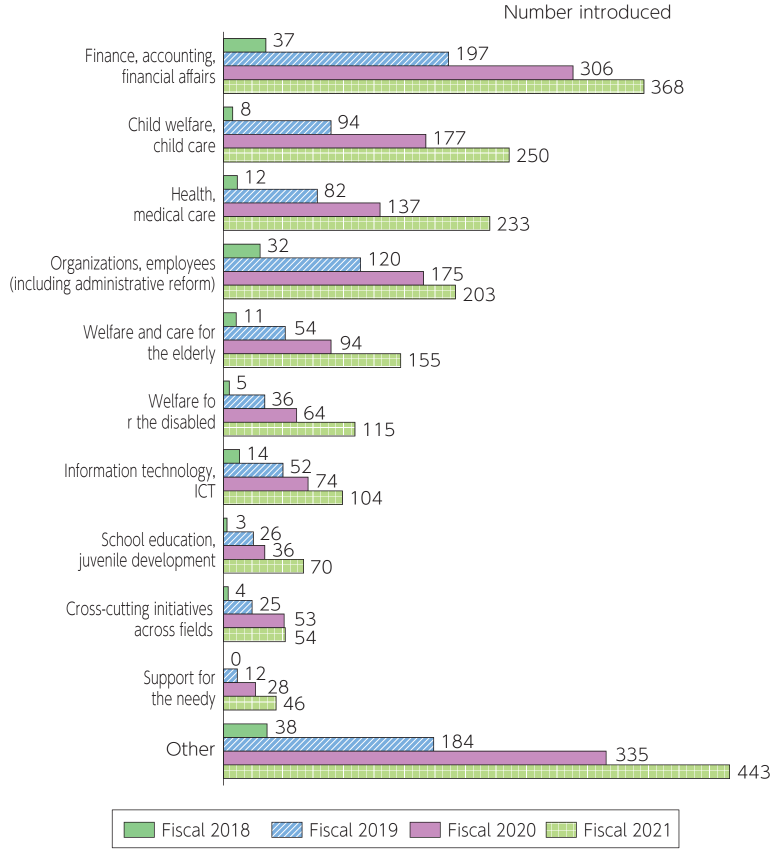
(Source) MIC "Promotion of AI/RPA Usage by Local Governments"
https://www.soumu.go.jp/main_content/000822108.pdf

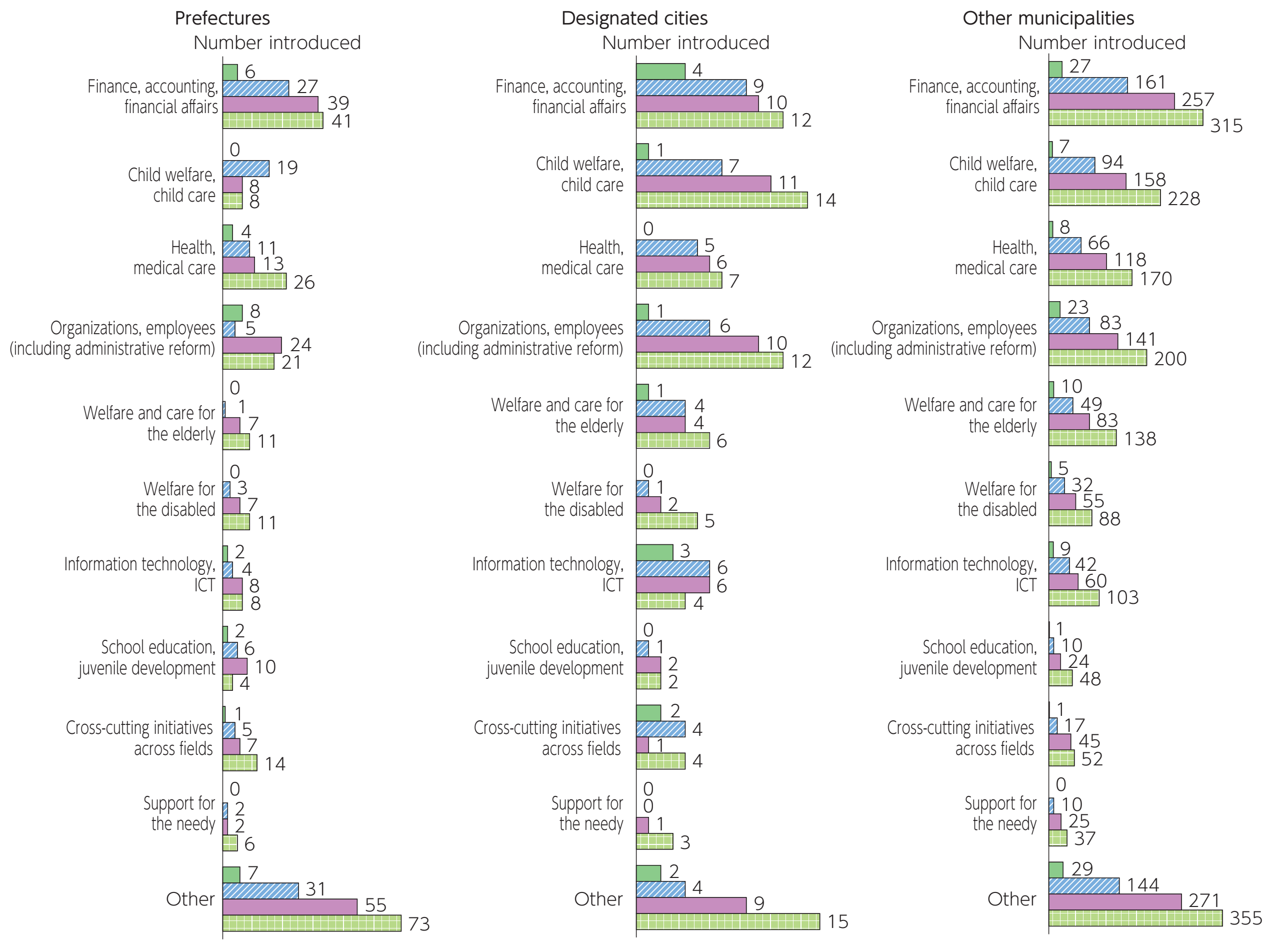
64. Status of Introduction of RPA in local governments (Figure4-11-3-6 in White Paper)



(Source) MIC "Promotion of AI/RPA Usage by Local Governments" (June 27, 2022)

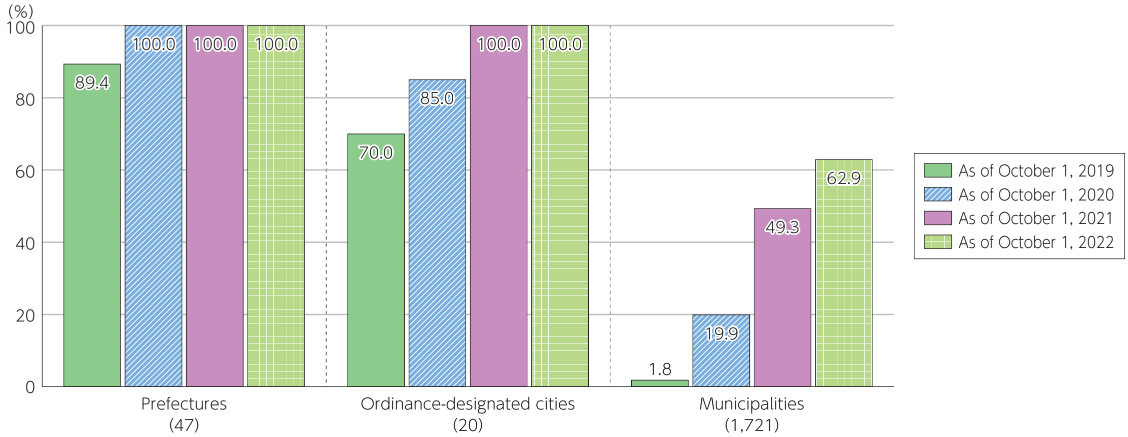
65. Status of Introduction of RPA in local governments (status of introduction by RPA field)





(Source) MIC "Promotion of AI/RPA Usage by Local Governments"
https://www.soumu.go.jp/main_content/000822108.pdf

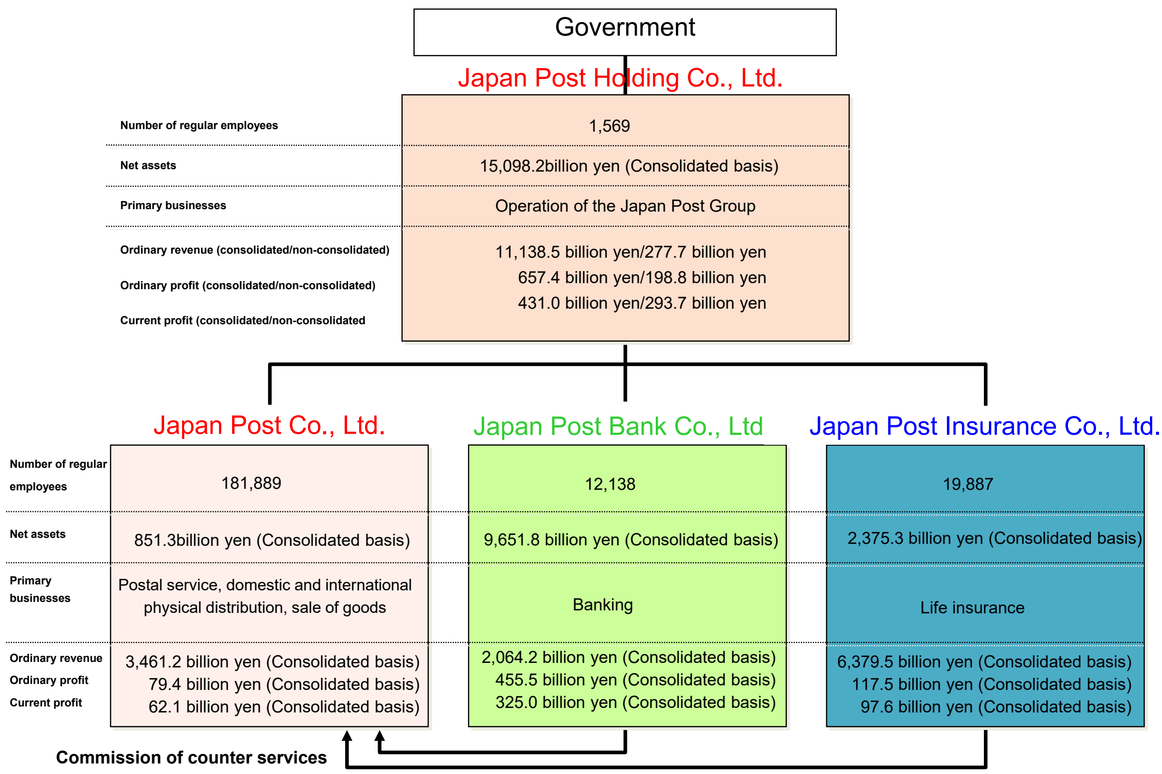
66. Status of introducing remote work by employees (Figure4-11-3-7 in White Paper)



(Source) Based on MIC "Survey on Remote Work Initiatives by Local Governments"

Section 12

1. Japan Post Group organization chart (Figure4-12-1-1 in White Paper)



* 1 Number of employees (regular employees) as of September 30, 2022.
* 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 2023 and disclosure reports (2022)

2. Japan Post Group management (Figure4-12-1-2 in White Paper)

(100 million yen)

Fiscal year	2017	2018	2019	2020	2021	2022
Ordinary revenue	129,203	127,749	119,501	117,204	112,647	111,385
Ordinary profit	9,161	8,306	8,644	9,141	9,914	6,574
Current profit	4,606	4,794	4,837	4,182	5,016	4,310

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

3. Changes in Japan Post's (consolidated) operating profit and loss (Figure4-12-1-3 in White Paper)

(100 million yen)

Fiscal year	2017	2018	2019	2020	2021	2022
Postal/physical distribution	419	1,213	1,475	1,237	1,022	328
Post office counter service	397	596	445	377	245	493
International physical distribution	102	103	△ 86	35	287	107
Japan Post (consolidated)	865	1,820	1,790	1,550	1,482	837

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

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

4. Postal service income and expenditures

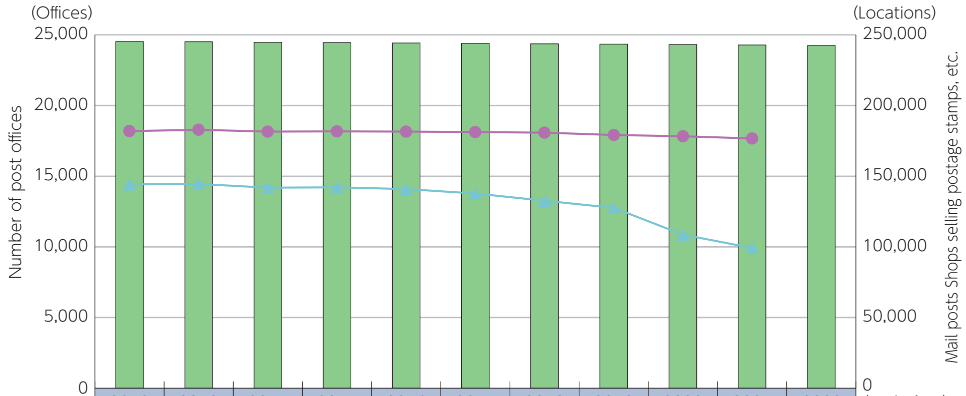
(100 million yen)

FY	2016	2017	2018	2019	2020	2021
Operating profit	128	242	455	376	240	78

* Balance of the postal service of Japan Post Co., Ltd.

(Source) Based on Japan Post Co., Ltd. "Postal Service Income and Expenditures"

5. Changes in the number of facilities related to postal services (Figure4-12-1-4 in White Paper)



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Post offices	24,525	24,511	24,470	24,452	24,421	24,395	24,367	24,341	24,311	24,284	24,251
Mail posts	181,895	182,839	181,521	181,692	181,523	181,221	180774	179,129	178,211	176,683	—
Shops selling postage stamps, etc. and places selling stamps	144,153	144,504	141,888	142,104	140,881	137,790	132613	127,633	108,624	99,244	—

* "Simple post office" refers to post offices operating based on a contract.
* "Currently closed post office" refers to post offices temporarily closed and suspending counter services.
* 28 of the 86 "directly managed post offices" of "currently closed post offices" are temporarily closed due to the impact of the Great East Japan Earthquake.
* 10 of the 520 "simple post offices" of "currently closed post offices" are temporarily closed due to the impact of the Great East Japan Earthquake.

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

6. Breakdown of the number of post offices (end of fiscal 2022)

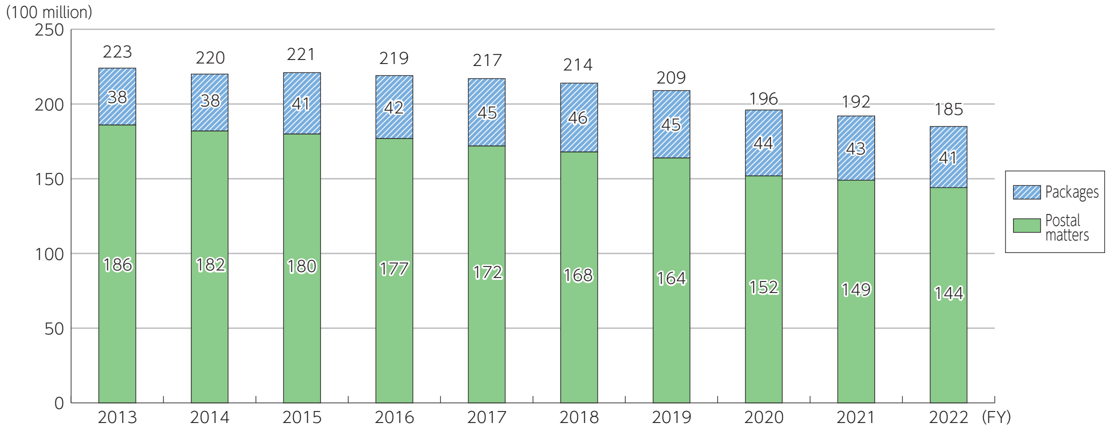
(Unit: offices)

Post offices in operation				Currently closed post offices				Total
Directly managed post offices		Simple post office	Subtotal	Directly managed post offices		Simple post office	Subtotal	
Post offices	Branch offices			Post offices	Branch offices			
20,049	7	3,589	23,645	85	1	520	606	24,251

* "Simple post office" refers to post offices operating based on a contract.
* "Currently closed post office" refers to post offices temporarily closed and suspending counter services.
* 28 of the 86 "directly managed post offices" of "currently closed post offices" are temporarily closed due to the impact of the Great East Japan Earthquake.
* 10 of the 520 "simple post offices" of "currently closed post offices" are temporarily closed due to the impact of the Great East Japan Earthquake.

(Source) Prepared from Japan Post Co., Ltd. Website, "Information on the number of postal offices (open data)"
https://www.post.japanpost.jp/notification/storeinformation/index02.html

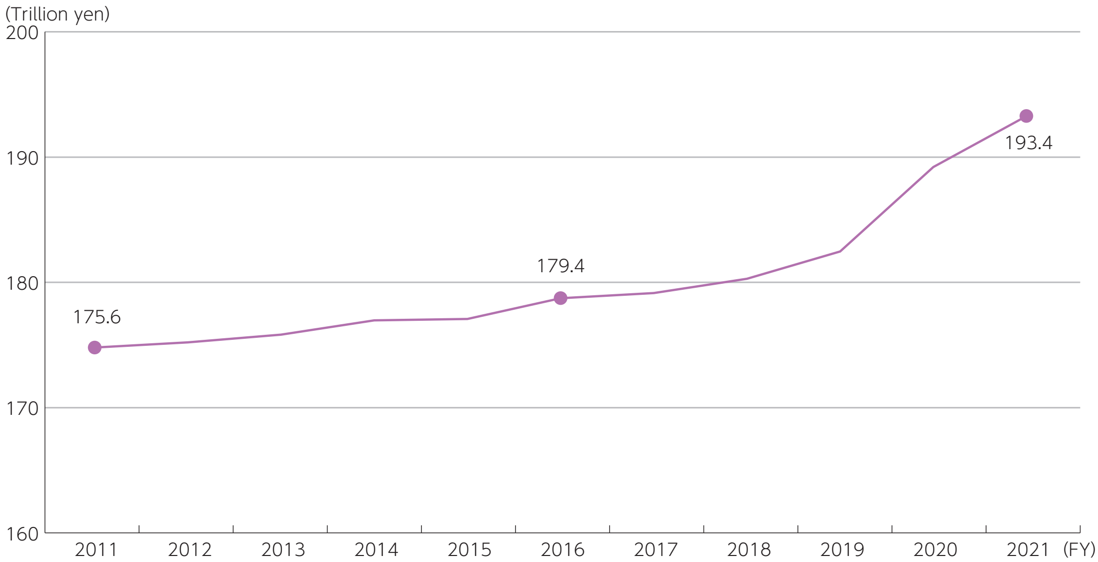
7. Changes in the total number of postal items accepted (Figure4-12-1-5 in White Paper)



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

(Source) Based on Japan Post "Number of Postal Items Accepted" material released each fiscal year

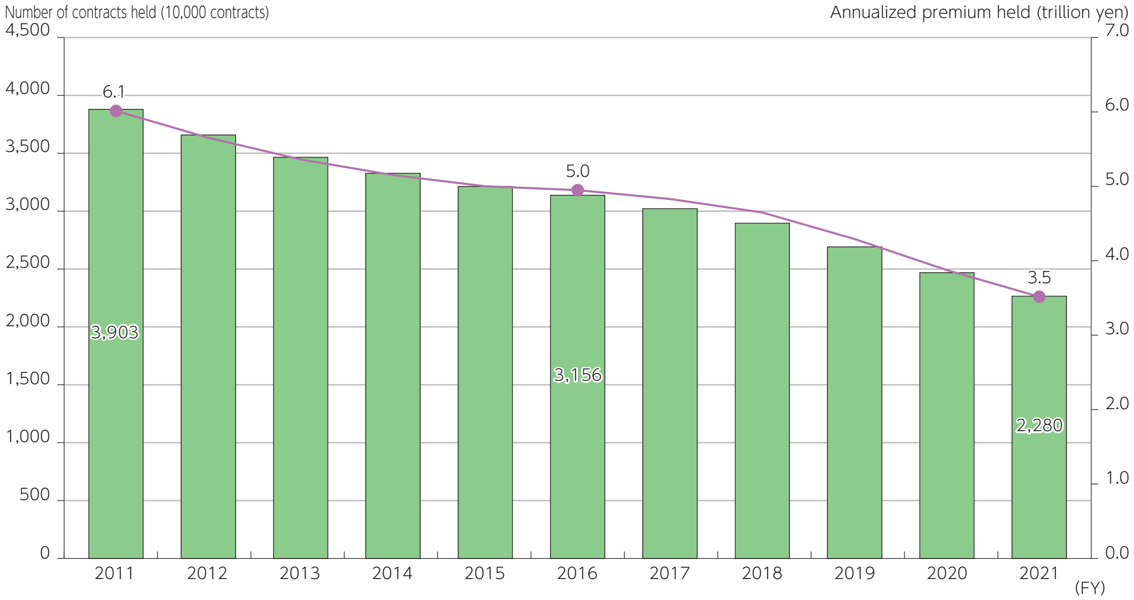
8. Changes in the balance of deposits of Japan Post Bank (Figure4-12-1-6 in White Paper)



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

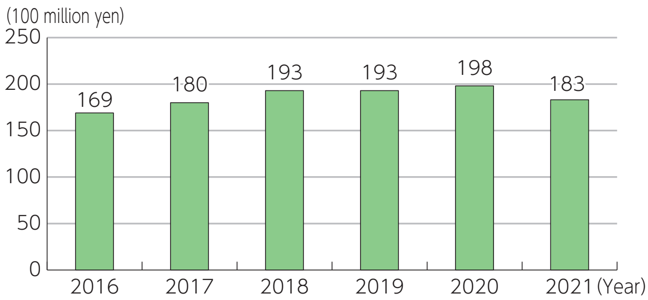
(Source) Based on Japan Post Bank Securities Report

9. Changes in the number of insurance contracts and annualized premiums for Japan Post Insurance (Figure4-12-1-7 in White Paper)



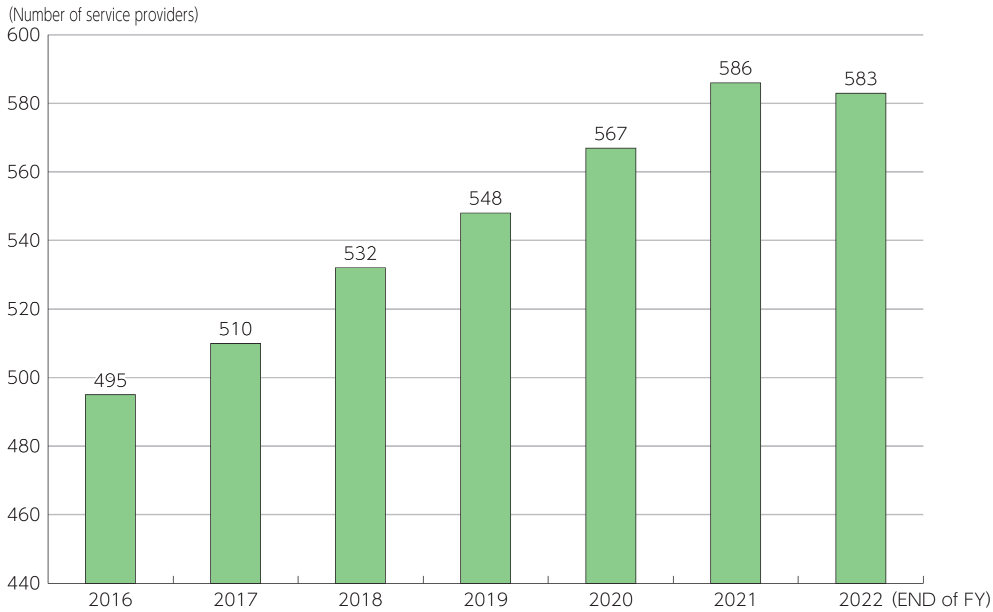
(Source) Based on Japan Post Insurance Securities Report

10. Changes in correspondence delivery service operator sales (Figure4-12-2-1 in White Paper)



11. Changes in the number of specified correspondence delivery service providers

(year)	2016	2017	2018	2019	2020	2021	2022
Number of service providers	495	510	532	548	567	586	583



12. Changes in the number of business operators by type of service (specified correspondence delivery service)

"(Unit: business operators)

(End of FY)	2015	2016	2017	2018	2019	2020	2021	2022
Class 1 Service	412	436	449	467	482	500	519	521
Class 2 Service	112	113	112	110	108	107	104	98
Class 3 Service	245	262	268	283	291	298	308	302

* The numbers do not agree with the number of the businesses who entered the market because some of them provide more than two types of services.
- Class 1 Service: delivery of correspondence mail whose sum of the length, width and height is over 73cm or whose weight is over 4kg
- Class 2 Service: delivery of correspondence mail within 3 hours from the time of its receipt
- Class 3 Service: delivery of correspondence mail the postage of which exceed 800 yen in Japan

13. Changes in the number of correspondences accepted