PRESS RELEASE

"Communications Usage Trend Survey" in 2017 Compiled

> The Ministry of Internal Affairs and Communications (MIC, Japan) has compiled its Communications Usage Trend Survey, a survey of the communication services usage by households and businesses at the end of September 2017.
>
> For the highlights and an outline of the survey, please see Attachment 1 and Attachment 2, respectively. Details of the survey will be posted on the website for the MIC's Information & Communications Statistics Database and released in a machine-readable data format (CSV format).
>
> (URL: http://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html)

[Highlights of the Survey]

(i) Of the Individuals, the Internet usage by device indicates that smartphones (54.2%) replaced computers (48.7%) as the most frequently used device for Internet access.

(ii) Of the businesses, more than 50 percent used cloud computing services.

(iii) The combined percentage of Internet users aged 12 or more who "feel concerned" and "feel rather concerned" during Internet use increased to 68.3% from 2016 (61.6%).

[Survey Outline]

MIC has conducted the Communications Usage Trend Survey annually since 1990, targeting households (households and household members) and businesses, as a general statistics survey in accordance with the Statistics Act (Act No. 53 of 2007). (Business surveys have been conducted each year since 1993, except for 1994. Surveys of household members started in 2001.)

MIC also has conducted the household survey by prefecture since 2010.

	Households*	Businesses
Survey period	November – December 2017	
Survey area	Nationwide	
Scope of attributes / Level of survey	Households headed by someone aged 20 or older (as of April 1, 2017) and household members aged 6 or older	Businesses with 100 or more regular employees in industries other than public affairs
Sample size [Effective mails]	40,592 [39,174]	7,257 [6,034]
Effective responses [%]	16,117 households (41,752 persons) [41.1%]	2,592 businesses [43.0%]
Survey items	Communication services usage, communication-device ownership, etc.	
Survey method	Survey form sent and collected by postal mail or online (email)	

*In the household survey portion of the Communications Usage Trend Survey in 2017, a simplified survey form covering a limited range of items was used in addition to the existing survey form in order to improve the survey recovery rate.

The recovery status concerning each of the survey forms is as follows:

Survey form version	Sample size [Effective mails]	Effective responses [%]
Existing version	6,608 [6,331]	2,350 households (6,044 persons) [37.1%]
Simplified version	33,984 [32,843]	13,767 households (35,708 persons) [41.9%]

Contact information
　　Economic Research Office,
　　Information and Communications Bureau, MIC
　　Tel.: +81-3-5253-5744 / Fax: +81-3-5253-6041

Highlights of the Communications Usage Trend Survey in 2017

Note: Household survey items are indicated with (households) in the title, business survey items with (businesses) in the title, and household members survey items with (individuals) in the title.

Note: Non-responses were excluded except in the graphs of "Transitions in ownership of communication devices (households)" in Page 3.

Internet usage by age group (individuals)

Internet users account for more than 90% of people aged between 13 and 59.

Age group	Percentage
6-12	73.6
13-19	96.9
20-29	98.7
30-39	97.8
40-49	96.8
50-59	92.4
60-69	73.9
70-79	46.7
80 or older	20.1

2017
(n=38,630)
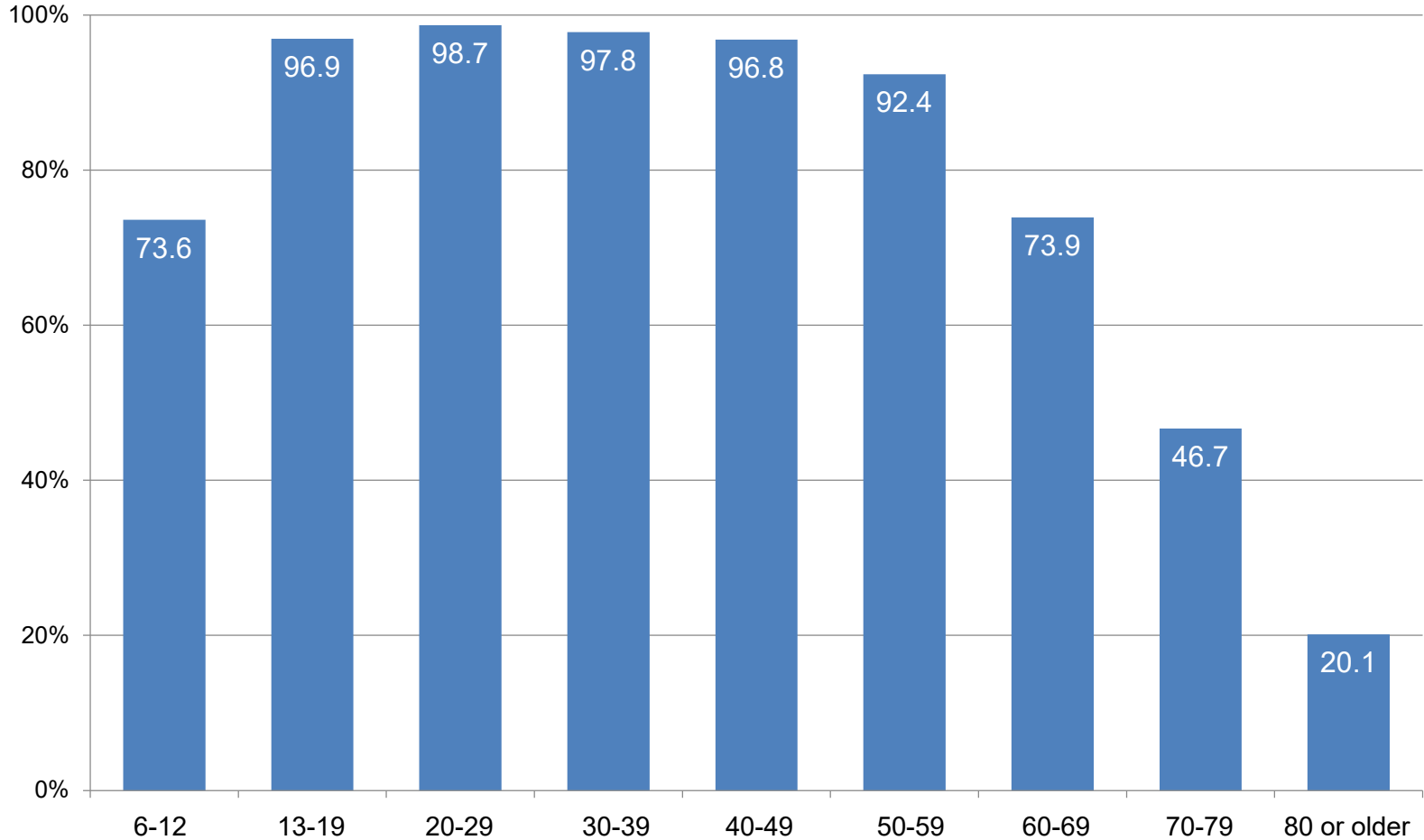
Smartphones are used more frequently than computers for Internet access.
However, a breakdown by age group indicates that computers are used more frequently than smartphones among people aged 60 or more.
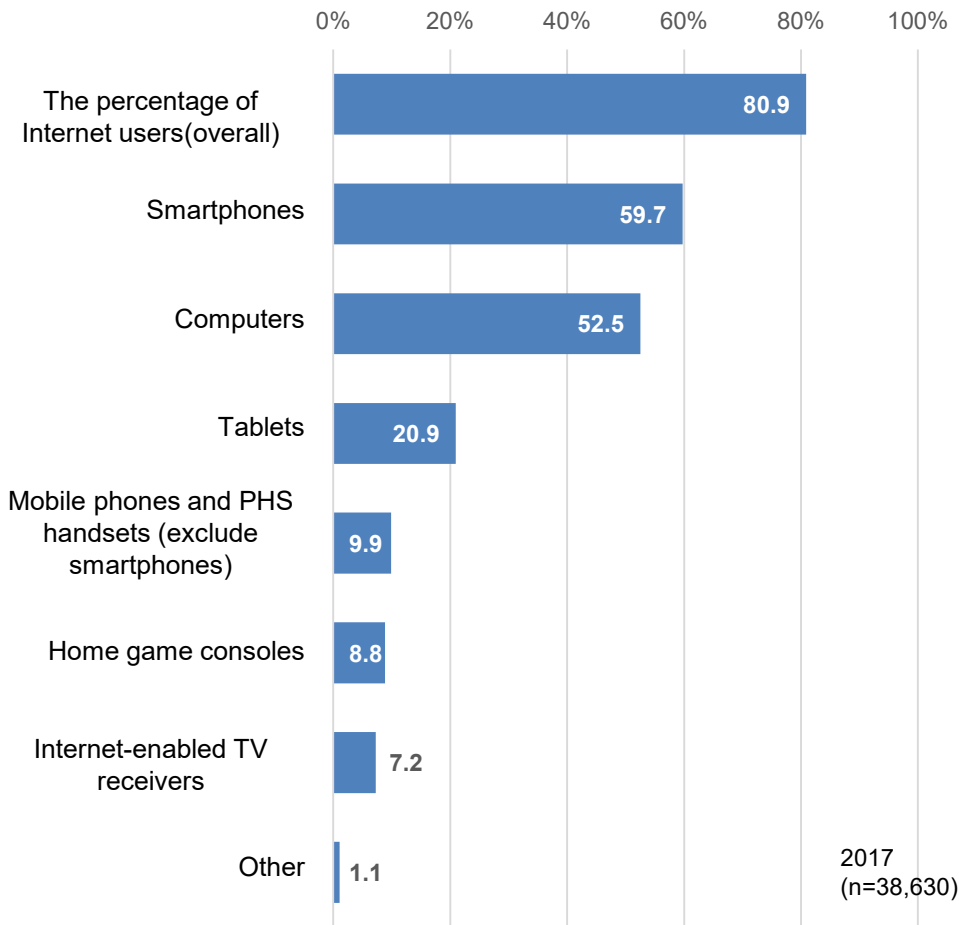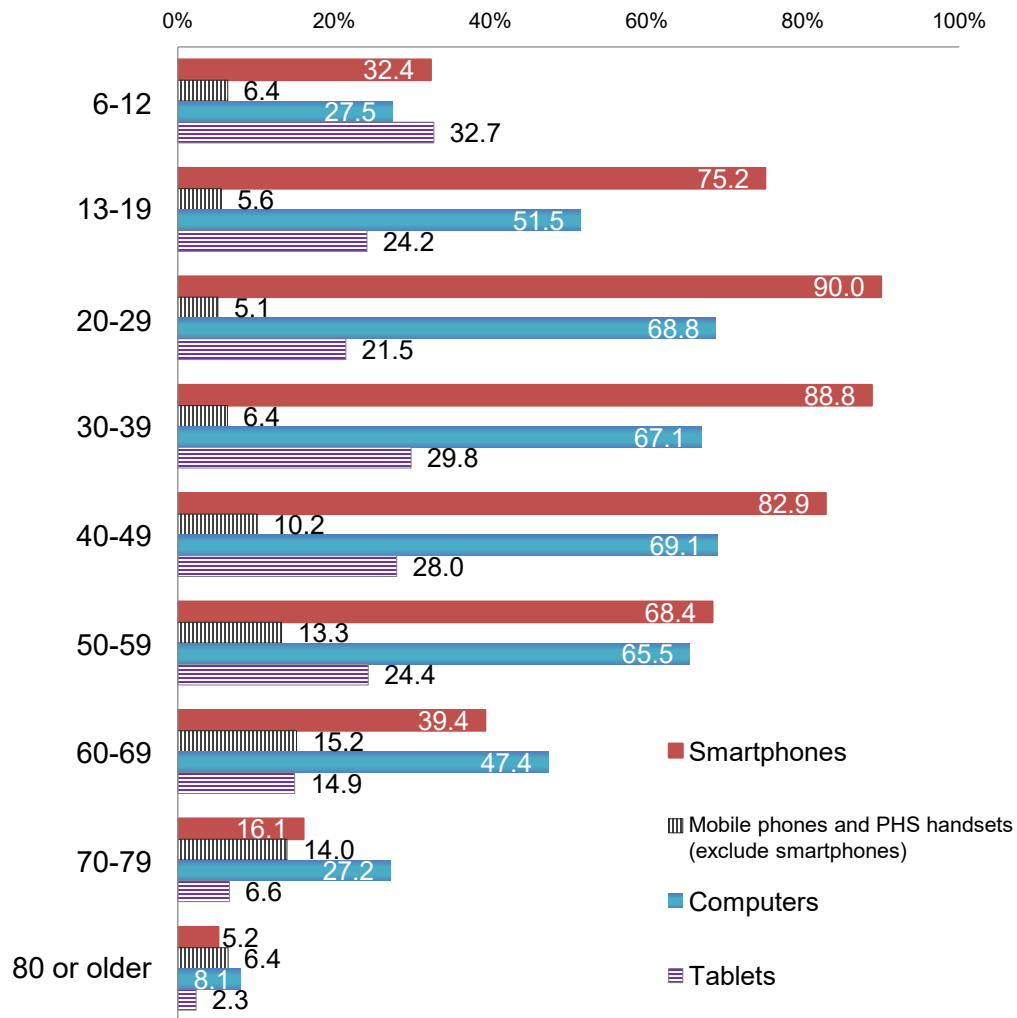
Usage of Internet access devices (individuals)

Device	Percentage
The percentage of Internet users(overall)	80.9
Smartphones	59.7
Computers	52.5
Tablets	20.9
Mobile phones and PHS handsets (exclude smartphones)	9.9
Home game consoles	8.8
Internet-enabled TV receivers	7.2
Other	1.1

2017 (n=38,630)

Usage of Internet access devices by age group (individuals)

Age group	Smartphones	Mobile phones and PHS handsets (exclude smartphones)	Computers	Tablets
6-12	32.4	6.4	27.5	32.7
13-19	75.2	5.6	51.5	24.2
20-29	90.0	5.1	68.8	21.5
30-39	88.8	6.4	67.1	29.8
40-49	82.9	10.2	69.1	28.0
50-59	68.4	13.3	65.5	24.4
60-69	39.4	15.2	47.4	14.9
70-79	16.1	14.0	27.2	6.6
80 or older	5.2	6.4	8.1	2.3

Legend:
- Smartphones
- Mobile phones and PHS handsets (exclude smartphones)
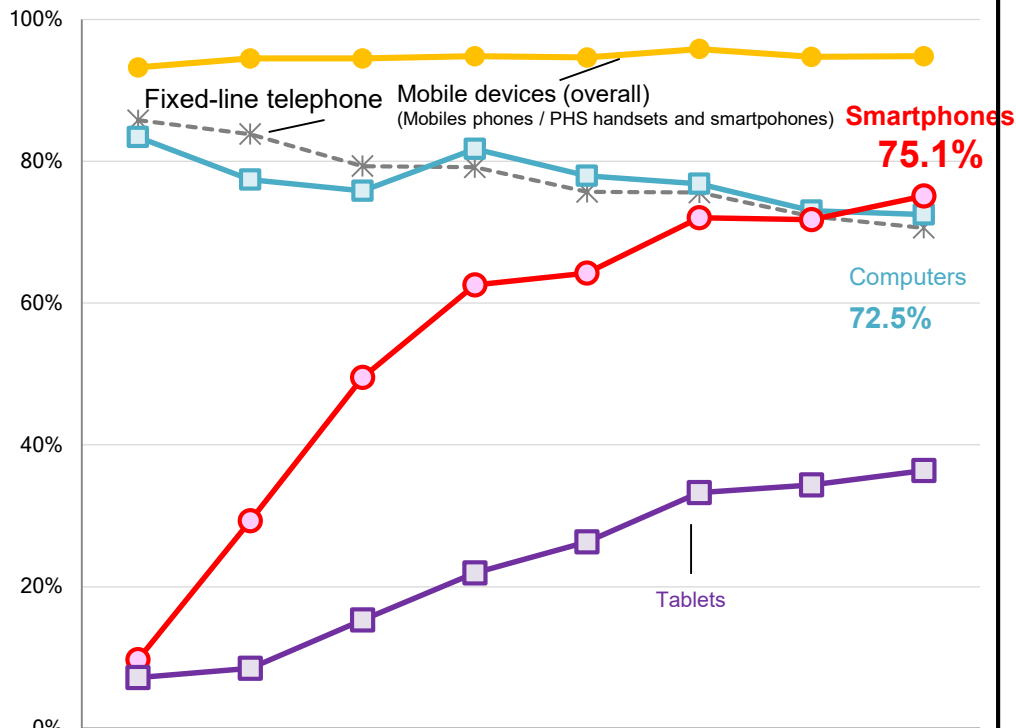- Computers
- Tablets

Note: Each figure is the Internet usage rate among surveyed household members (individuals) for the respective device and age group.

Note: Excluding Internet-enabled TV receivers, home game consoles, and other.
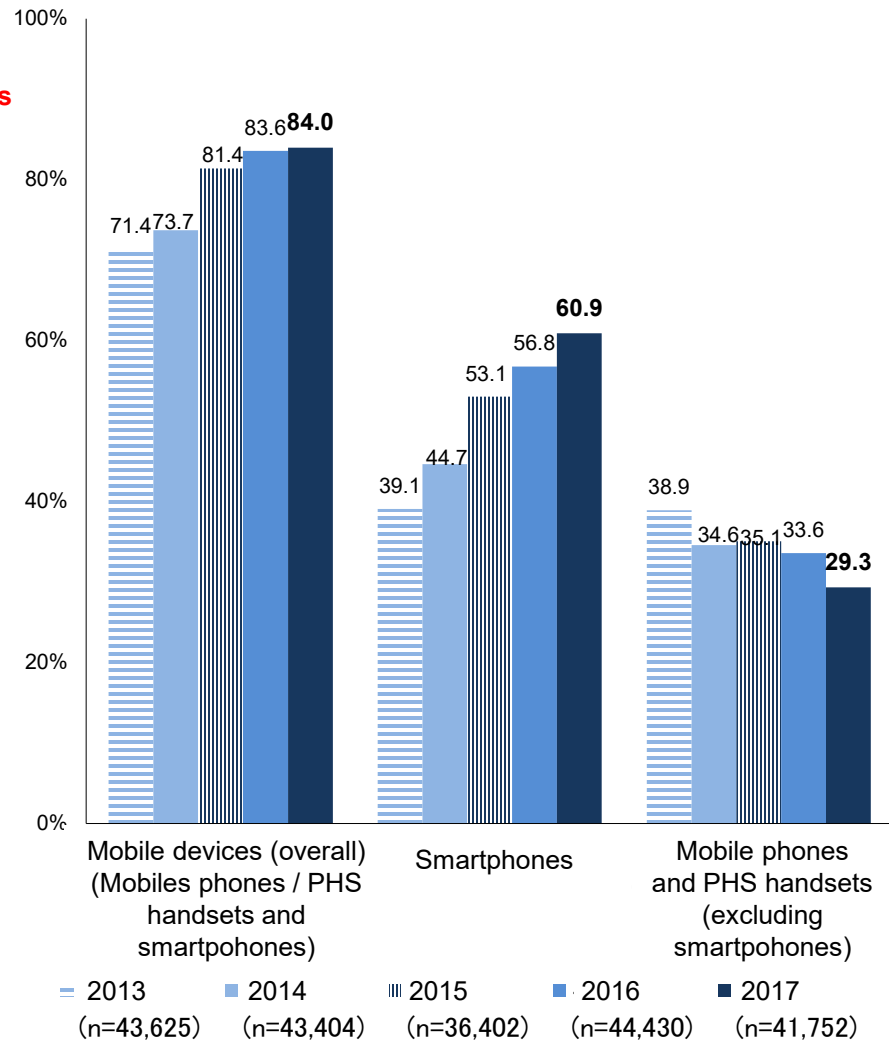
Ownership of common communication devices (households) (2010-2017)

The percentage of households owning smartphones has exceeded that of those owning fixed-line telephones and computers.

Fixed-line telephone

Mobile devices (overall)
(Mobiles phones / PHS handsets and smartpohones)

Smartphones 75.1%

Computers **72.5%**

Tablets

	2010	2011	2012	2013	2014	2015	2016	2017
Fixed-line telephone	85.8	83.8	79.3	79.1	75.7	75.6	72.2	70.6
Computers	83.4	77.4	75.8	81.7	78.0	76.8	73.0	72.5
Smartphones	9.7	29.3	49.5	62.6	64.2	72.0	71.8	75.1
Mobile devices (overall)	93.2	94.5	94.5	94.8	94.6	95.8	94.7	94.8
Tablets	7.2	8.5	15.3	21.9	26.3	33.3	34.4	36.4

Note: Each figure is the percentage of all households in each year's survey that own the respective communication device.

Ownership of mobile devices (individuals) (2013-2017)

Ownership is increasing for smartphones while decreasing for mobile phones and PHS handsets (excluding smartphones).

Mobile devices (overall) (Mobiles phones / PHS handsets and smartpohones): 71.4, 73.7, 81.4, 83.6, 84.0

Smartphones: 39.1, 44.7, 53.1, 56.8, 60.9

Mobile phones and PHS handsets (excluding smartpohones): 38.9, 34.6, 35.1, 33.6, 29.3

2013 (n=43,625)　2014 (n=43,404)　2015 (n=36,402)　2016 (n=44,430)　2017 (n=41,752)

4. Cloud Service Usage (businesses)

Cloud service usage

The percentage of cloud service-using companies has continued to increase, surpassing 50% of survey targets in the latest survey.
The percentage of companies using cloud services for sales support or project management is limited to a low level.
The percentage of companies viewing cloud services as "very beneficial" or "somewhat beneficial" among cloud service-using companies exceeded 80%.
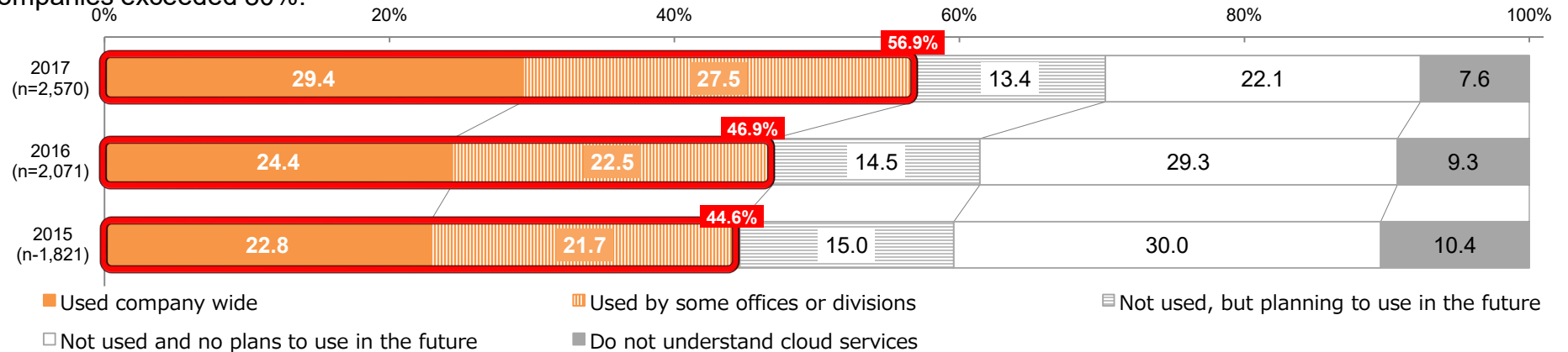
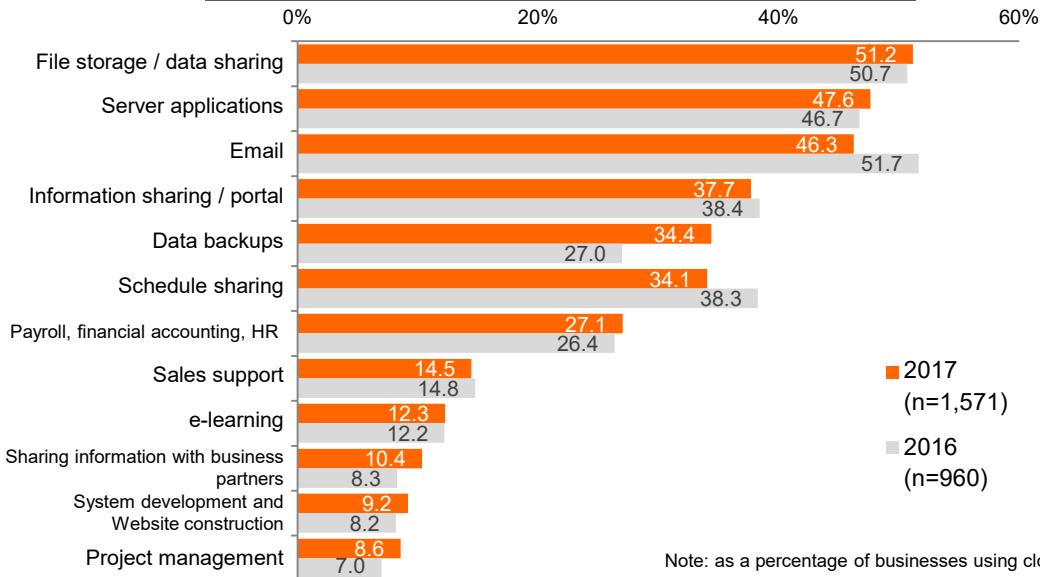|	Used company wide	Used by some offices or divisions	Not used, but planning to use in the future	Not used and no plans to use in the future	Do not understand cloud services	Total
2017 (n=2,570)	29.4	27.5	13.4	22.1	7.6	56.9%
2016 (n=2,071)	24.4	22.5	14.5	29.3	9.3	46.9%
2015 (n-1,821)	22.8	21.7	15.0	30.0	10.4	44.6%

- Used company wide
- Used by some offices or divisions
- Not used, but planning to use in the future
- Not used and no plans to use in the future
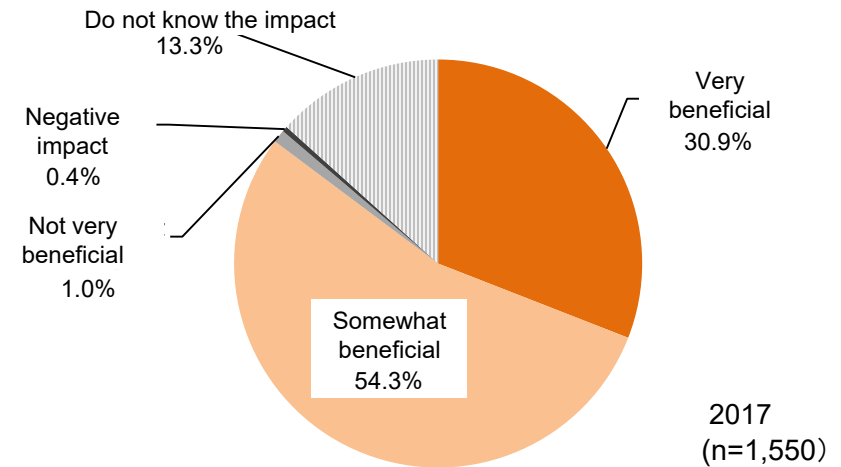- Do not understand cloud services

※ The 2017 survey treated information and communications companies as a single industry and indicated that ICT industry members' share of the whole of survey targets increased from the previous survey. Attention must be paid to this point for historical analysis. (Until the 2016 survey, ICT companies had been treated as a component of "services and other industries.")

Purposes for using cloud services

Purpose	2017 (n=1,571)	2016 (n=960)
File storage / data sharing	51.2	50.7
Server applications	47.6	46.7
Email	46.3	51.7
Information sharing / portal	37.7	38.4
Data backups	34.4	27.0
Schedule sharing	34.1	38.3
Payroll, financial accounting, HR	27.1	26.4
Sales support	14.5	14.8
e-learning	12.3	12.2
Sharing information with business partners	10.4	8.3
System development and Website construction	9.2	8.2
Project management	8.6	7.0

Note: as a percentage of businesses using cloud services

Impact of cloud computing services

- Do not know the impact 13.3%
- Negative impact 0.4%
- Not very beneficial 1.0%
- Very beneficial 30.9%
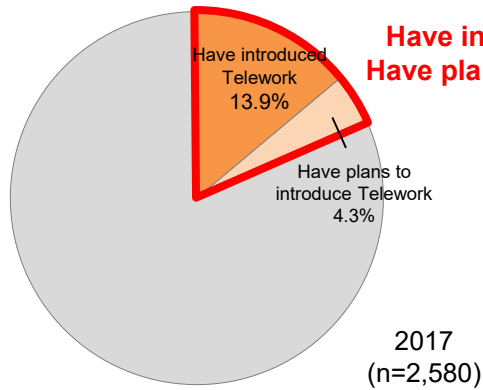- Somewhat beneficial 54.3%

2017 (n=1,550)

Note: as a percentage of businesses using cloud services

5. Introduction of Telework

Introduction of Telework (businesses)

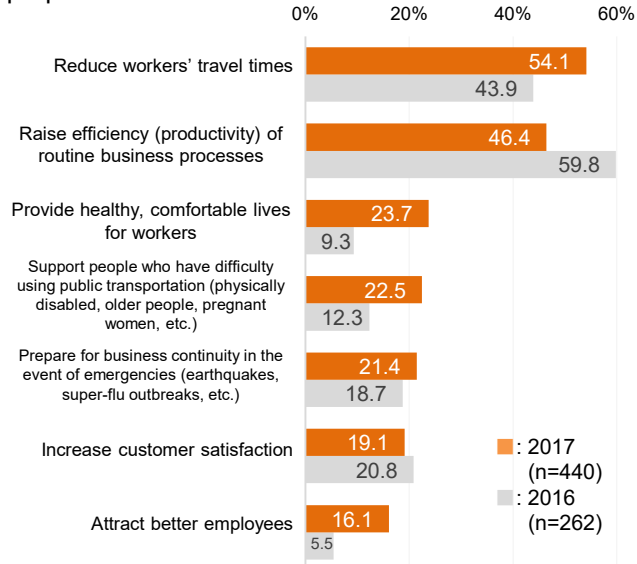Of the surveyed businesses, 18.2 percent have introduced or have plans to introduce Telework.

Have introduced Telework
13.9%

Have plans to introduce Telework
4.3%

Have introduced Telework and Have plans to introduce Telework
18.2%

2017
(n=2,580)

Differences by workforce size
-Businesses with 300 or more regular employees: 23.0%
-Businesses with less than 300 employees: 10.2%

Purposes of introducing Telework (businesses)

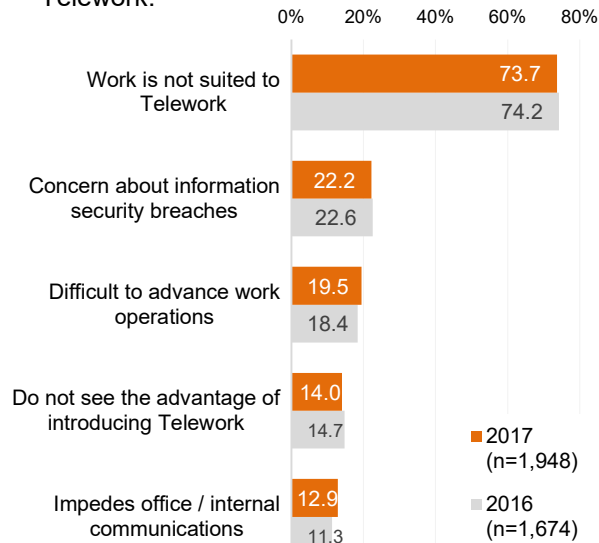Note: as a percentage of businesses which have introduced Telework

Percentages rose for "reducing workers' travel times" and "providing healthy, comfortable lives for workers" among purposes for the Telework introduction.

Purpose	2017	2016
Reduce workers' travel times	54.1	43.9
Raise efficiency (productivity) of routine business processes	46.4	59.8
Provide healthy, comfortable lives for workers	23.7	9.3
Support people who have difficulty using public transportation (physically disabled, older people, pregnant women, etc.)	22.5	12.3
Prepare for business continuity in the event of emergencies (earthquakes, super-flu outbreaks, etc.)	21.4	18.7
Increase customer satisfaction	19.1	20.8
Attract better employees	16.1	5.5

: 2017 (n=440)
: 2016 (n=262)

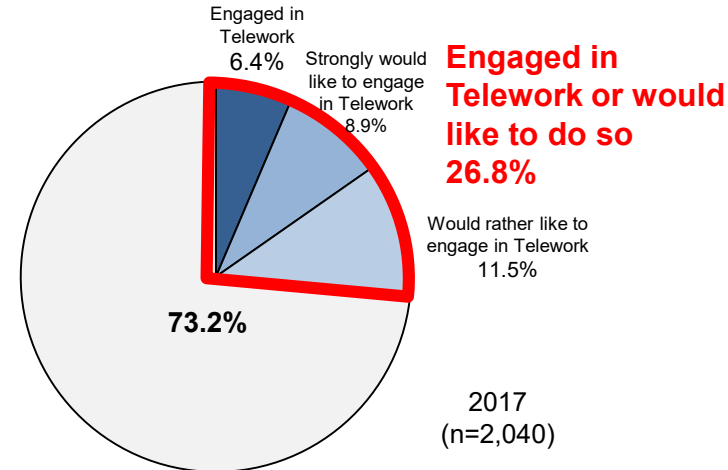## Reasons for not introducing Telework (businesses)

Note: as a percentage of businesses that have not implemented or have no plans to introduce Telework.

Around 70 percent cited "Work is not suited to Telework" as the reason for not introducing Telework.

Reason	2017	2016
Work is not suited to Telework	73.7	74.2
Concern about information security breaches	22.2	22.6
Difficult to advance work operations	19.5	18.4
Do not see the advantage of introducing Telework	14.0	14.7
Impedes office / internal communications	12.9	11.3

2017 (n=1,948)
2016 (n=1,674)

Engagement in Telework (individuals)

Of individuals aged 15 or older and working for companies or other organizations, 26.8% either engaged in Telework in the past year or said they would like to do so.

Engaged in Telework
6.4%

Strongly would like to engage in Telework
8.9%

Would rather like to engage in Telework
11.5%

Engaged in Telework or would like to do so 26.8%

73.2%

2017
(n=2,040)

Reasons for not engaging in Telework (individuals)

Note: as a percentage of individuals who would like to engage in Telework

Around 70 percent cited "Work is not suited to Telework" as the reason for not introducing telework.

Reason	2017
There is not a Telework system at the employer	74.8
Work is not suited to Telework	52.0
No business environment developed for Telework	21.6
No appropriate ICT systems available for Telework	14.9
It is unclear whether Telework is possible at the employer	9.9

2017
(n=358)
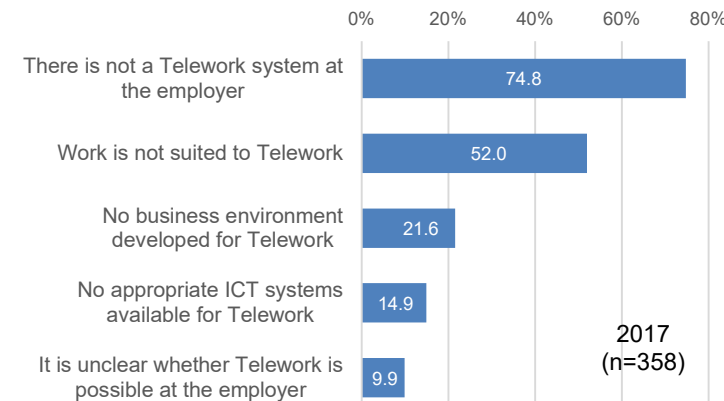
Concerns about using the Internet (individuals)

Some 70% of Internet users aged 12 or more feel concerned during Internet use, rising by 5.2 points from the previous survey.
Percentages of Internet users feeling concerned during Internet use are high for age groups other than the 20-29 group.

2017 (n=3,645): Feel concerned 24.8 | Feel rather concerned 42.0 | Feel rather unconcerned 20.2 | Feel not concerned 12.9 — 66.8

2016 (n=4,213): Feel concerned 21.5 | Feel rather concerned 40.1 | Feel rather unconcerned 21.3 | Feel not concerned 17.1 — 61.6

- Feel concerned
- Feel rather concerned
- Feel rather unconcerned
- Feel not concerned

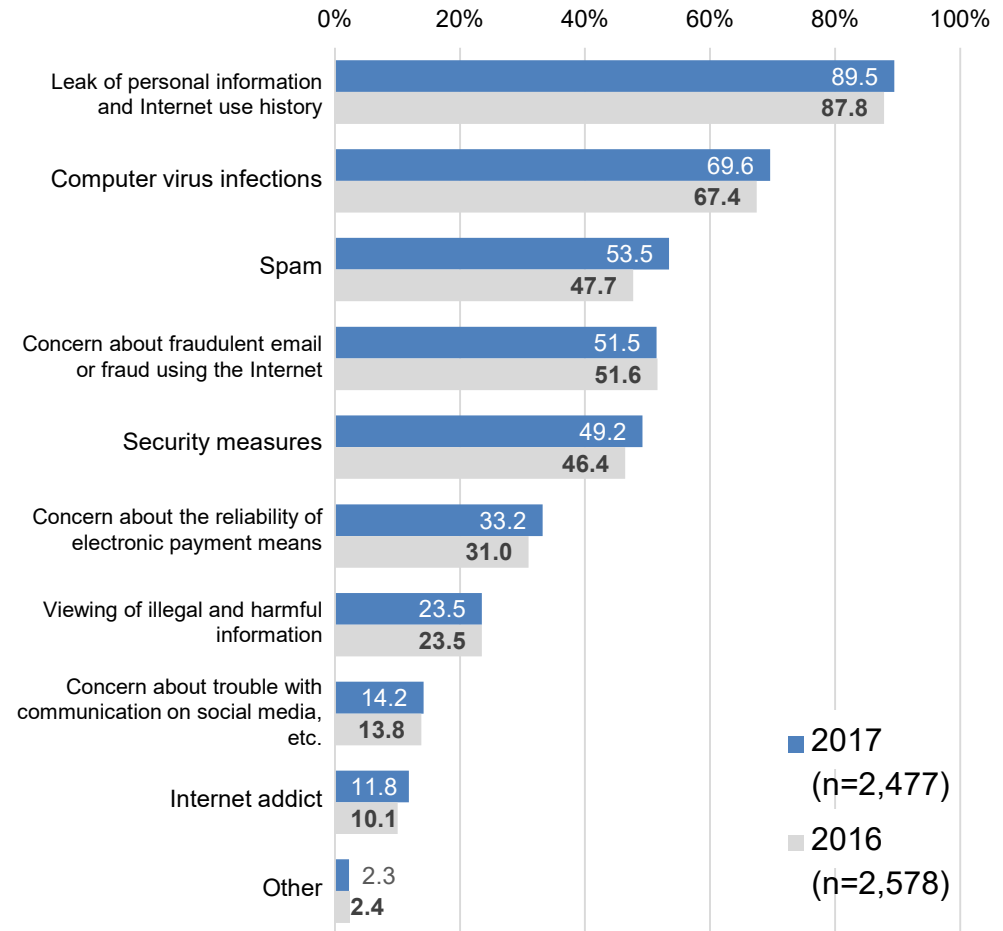| Age	2017	2016
12-19	58.9	46.4
20-29	54.3	55.1
30-39	65.1	56.9
40-49	67.4	63.7
50-59	74.8	70.5
60-69	73.8	67.3
70-79	72.3	70.0
80 or older	78.9	62.8

Types of concerns about using the Internet (individuals)

The percentage is as high as 89.5% for "leak of personal information and Internet use history" among types of concerns about using the Internet.

Type	2017 (n=2,477)	2016 (n=2,578)
Leak of personal information and Internet use history	89.5	87.8
Computer virus infections	69.6	67.4
Spam	53.5	47.7
Concern about fraudulent email or fraud using the Internet	51.5	51.6
Security measures	49.2	46.4
Concern about the reliability of electronic payment means	33.2	31.0
Viewing of illegal and harmful information	23.5	23.5
Concern about trouble with communication on social media, etc.	14.2	13.8
Internet addict	11.8	10.1
Other	2.3	2.4

Note: as a percentage of individuals who replied either that they "feel concerned" or that they "feel rather concerned" when using the Internet

Attachment 2

Summary Findings of the 2017 Communications Usage Trend Survey

Table of Contents

1. Proliferation of the Internet and Other Networks

(1) Internet usage (individuals)

By age group, the Internet usage rate was higher than 90 percent in the age groups between 13 and 59 years old.

Figure 1-1: Transitions in Internet usage by age group

	6-12	13-19	20-29	30-39	40-49	50-59	60-69	70-79	80 and older
2013 (n = 38,144)	73.3	97.9	98.5	97.4	96.6	91.4	73.1	48.9	22.3
2014 (n = 38,110)	71.6	97.8	99.2	97.8	96.6	91.3	75.2	50.2	21.2
2015 (n = 33,525)	74.8	98.2	99.0	97.8	96.5	91.4	76.6	53.5	20.2
2016 (n = 40,297)	82.6	98.4	99.2	97.5	96.7	93.0	75.7	53.6	23.4
2017 (n = 38,630)	73.6	96.9	98.7	97.8	96.8	92.4	73.9	46.7	20.1
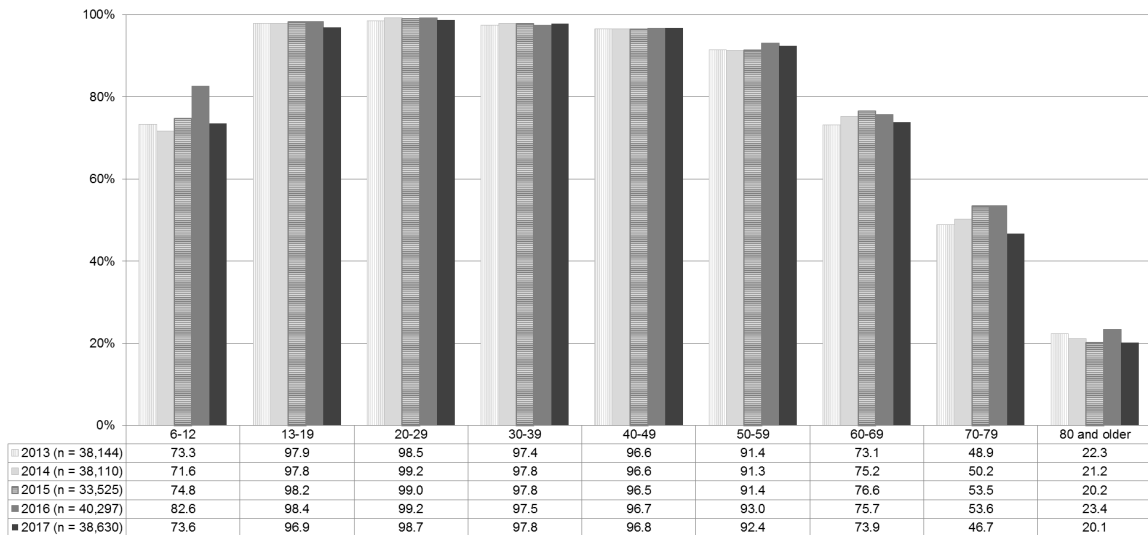
Note: Calculations excluded non-responses. (hereinafter the same unless otherwise specified in this document)

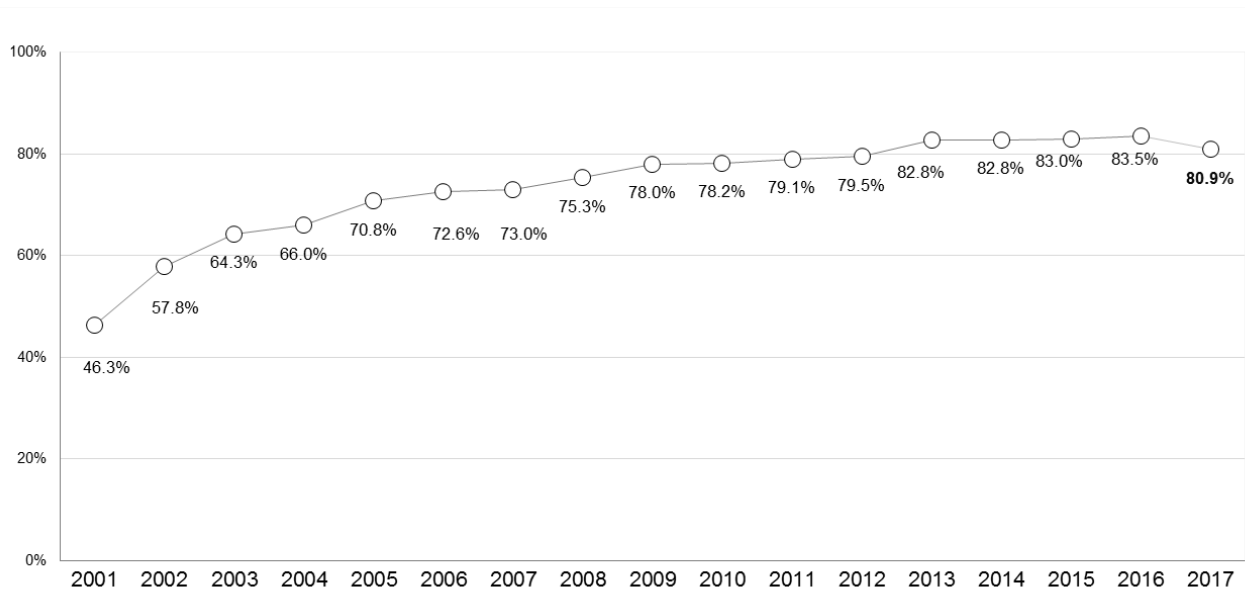### Figure 1-2: Transitions in Internet usage

2001: 46.3%
2002: 57.8%
2003: 64.3%
2004: 66.0%
2005: 70.8%
2006: 72.6%
2007: 73.0%
2008: 75.3%
2009: 78.0%
2010: 78.2%
2011: 79.1%
2012: 79.5%
2013: 82.8%
2014: 82.8%
2015: 83.0%
2016: 83.5%
2017: **80.9%**

Figure 1-3: Internet usage by age and gender (2017)

Male (n = 18,779)
Female (n = 19,851)

	Male	Female
All 6 and older	84.7	77.3
6-12	73.3	73.9
13-19	96.9	97.0
20-29	98.3	99.2
30-39	97.9	97.7
40-49	96.4	97.2
50-59	93.6	91.1
60-69	78.9	69.0
70-79	55.9	38.7
80 and older	30.3	14.2
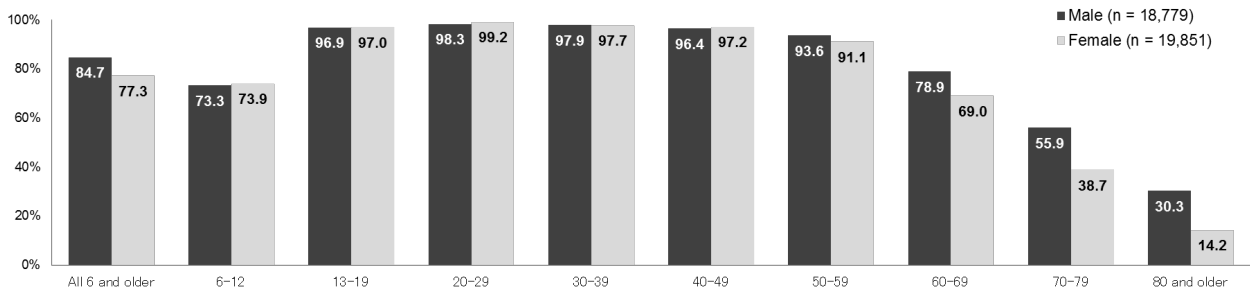
Figure 1-4: Internet usage by annual household income

2016 (n = 40,297)   2017 (n = 38,630)

	2016	2017
Less than ¥2 million	61.4	54.2
¥2 million to less than ¥4 million	75.7	74.1
¥4 million to less than ¥6 million	86.5	85.5
¥6 million to less than ¥8 million	89.8	89.1
¥8 million to less than ¥10 million	92.3	90.5
¥10 million and over	92.9	91.9
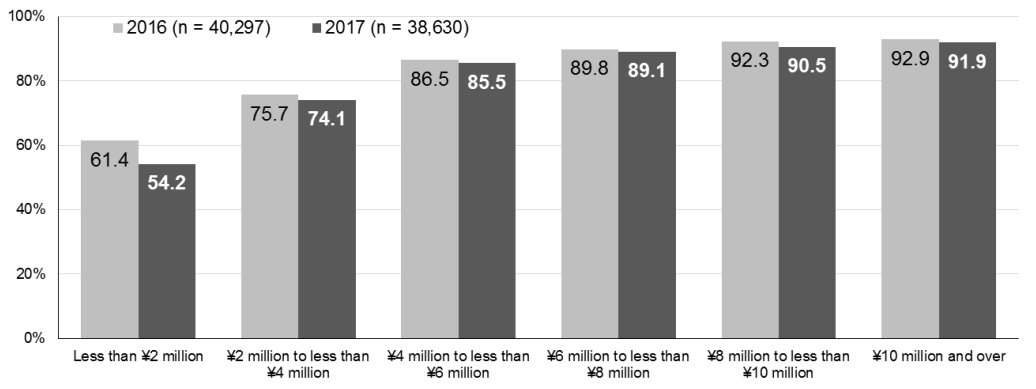
(2) Internet usage by device (individuals)

The Internet usage by device indicates that smartphones replaced computers as the most frequently used device for Internet access in the latest(2017) survey.

By age group, the smartphone usage rate was higher than 70 percent in the age groups between 13 and 49 years old.

Figure 1-5: Internet usage by device

Device	2017	2016
Smartphones	59.7	57.9
Computers	52.5	58.6
Tablets	20.9	23.6
Mobile phones and PHS handsets (exclude smartphones)	9.9	13.3
Home game consoles	8.8	9.2
Internet-enabled TV receivers	7.2	6.8
Other	1.1	1.5

2017 (n = 38,630)
2016 (n = 40,297)
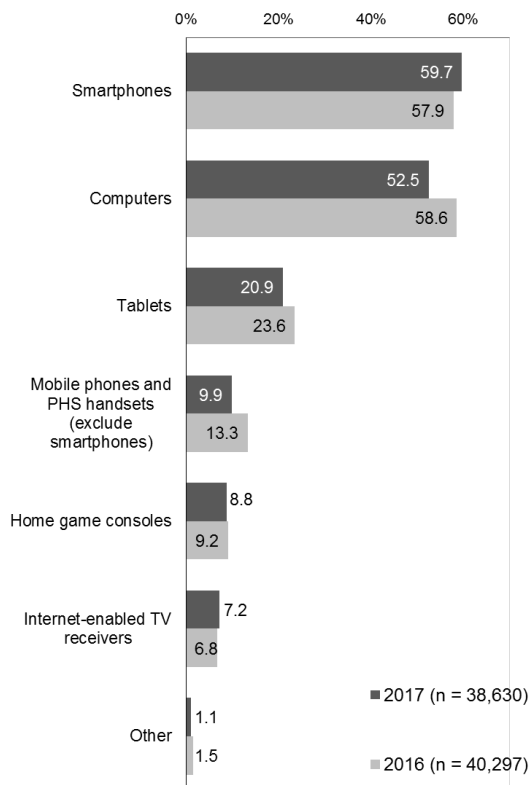
Figure 1-6: Use of Internet devices by age group

Age	Smartphones	Mobile phones and PHS handsets (exclude smartphones)	Computers	Tablets
6-12	32.4	6.4	27.5	32.7
13-19	75.2	5.6	51.5	24.2
20-29	90.0	5.1	68.8	21.5
30-39	88.8	6.4	67.1	29.8
40-49	82.9	10.2	69.1	28.0
50-59	68.4	13.3	65.5	24.4
60-69	39.4	15.2	47.4	14.9
70-79	16.1	14.0	27.2	6.6
80 and older	5.2	6.4	8.1	2.3
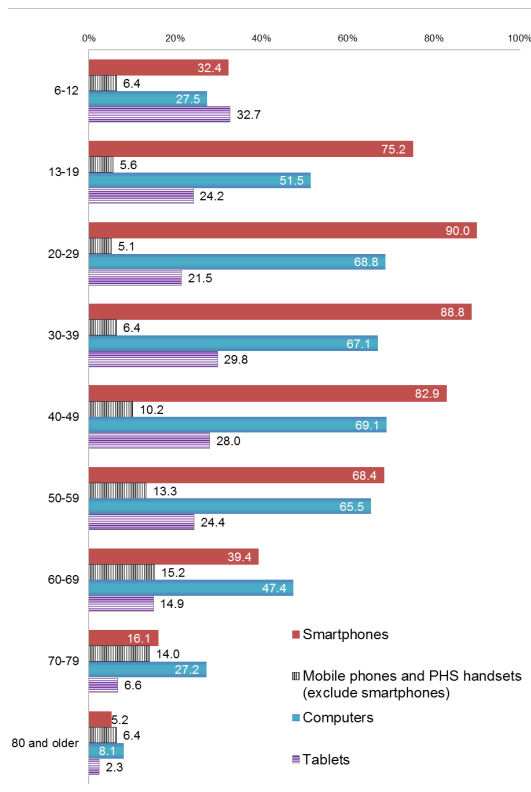
(3) Internet usage by prefecture and region (individuals)

The Internet usage by prefecture indicates that Tokyo posted the highest Internet usage rate, followed by Saitama and Kyoto in that order (see the colored parts in the following table).

By region, the Internet usage rate in the region of southern Kanto, Tokai and Kinki was higher than the national average rate.

Figure 1-7: Internet usage by prefecture and device (2017)

Prefecture (n)	Percentage of Internet users				
	Total	Computers	Mobile phones (incl. PHS)	Smartphones	Tablets
Hokkaido (799)	77.7	50.8	9.6	57.7	16.9
Aomori (887)	72.5	40.9	10.2	45.9	15.7
Iwate (810)	70.5	41.4	8.6	48.8	15.3
Miyagi (795)	79.7	48.5	8.0	58.7	15.7
Akita (889)	71.5	43.3	12.3	48.0	19.3
Yamagata (1,004)	72.6	44.5	8.5	48.4	14.1
Fukushima (878)	76.4	43.9	13.0	50.7	15.0
Ibaraki (689)	74.8	42.0	6.0	56.7	14.4
Tochigi (865)	79.3	49.2	9.5	57.8	19.5
Gunma (867)	80.0	49.0	9.0	59.9	18.4
Saitama (822)	85.7	56.8	11.6	65.1	24.0
Chiba (805)	82.2	56.1	9.3	65.1	26.1
Tokyo (752)	87.7	61.9	12.7	68.5	26.3
Kanagawa (836)	85.4	59.8	9.9	64.6	24.9
Niigata (1,015)	72.2	39.7	10.3	49.6	14.5
Toyama (1,204)	77.5	53.0	9.8	52.1	19.9
Ishikawa (1,005)	79.9	54.0	8.1	57.6	20.9
Fukui (926)	78.9	49.7	10.9	54.4	21.6
Yamanashi (1,040)	80.3	51.4	8.6	58.6	19.2
Nagano (925)	77.9	48.5	12.5	52.5	21.0
Gifu (900)	80.3	51.1	9.4	57.8	19.2
Shizuoka (1,023)	81.7	55.7	11.1	55.6	25.3
Aichi (759)	84.5	61.1	8.5	62.1	19.5
Mie (846)	79.5	48.2	8.9	57.3	18.5
Shiga (1,003)	82.3	54.1	8.2	61.4	23.6
Kyoto (738)	85.5	59.6	10.3	63.4	24.9
Osaka (756)	82.9	54.5	10.3	64.1	21.6
Hyogo (749)	79.6	53.2	10.0	56.3	18.2
Nara (822)	78.9	49.0	9.4	57.3	19.4
Wakayama (760)	79.7	53.5	8.6	57.2	17.1
Tottori (773)	73.4	41.6	10.6	51.4	20.3
Shimane (819)	72.9	46.5	7.7	49.8	17.9
Okayama (826)	79.9	50.4	10.9	56.0	20.2
Hiroshima (756)	80.8	52.1	9.1	57.4	22.7
Yamaguchi (829)	79.3	46.1	10.2	51.6	14.7
Tokushima (784)	76.1	43.9	10.3	53.4	19.8
Kagawa (858)	76.1	49.8	9.3	53.3	19.1
Ehime (655)	76.4	42.6	8.6	51.8	21.5
Kochi (620)	71.8	38.0	8.8	52.1	16.9
Fukuoka (540)	79.0	46.0	7.7	61.3	19.1
Saga (955)	77.1	47.0	6.0	54.4	18.6
Nagasaki (745)	72.2	39.0	10.7	50.4	15.6
Kumamoto (762)	75.4	40.0	10.8	53.8	18.2
Oita (734)	73.0	38.3	9.6	53.2	17.8
Miyazaki (762)	75.1	40.3	7.4	52.4	16.5
Kagoshima (597)	67.9	37.7	7.0	51.3	17.5
Okinawa (446)	81.3	46.6	6.4	60.8	19.9
Total (38,630)	80.9	52.5	9.9	59.7	20.9

3

Figure 1-8: Internet and smartphone usage by region (2017)
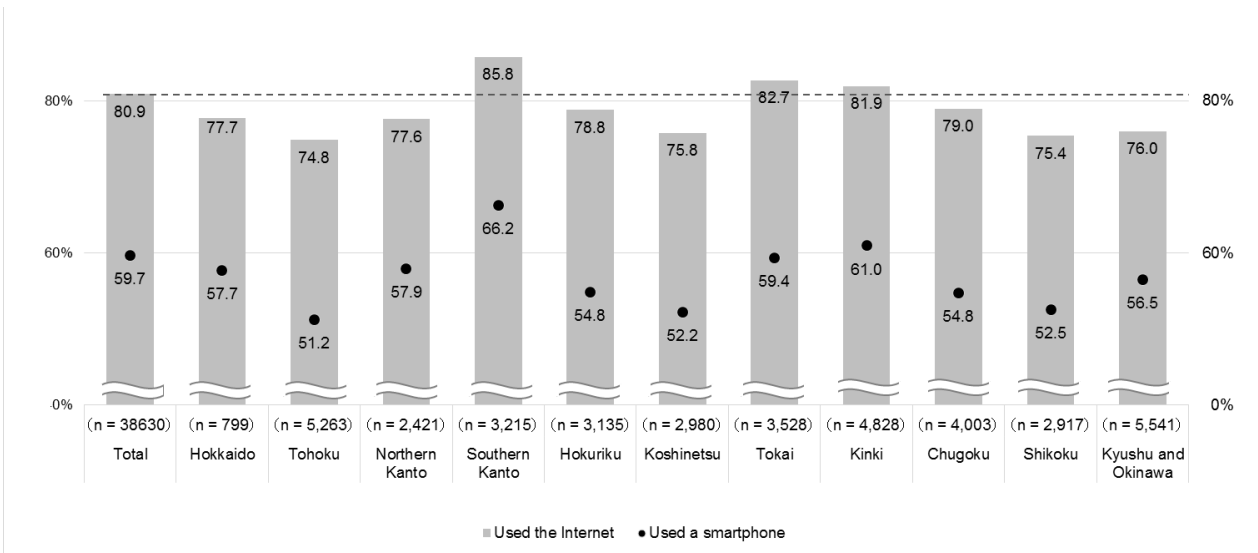
(4) Types of Internet connections (businesses)

Of the surveyed businesses, 95.9 percent used a broadband connection to access the Internet from their premises. Of businesses using a broadband connection, 86.4 percent used an optical fiber connection.

Figure 1-9: Internet connection types (multiple responses accepted)

Note: as a percentage of businesses using the Internet

4
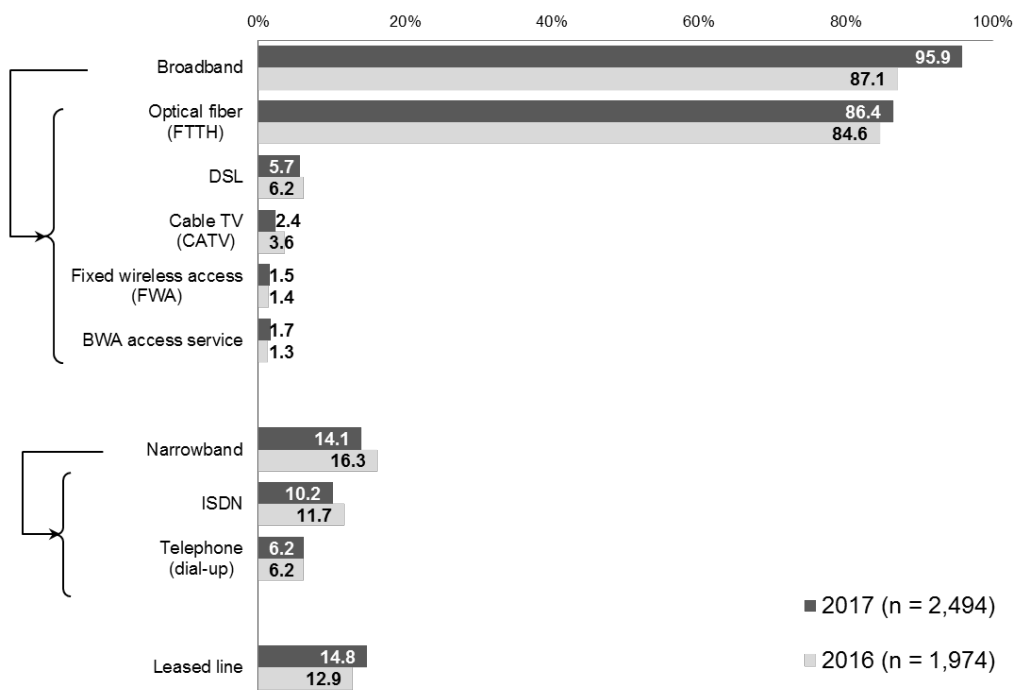
(5) Types of Internet connections (households)

Of households using a broadband connection to access the Internet from computers at home, tablets, and other devices, 96.9 percent used a broadband connection. Of households using a broadband connection, 61.1 percent used an optical fiber connection and 49.2 percent used a mobile phone connection.

Figure 1-10: Types of Internet connections for computers at home and other devices (multiple responses)
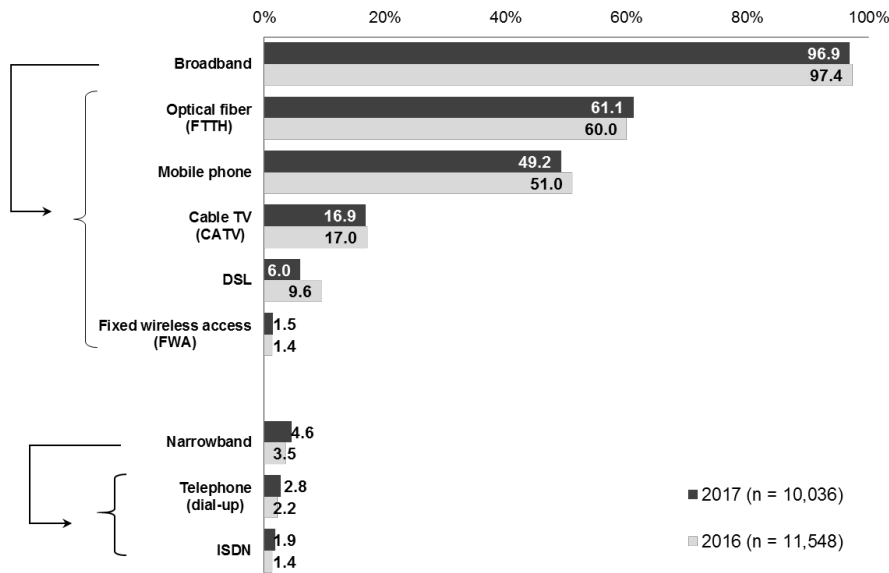
Note: as a percentage of households accessing the Internet from computers at home and other devices.

(6) Ownership of communication devices (households)

The transitions in ownership of communications devices indicate that the smartphone ownership rate as a component of the mobile device ownership rate (94.8%) rose to 75.1%, surpassing the computer ownership rate (72.5%) for the first time.

Figure 1-11: Transitions in ownership of communication devices
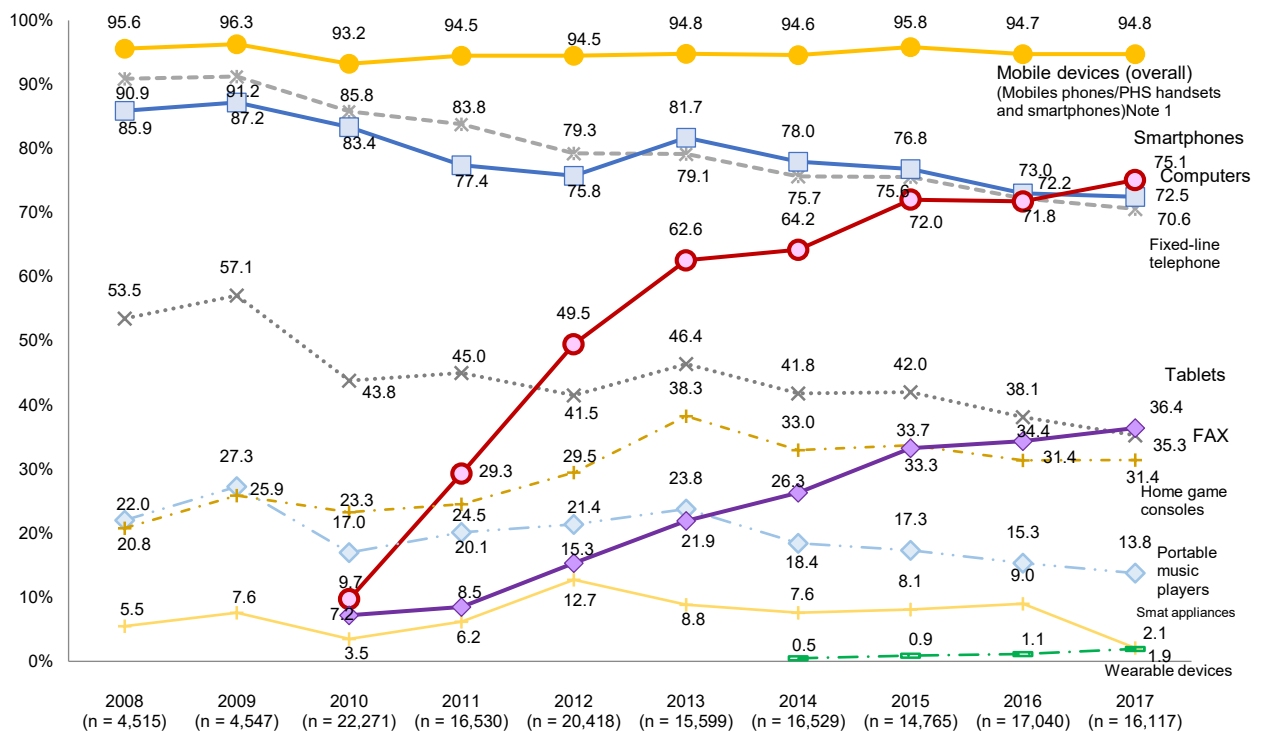
Notes: 1. "Mobile devices (overall)" include mobile phones and PHS handsets. This category also included personal digital assistants (PDAs) from 2009 to 2012 and smartphones from 2010.
2. For comparison purposes between years, these calculations do include non-responses.

5

(7) Ownership of mobile devices (individuals)

Regarding the ownership of mobile devices by individuals, the ownership rate for "smartphones" was 60.9 percent, 31.6 points higher than the ownership rate for "mobile phones/PHS handsets" (29.3 percent).

By age group, the ownership rate for "smartphones" was higher than the ownership rate for "mobile phones/PHS handsets" in the age groups between 6 and 59 years old.

Figure 1-12: Transitions in ownership of mobile devices
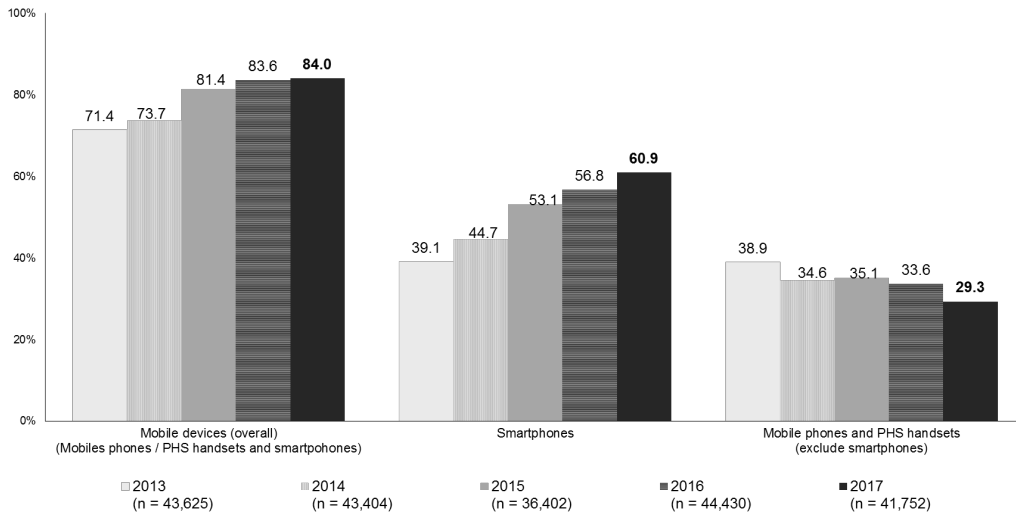
Figure 1-13: Ownership of mobile devices by age group (2017)

	Total (n = 41,752)	6-12 (n = 2,275)	13-19 (n = 2,595)	20-29 (n = 3,404)	30-39 (n = 4,479)	40-49 (n = 5,626)	50-59 (n = 5,945)	60-69 (n = 7,932)	70-79 (n = 5,894)	80 and older (n = 3,602)
Mobile devices (overall) (Mobiles phones / PHS handsets and smartpohones)	84.0	47.9	86.1	96.9	97.3	97.0	95.4	88.8	72.5	39.7
Smartphones	60.9	30.3	79.5	94.5	91.7	85.5	72.7	44.6	18.8	6.1
Mobile phones and PHS handsets (exclude smartphones)	29.3	23.5	12.1	9.2	13.4	21.5	31.1	49.6	56.3	34.7
Not owning	16.0	52.1	13.9	3.1	2.7	3.0	4.6	11.2	27.5	60.3

2. Current ICT Usage by Individuals

(1) Purposes of using the Internet

The most common use of the Internet was "sending and receiving email," at 80.2 percent. This was followed by "using free weather forecast" (65.8 percent) and "obtaining free map/traffic information services" (63.4 percent).

By age group, "sending and receiving email" was a common usage across all age groups, while there were wide differences across age groups with respect to such purposes as "using social networking services" and "using video posting/sharing sites."

Figure 2-1: Purposes of using the Internet — 2017 (multiple responses accepted)
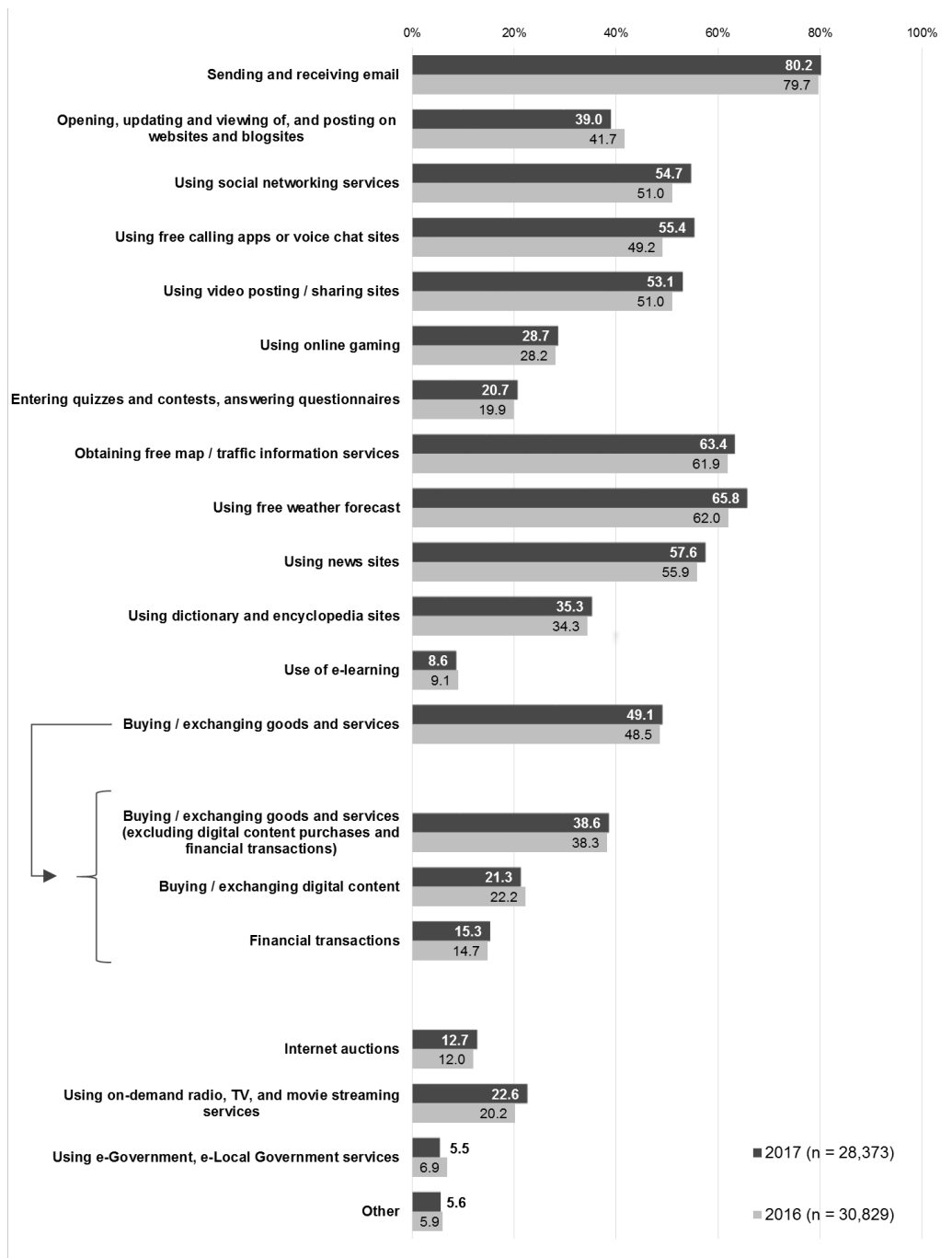
Note: as a percentage of Internet users

Figure 2-2: Purposes of using the Internet by age group (2017, multiple responses accepted)

Top chart categories (x-axis):
- Sending and receiving email
- Opening, updating and viewing of, and posting on websites and blogsites
- Using social networking services
- Using free calling apps or voice chat sites
- Using video posting / sharing sites
- Using online gaming
- Entering quizzes and contests, answering questionnaires
- Obtaining free map / traffic information services
- Using free weather forecast
- Using news sites
- Using dictionary and encyclopedia sites
- Use of e-learning

Bottom chart categories (x-axis):
- Buying / exchanging goods and services
- Buying / exchanging goods and services (excluding digital content purchases and financial transactions)
- Buying / exchanging digital content
- Financial transactions
- Internet auctions
- Using on-demand radio, TV, and movie streaming services
- Using e-Government, e-Local Government services

Legend:
- Total
- 13-19 (n = 2,177)
- 20-29 (n = 3,093)
- 30-39 (n = 4,130)
- 40-49 (n = 5,145)
- 50-59 (n = 5,159)
- 60 and older (n = 7,362)

Note: as a percentage of Internet users

(2) Social networking service usage

Of Internet users, 54.7 percent used social networking services.

The most common purpose of the use of social media was "to communicate with current friends," which was cited by 87.6 percent, followed by "to find information on topics of interest" (50.2 percent) and "to kill time" (31.1 percent).

Figure 2-3: Social networking service usage
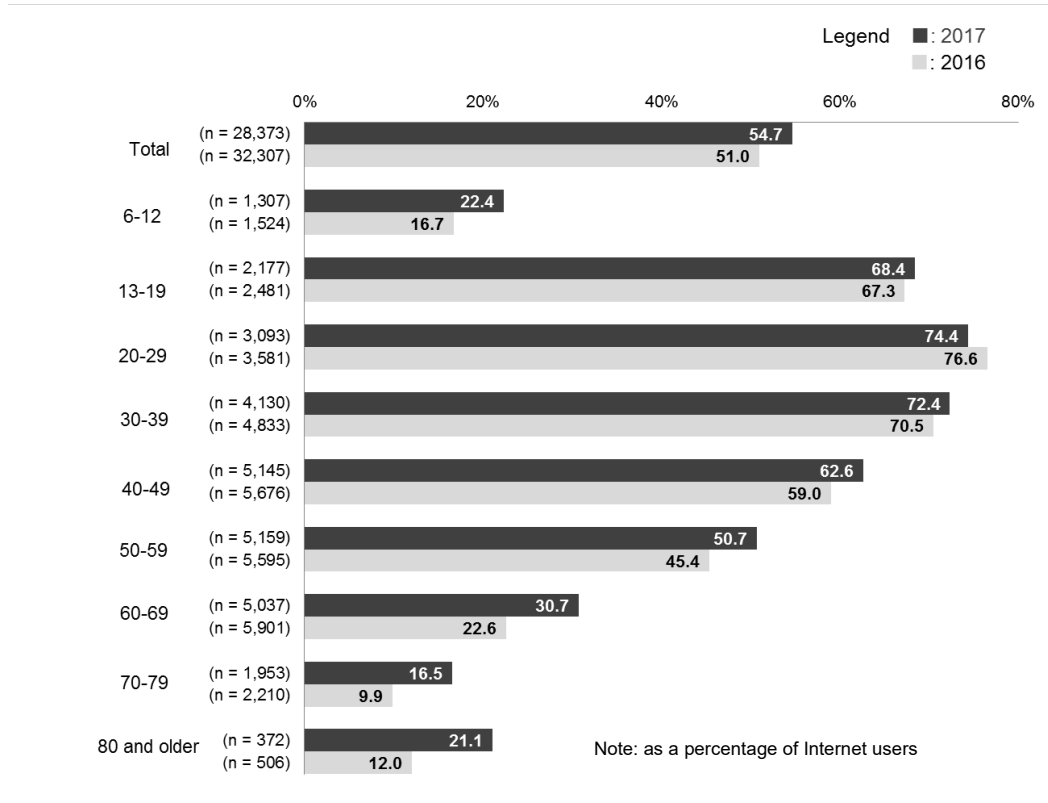
Figure 2-4: Purposes of social networking service usage (multiple responses accepted)
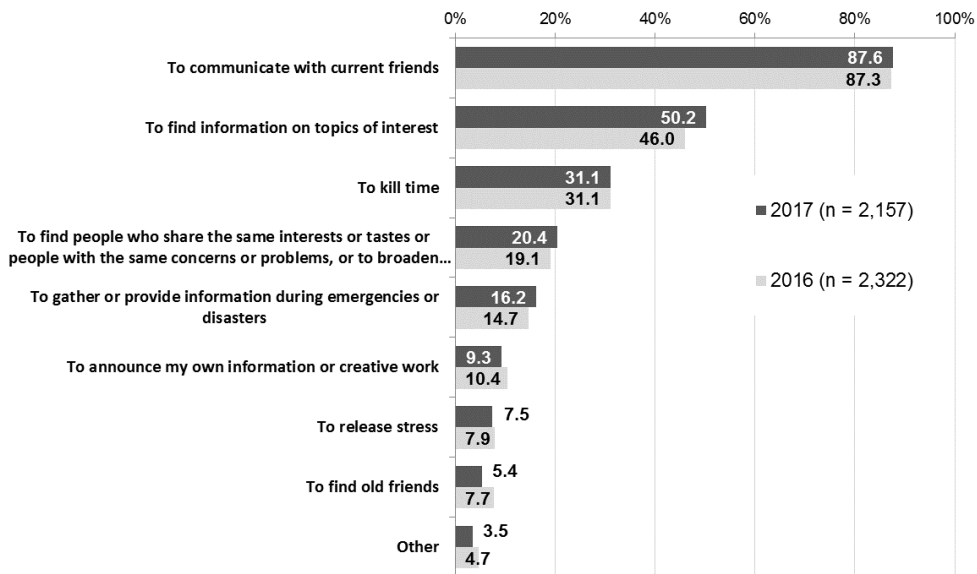
3. Current ICT Usage by Businesses

(1) Social media usage

Of businesses using the internet, 28.9 percent used social media services.

By industry, "real estate" had the highest using rate, at 46.2 percent. This was followed by "information and communications" (40.8 percent) and "financial / insurance" (39.2 percent).

By capitalization, the Internet usage rate among businesses with ¥5 billion or more in capital was the highest at 48.6 percent.

By usage/application purpose, "publicize/promote products or events" was cited by the largest percentage, 73.7 percent, followed by "provide periodic information" (59.6 percent).

Figure 3-1: Social media usage by industry and capitalization

By industry

Legend ■ : 2017 ▨ : 2016

Industry	2017	2016
Overall (n = 2,573 / n = 2,010)	28.9	22.1
Construction (n = 309 / n = 306)	18.8	14.2
Manufacturing (n = 374 / n = 376)	19.4	12.1
Transport (n = 323 / n = 344)	16.5	13.7
Wholesale / retail (n = 307 / n = 336)	32.1	29.7
Financial / insurance (n = 138 / n = 156)	39.2	34.1
Real estate (n = 139 / n = 141)	46.2	32.1
Information and communications (n = 643)	40.8	
Service and other industries (n = 340 / n = 492)	36.9	27.8

Notes 1: As a percentage of businesses using the Internet.
2: The 2017 survey treated information and communications companies as a single industry and indicated that ICT industry members' share of the whole of survey targets increased from the previous survey. Attention must be paid to this point for historical analysis. (Until the 2016 survey, ICT companies had been treated as a component of the services and other industries.) Hereinafter the same regarding breakdowns by industry.

By capitalization

Legend ■ : 2017 ▨ : 2016

Capitalization	2017	2016
Less than ¥10 million (n = 96 / n = 86)	33.5	19.7
¥10 million to less than ¥30 million (n = 543 / n = 501)	26.7	19.1
¥30 million to less than ¥50 million (n = 323 / n = 262)	23.5	21.8
¥50 million to less than ¥100 million (n = 635 / n = 485)	28.9	19.2
¥100 million to less than ¥500 million (n = 590 / n = 365)	28.4	26.2
¥500 million to less than ¥1 billion (n = 83 / n = 43)	37.0	17.4
¥1 billion to less than ¥5 billion (n = 164 / n = 43)	31.3	28.9
¥5 billion or more (n = 139 / n = 127)	48.6	40.4

Note 1: as a percentage of businesses using the Internet.

Figure 3-2: Purpose / application of social media usage (multiple responses accepted)

Publicize / promote products or events: 2017 73.7 / 2016 67.1
Provide periodic information: 2017 59.6 / 2016 58.1
Company profile / recruiting: 2017 35.5 / 2016 35.5
Marketing: 2017 20.9 / 2016 23.5
Collect consumers' ratings and opinions: 2017 12.9 / 2016 14.3
Receive applications and reports: 2017 4.1
Electronic public notices and financial results announcements: 2017 0.9
Other: 2017 3.3 / 2016 5.5

■ 2017 (n = 795)
□ 2016 (n = 431)

Note: as a percentage of businesses using social media services Among options, "Receive applications and reports" and "Electronic public notices and financial results announcement" were added in the latest survey.

(2) E-commerce usage

49.0 percent of businesses engaged in e-commerce (purchasing or selling over the Internet).

By industry, "wholesale / retail" had the highest usage rate, at 60.5 percent. This was followed by "financial / insurance" (57.6 percent) and "information and communications" (53.0 percent).

Among businesses that used the Internet for sales, the most common Internet sales model was "e-store (own site)," at 68.9 percent. This was followed by "e-store (store in an e-mall)" (42.4 percent).

Figure 3-3: E-commerce usage by industry and capitalization (2017, multiple responses accepted)

By industry

	Engage in some form of e-commerce	Purchase from other companies	Sell to other companies	Sell to consumers
Overall (n = 2,545)	49.0	36.2	10.7	18.3
Construction (n = 309)	39.0	35.8	2.4	3.8
Manufacturing (n = 366)	49.3	35.5	14.0	15.0
Transport / Mailing (n = 318)	32.7	25.0	3.3	8.1
Wholesale / retail (n = 306)	60.5	41.8	19.2	29.2
Financial / insurance (n = 135)	57.6	27.2	13.4	39.7
Real estate (n = 135)	45.1	33.9	5.8	18.5
Information and communications (n = 640)	53.0	38.3	11.4	17.6
Service and other industries (n = 336)	46.6	36.7	5.6	18.1

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By capitalization

	Engage in some form of e-commerce	Purchase from other companies	Sell to other companies	Sell to consumers
Less than ¥10 million (n = 91)	39.1	32.9	3.4	9.5
¥10 million to less than ¥30 million (n = 537)	40.7	31.6	7.2	14.0
¥30 million to less than ¥50 million (n = 317)	45.3	33.6	6.5	16.5
¥50 million to less than ¥100 million (n = 637)	49.8	36.2	12.1	21.5
¥100 million to less than ¥500 million (n = 577)	58.1	42.5	14.5	19.7
¥500 million to less than ¥1 billion (n = 83)	53.7	36.0	11.7	22.4
¥1 billion to less than ¥5 billion (n = 163)	54.6	38.6	18.5	22.8
¥5 billion or more (n = 140)	72.8	47.2	20.5	29.8

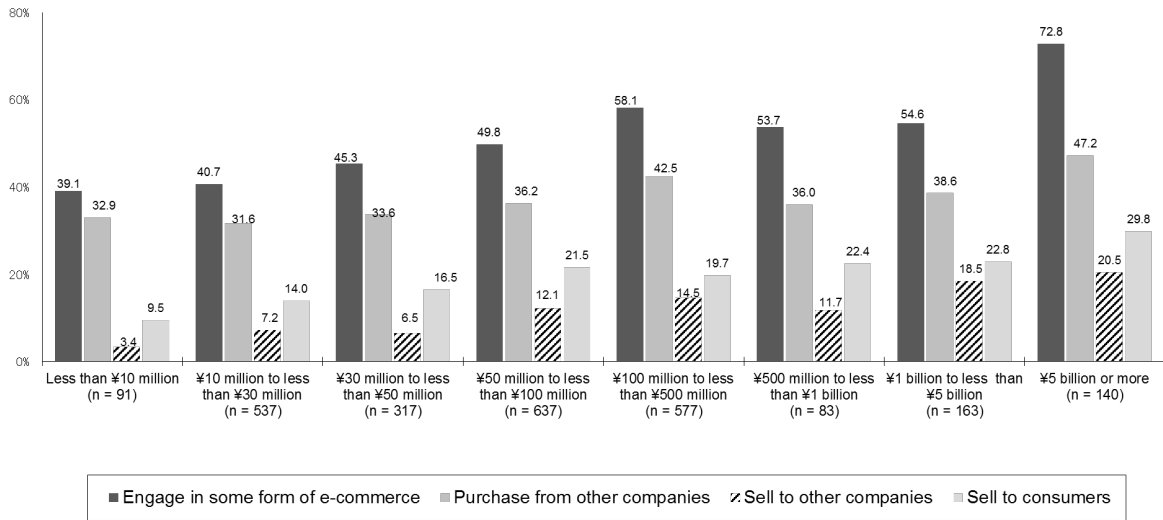## Figure 3-4: Internet sales models (multiple responses accepted)

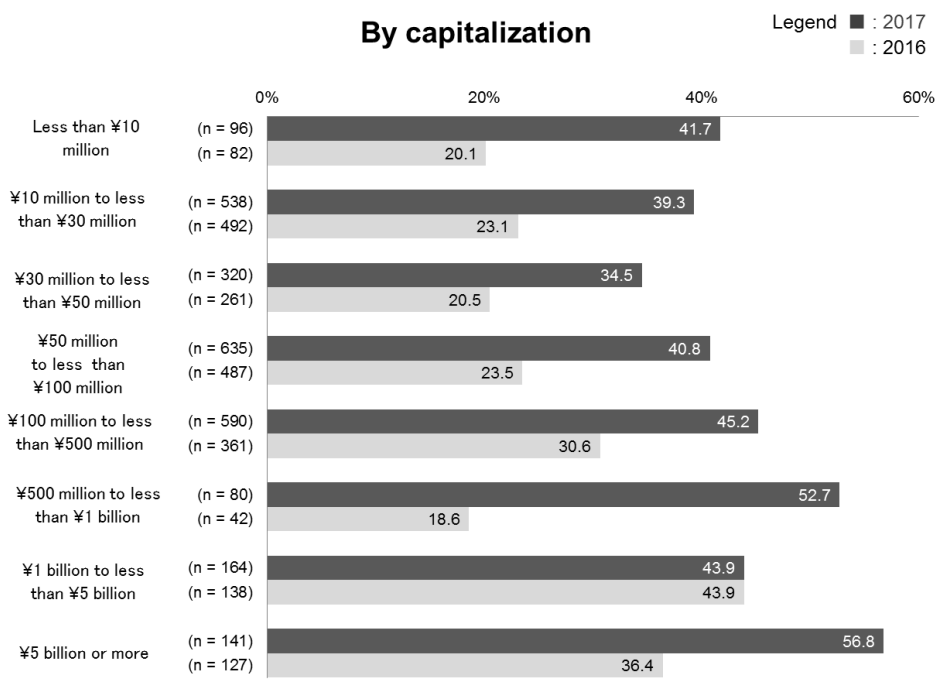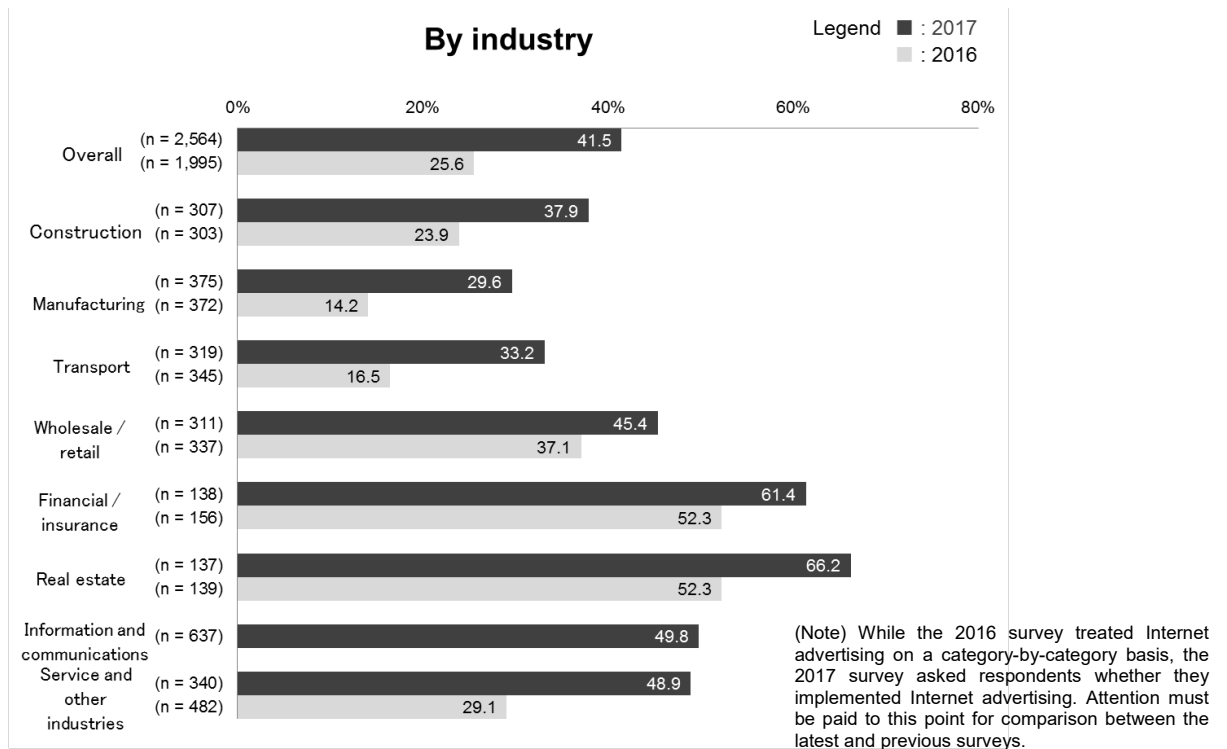|	2017 (n = 433)	2016 (n = 326)
E-store (own site)	68.9	72.0
E-store (store in an e-mall)	42.4	40.2
Sales broker	8.8	7.7
Online trading	1.3	2.2
Other	8.3	7.4

Note: as a percentage of businesses that used the Internet for sales

12
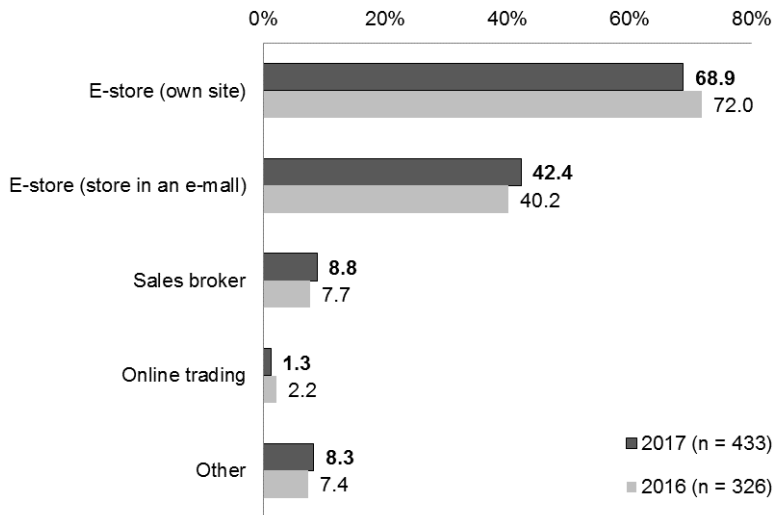
(3) Use of Internet advertising

Of the surveyed businesses, 41.5 percent used Internet advertising.

By industry, "real estate" had the highest advertising rate, at 66.2 percent. This was followed by "financial / insurance" (61.4 percent) and "information and communications" (49.8 percent).

Figure 3-5: Internet advertising usage by industry and capitalization

By industry

Legend ■ : 2017
□ : 2016

Industry		2017	2016
Overall	(n = 2,564) / (n = 1,995)	41.5	25.6
Construction	(n = 307) / (n = 303)	37.9	23.9
Manufacturing	(n = 375) / (n = 372)	29.6	14.2
Transport	(n = 319) / (n = 345)	33.2	16.5
Wholesale / retail	(n = 311) / (n = 337)	45.4	37.1
Financial / insurance	(n = 138) / (n = 156)	61.4	52.3
Real estate	(n = 137) / (n = 139)	66.2	52.3
Information and communications	(n = 637)	49.8	
Service and other industries	(n = 340) / (n = 482)	48.9	29.1

(Note) While the 2016 survey treated Internet advertising on a category-by-category basis, the 2017 survey asked respondents whether they implemented Internet advertising. Attention must be paid to this point for comparison between the latest and previous surveys.

By capitalization

Legend ■ : 2017
□ : 2016

| Capitalization		2017	2016
Less than ¥10 million	(n = 96) / (n = 82)	41.7	20.1
¥10 million to less than ¥30 million	(n = 538) / (n = 492)	39.3	23.1
¥30 million to less than ¥50 million	(n = 320) / (n = 261)	34.5	20.5
¥50 million to less than ¥100 million	(n = 635) / (n = 487)	40.8	23.5
¥100 million to less than ¥500 million	(n = 590) / (n = 361)	45.2	30.6
¥500 million to less than ¥1 billion	(n = 80) / (n = 42)	52.7	18.6
¥1 billion to less than ¥5 billion	(n = 164) / (n = 138)	43.9	43.9
¥5 billion or more	(n = 141) / (n = 127)	56.8	36.4

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(4) Cloud computing service usage

> Of the surveyed businesses, 56.9 percent used cloud computing services (cloud services), up 10.0 points from 46.9 percent in 2016 survey.
>
> As for the effects of the use of cloud services, 85.2 recognized either "very beneficial" or "somewhat beneficial" effects.
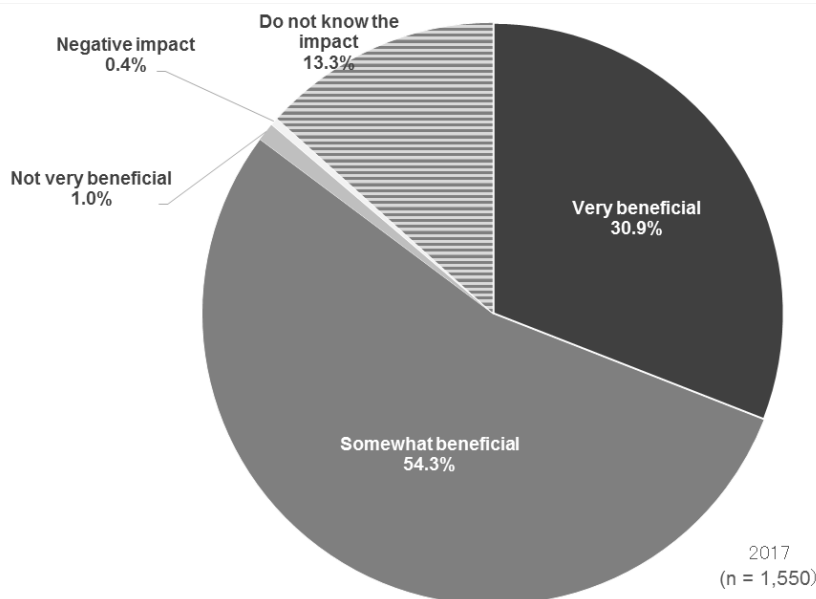>
> By type of cloud service used, "file management/data storage" was used by the largest percentage, 51.2 percent, followed by "server applications" (47.6 percent) and "email" (46.3 percent).

Figure 3-6: Transitions in cloud service usage
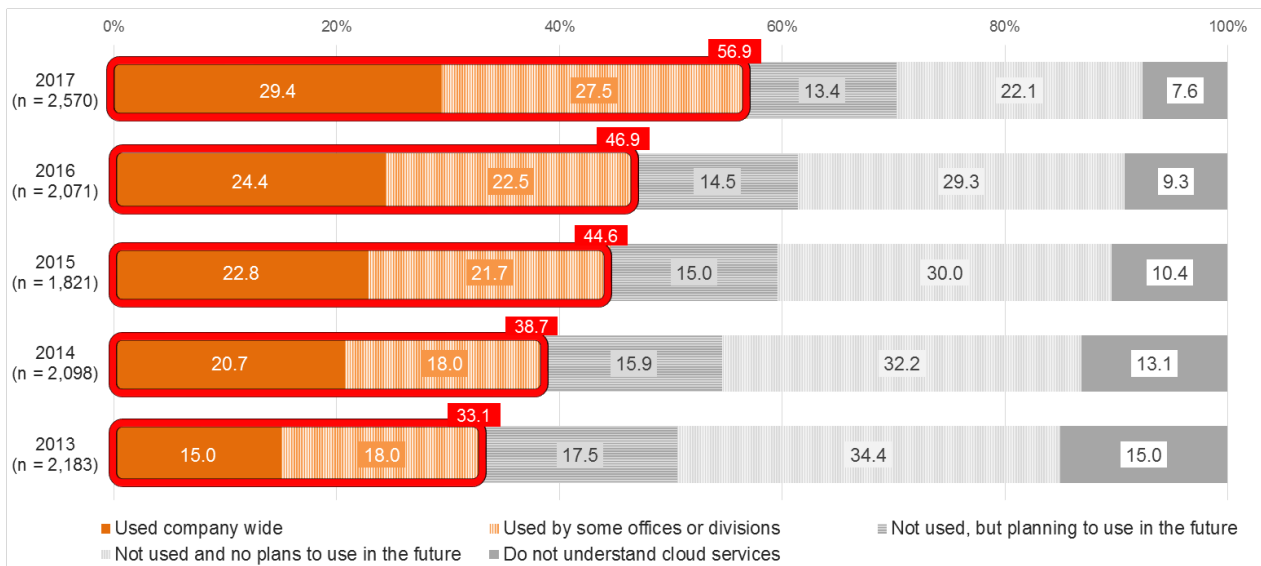
The 2017 survey treated information and communications companies as a single industry and indicated that ICT industry members' share of the whole of survey targets increased from the previous survey. Attention must be paid to this point for historical analysis. (Until the 2016 survey, ICT companies had been treated as a component of the services and other industries. See Figure 3-8 for a breakdown by industry.)

Figure 3-7: Impact of cloud computing services (2017)

Note: as a percentage of businesses using cloud services

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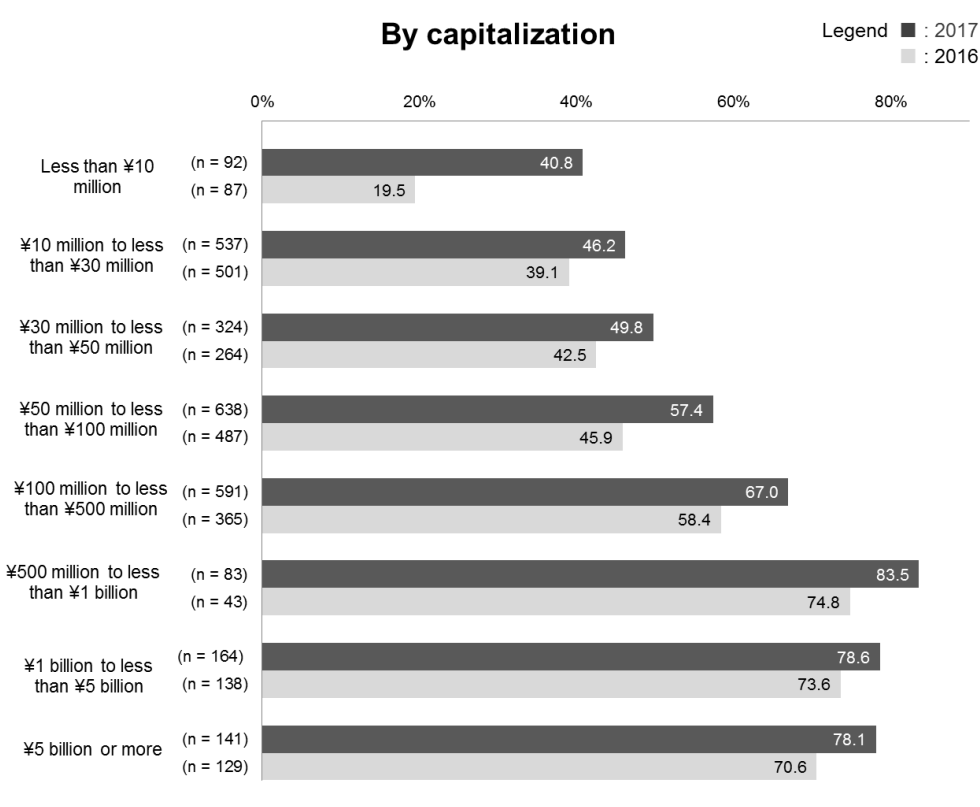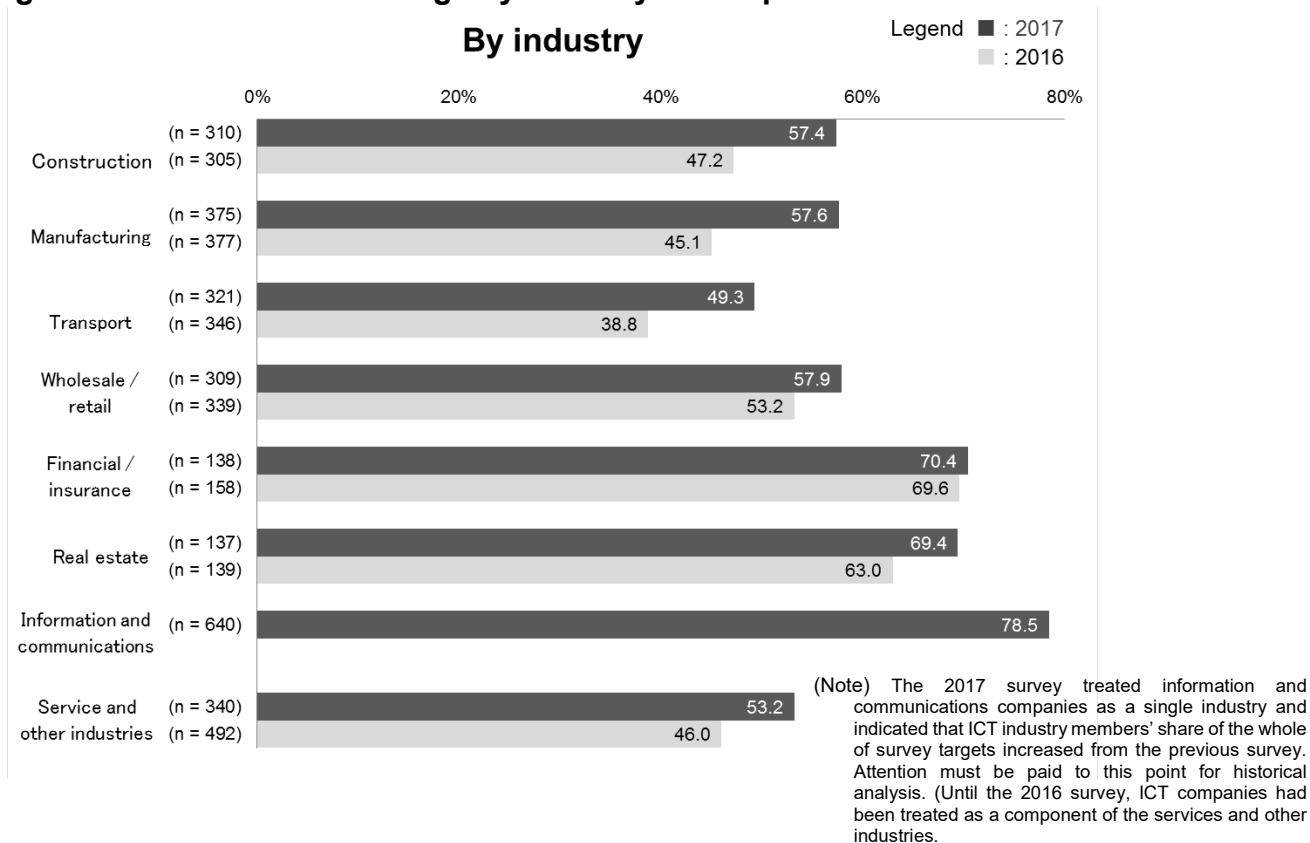# Figure 3-8: Cloud service usage by industry and capitalization

By industry

Legend ■ : 2017
▨ : 2016

Industry		2017	2016
Construction	(n = 310) / (n = 305)	57.4	47.2
Manufacturing	(n = 375) / (n = 377)	57.6	45.1
Transport	(n = 321) / (n = 346)	49.3	38.8
Wholesale / retail	(n = 309) / (n = 339)	57.9	53.2
Financial / insurance	(n = 138) / (n = 158)	70.4	69.6
Real estate	(n = 137) / (n = 139)	69.4	63.0
Information and communications	(n = 640)	78.5	
Service and other industries	(n = 340) / (n = 492)	53.2	46.0

(Note) The 2017 survey treated information and communications companies as a single industry and indicated that ICT industry members' share of the whole of survey targets increased from the previous survey. Attention must be paid to this point for historical analysis. (Until the 2016 survey, ICT companies had been treated as a component of the services and other industries.

By capitalization

Legend ■ : 2017
▨ : 2016

Capitalization		2017	2016
Less than ¥10 million	(n = 92) / (n = 87)	40.8	19.5
¥10 million to less than ¥30 million	(n = 537) / (n = 501)	46.2	39.1
¥30 million to less than ¥50 million	(n = 324) / (n = 264)	49.8	42.5
¥50 million to less than ¥100 million	(n = 638) / (n = 487)	57.4	45.9
¥100 million to less than ¥500 million	(n = 591) / (n = 365)	67.0	58.4
¥500 million to less than ¥1 billion	(n = 83) / (n = 43)	83.5	74.8
¥1 billion to less than ¥5 billion	(n = 164) / (n = 138)	78.6	73.6
¥5 billion or more	(n = 141) / (n = 129)	78.1	70.6

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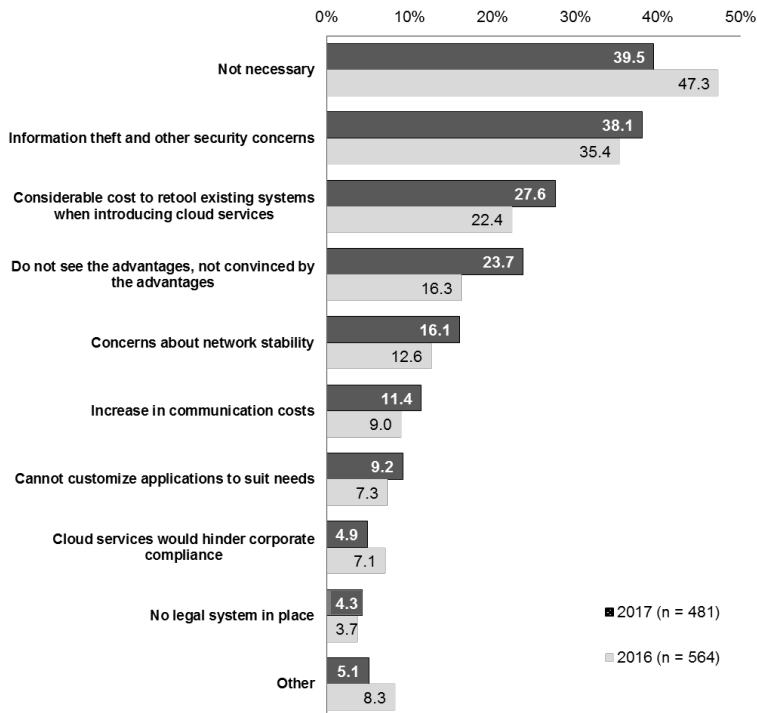## Figure 3-9: Cloud services used by businesses (multiple responses accepted)

Service	2017 (n = 1,571)	2016 (n = 960)
File storage / data sharing	51.2	50.7
Server applications	47.6	46.7
Email	46.3	51.7
Information sharing / portal	37.7	38.4
Data backups	34.4	27.0
Schedule sharing	34.1	38.3
Payroll, financial accounting, HR	27.1	26.4
Sales support	14.5	14.8
e-learning	12.3	12.2
Sharing information with business partners	10.4	8.3
System development and Website construction	9.2	8.2
Project management	8.6	7.0
Production management, distribution management,...	7.9	8.6
Purchasing	7.7	7.8
Order taking and sales	6.8	7.2
Billing and payment systems	5.6	5.0
Authentication systems	4.7	4.9
R&D related	1.6	1.2
Other	7.5	7.4

Note: as a percentage of businesses using cloud services

Figure 3-10: Reasons for not using cloud services (multiple responses accepted)

Reason	2017 (n = 481)	2016 (n = 564)
Not necessary	39.5	47.3
Information theft and other security concerns	38.1	35.4
Considerable cost to retool existing systems when introducing cloud services	27.6	22.4
Do not see the advantages, not convinced by the advantages	23.7	16.3
Concerns about network stability	16.1	12.6
Increase in communication costs	11.4	9.0
Cannot customize applications to suit needs	9.2	7.3
Cloud services would hinder corporate compliance	4.9	7.1
No legal system in place	4.3	3.7
Other	5.1	8.3

Note: as a percentage of businesses which neither used nor planned to use cloud services.

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4. Introduction and implementation of Telework

(1) Introduction of Telework (businesses)

> Of the surveyed businesses, 13.9 percent have introduced Telework.
>
> By type of Telework, "mobile work" was introduced by the largest percentage, 56.4 percent.
>
> The most common percentage of telework employees was "less than 5 percent," at 51.4 percent.
>
> The highest ranked purpose for introducing telework was "reduce workers' transportation times," at 54.1 percent. This was followed by "raise efficiency (productivity) of routine business processes" (46.4 percent) and "provide healthy, comfortable lives for workers" (23.7 percent).
>
> Concerning the intended effects of introduction, 81.8 percent recognized either "very beneficial" or "somewhat beneficial" effects.
>
> Of businesses that have not implemented Telework, "Work is not suited to Telework" was cited by the largest percentage, 73.7 percent, as the reason for not introducing Telework.
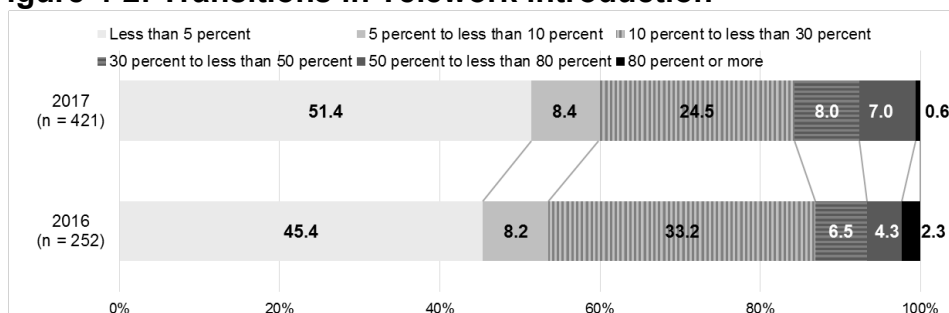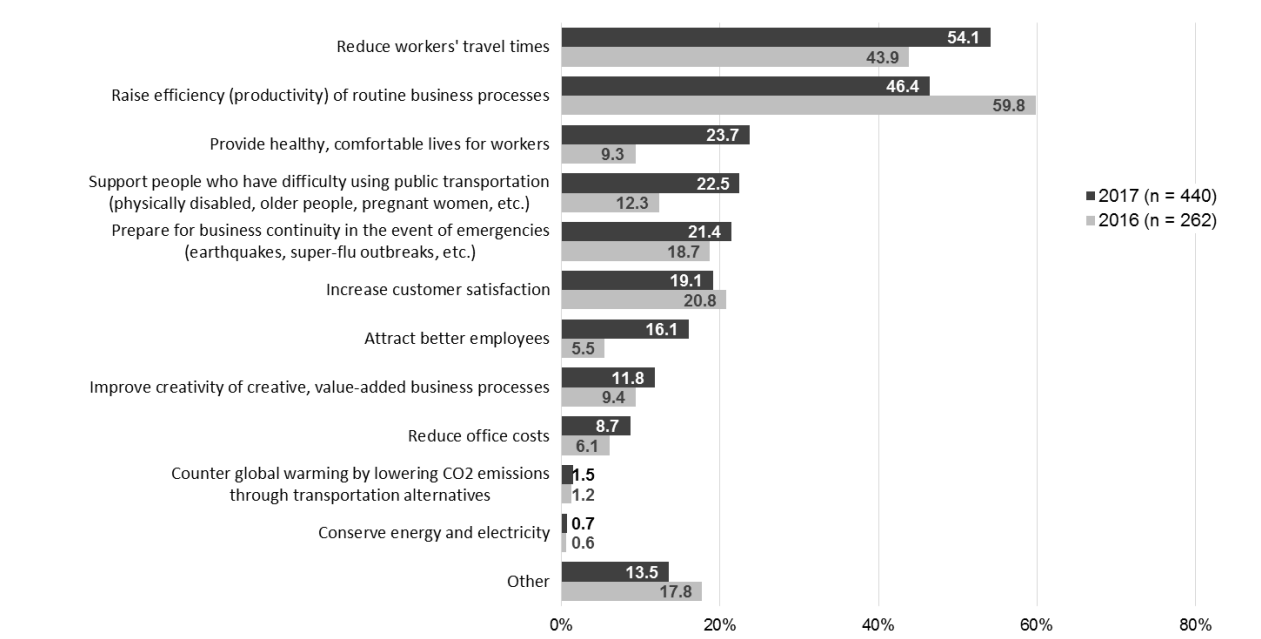
Figure 4-1: Telework introduction
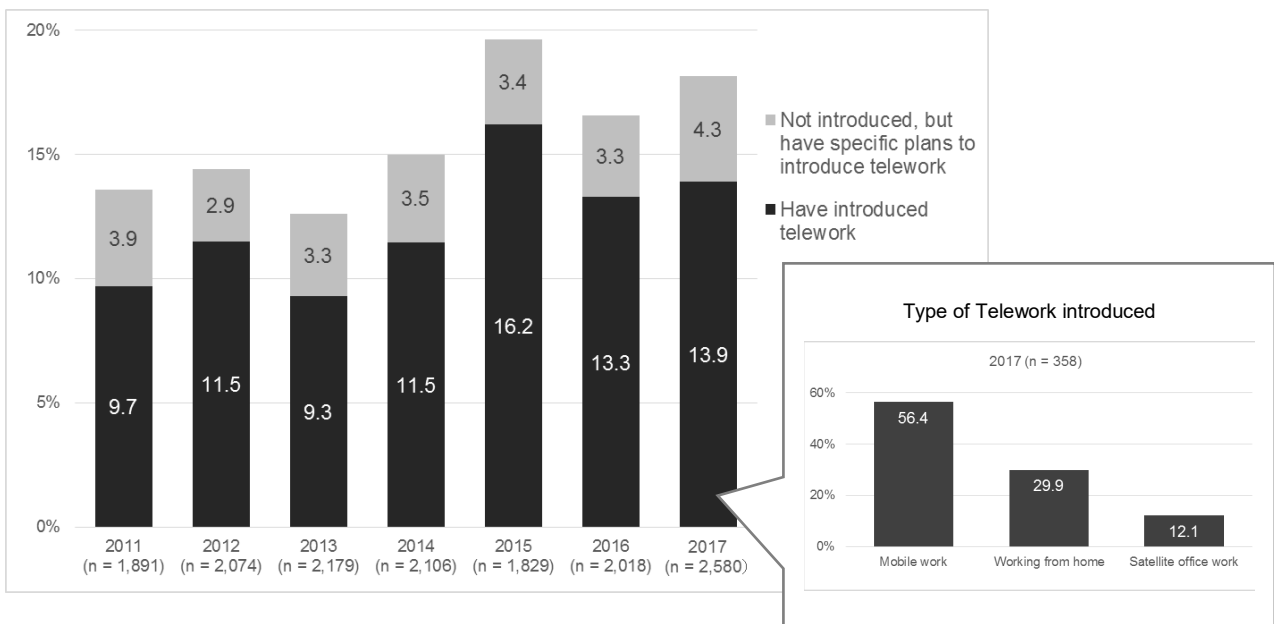
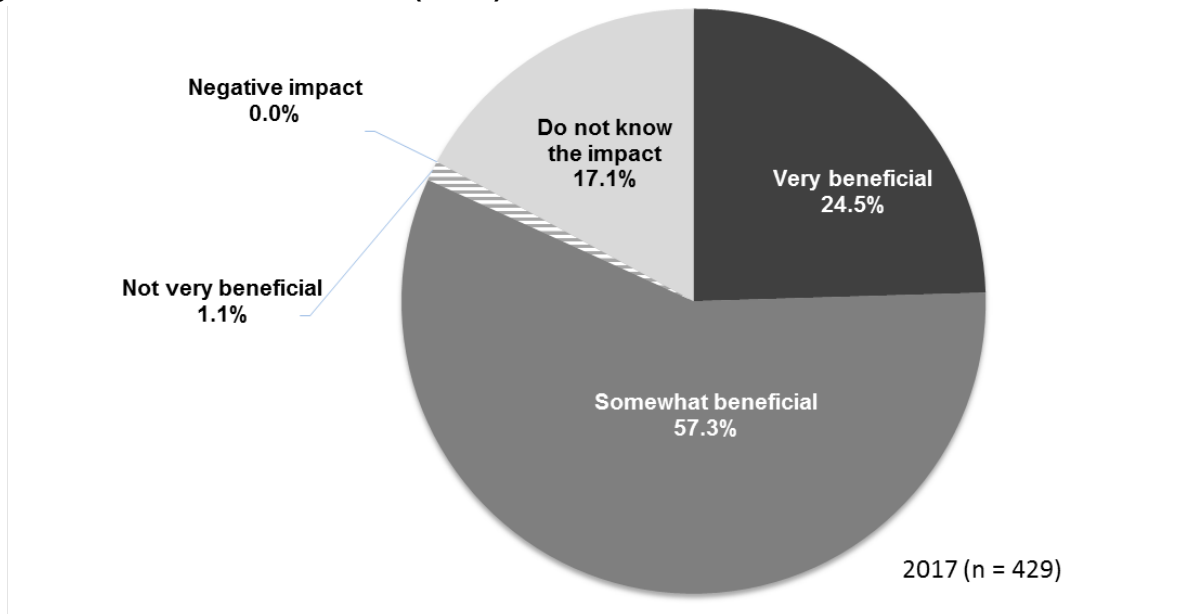**Figure 4-2: Transitions in Telework introduction**

Note: as a percentage of businesses which have introduced telework

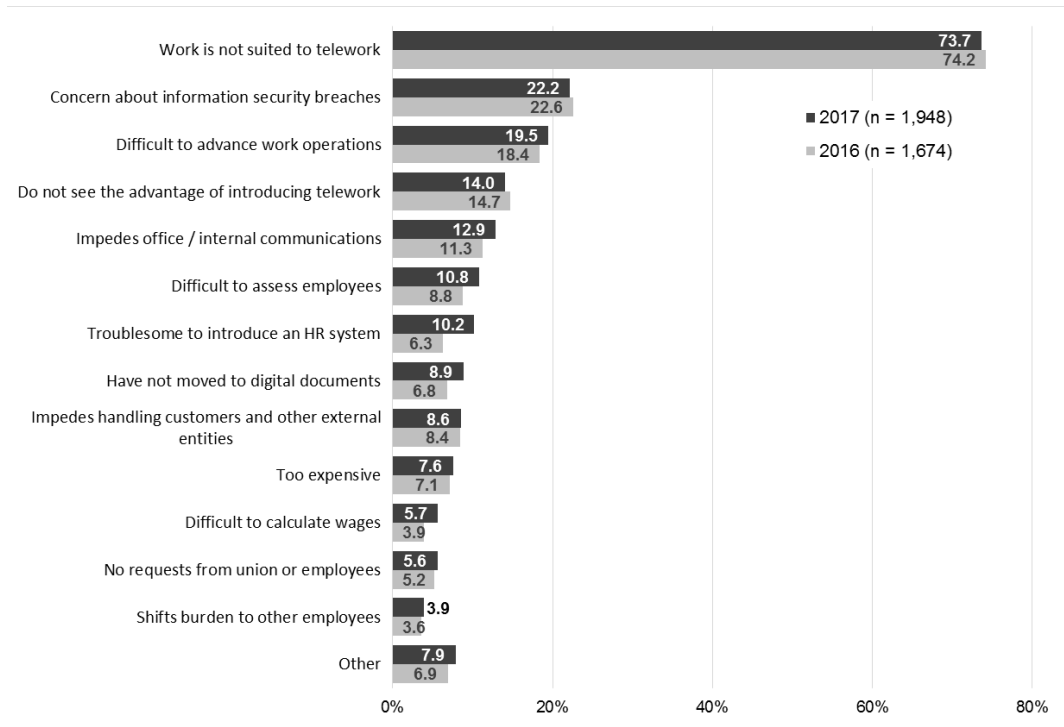## Figure 4-3: Purposes of introducing Telework (multiple responses accepted)

Note: as a percentage of businesses which have introduced telework

Figure 4-4: Telework benefits (2017)

Note: as a percentage of businesses which have introduced telework

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Figure 4-5: Reasons for not introducing Telework (multiple responses accepted)

Reason	2017 (n = 1,948)	2016 (n = 1,674)
Work is not suited to telework	73.7	74.2
Concern about information security breaches	22.2	22.6
Difficult to advance work operations	19.5	18.4
Do not see the advantage of introducing telework	14.0	14.7
Impedes office / internal communications	12.9	11.3
Difficult to assess employees	10.8	8.8
Troublesome to introduce an HR system	10.2	6.3
Have not moved to digital documents	8.9	6.8
Impedes handling customers and other external entities	8.6	8.4
Too expensive	7.6	7.1
Difficult to calculate wages	5.7	3.9
No requests from union or employees	5.6	5.2
Shifts burden to other employees	3.9	3.6
Other	7.9	6.9

Note: as a percentage of businesses that have not implemented or have no plans to introduce telework.
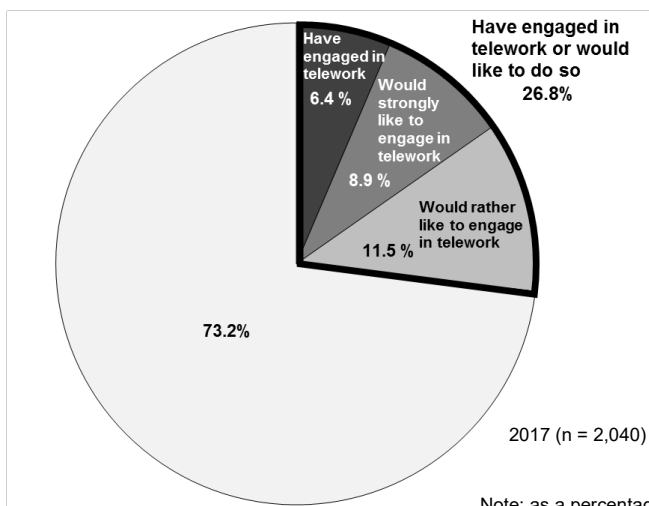
(2) Engagement in Telework (individuals)

Of individuals aged 15 or older and working for companies or other organizations, 6.4 percent had the experience of engaging in Telework. By type of Telework, the engagement rate for "working from home" was the highest at 57.6 percent.

As to whether or not individuals would like to engage in Telework, 22.3 percent selected the reply "would strongly like to engage in Telework" or "would rather like to engage in Telework."
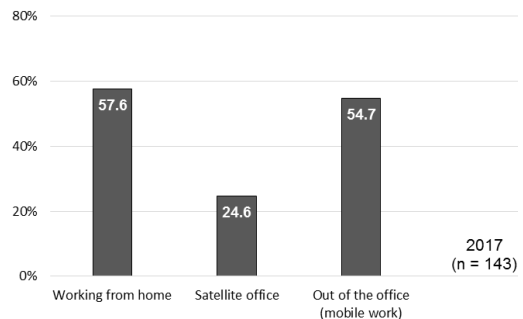
Of individuals who would like to engage in Telework but who did not engage in it, 74.8 percent selected "There is not a telework system at the employer" while 52.0 percent cited "Work is not suited to Telework."

Figure 4-6: Having engaged and hoping to engage in Telework

Have engaged in telework: 6.4 %
Would strongly like to engage in telework: 8.9 %
Would rather like to engage in telework: 11.5 %
Have engaged in telework or would like to do so: 26.8%
73.2%

2017 (n = 2,040)

Note: as a percentage of individuals aged 15 or older and working for companies and other organizations

Figure 4-7: Type of Telework (multiple responses accepted)

Type	2017 (n = 143)
Working from home	57.6
Satellite office	24.6
Out of the office (mobile work)	54.7

Note: as a percentage of individuals who engaged in Telework

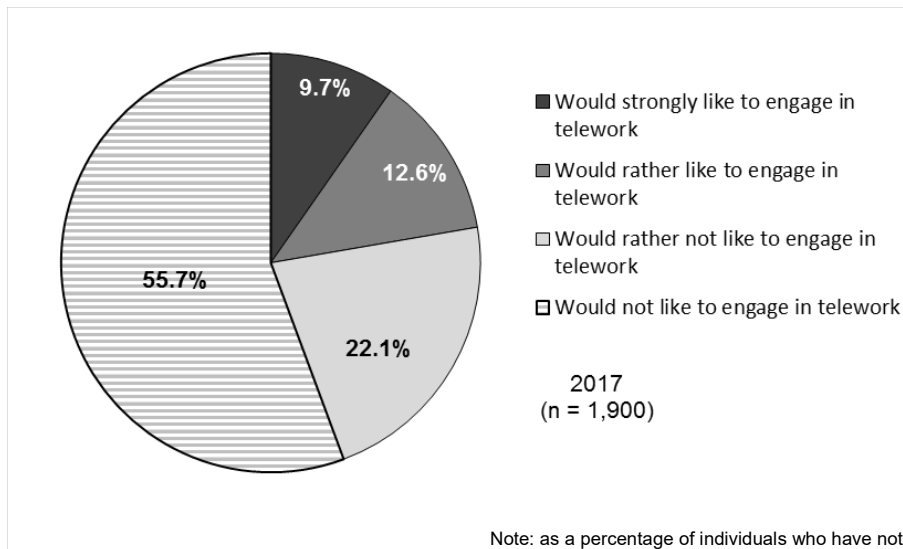## Figure 4-8: Whether or not individuals would like to engage in Telework

Pie chart:
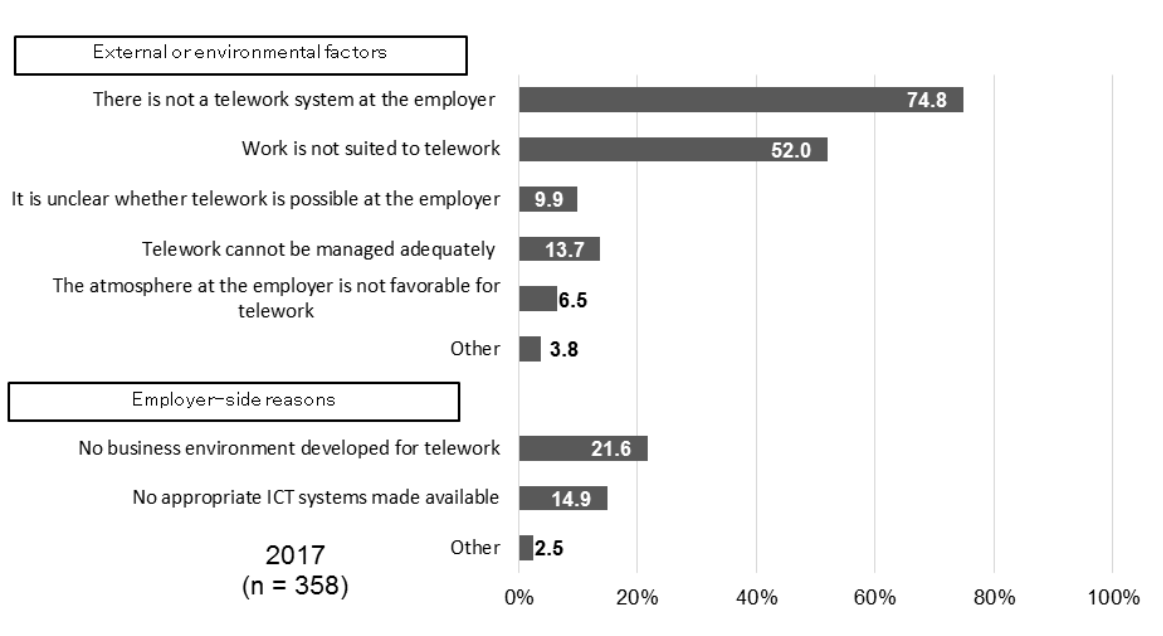- 9.7% — Would strongly like to engage in telework
- 12.6% — Would rather like to engage in telework
- 22.1% — Would rather not like to engage in telework
- 55.7% — Would not like to engage in telework

2017
(n = 1,900)

Note: as a percentage of individuals who have not engaged in Telework

Figure 4-9: Reasons for not engaging in telework (2017, multiple responses accepted)

External or environmental factors

Reason	Percentage
There is not a telework system at the employer	74.8
Work is not suited to telework	52.0
It is unclear whether telework is possible at the employer	9.9
Telework cannot be managed adequately	13.7
The atmosphere at the employer is not favorable for telework	6.5
Other	3.8

Employer-side reasons

Reason	Percentage
No business environment developed for telework	21.6
No appropriate ICT systems made available	14.9
Other	2.5

2017
(n = 358)

Note: as a percentage of individuals who would like to engage in telework

20

5. Safety and security efforts

(1) State of security measures (households)

Among households that use the Internet, 65.4 percent have taken some security measures. The most common security measures taken were "installed or updated a security program," at 46.2 percent. This was followed by "signed up to or updated a security service" (25.4 percent) and "did not connect to the Internet using an unknown or unsecured source" (23.1 percent).

Figure 5-1: State of security measures (multiple responses accepted)
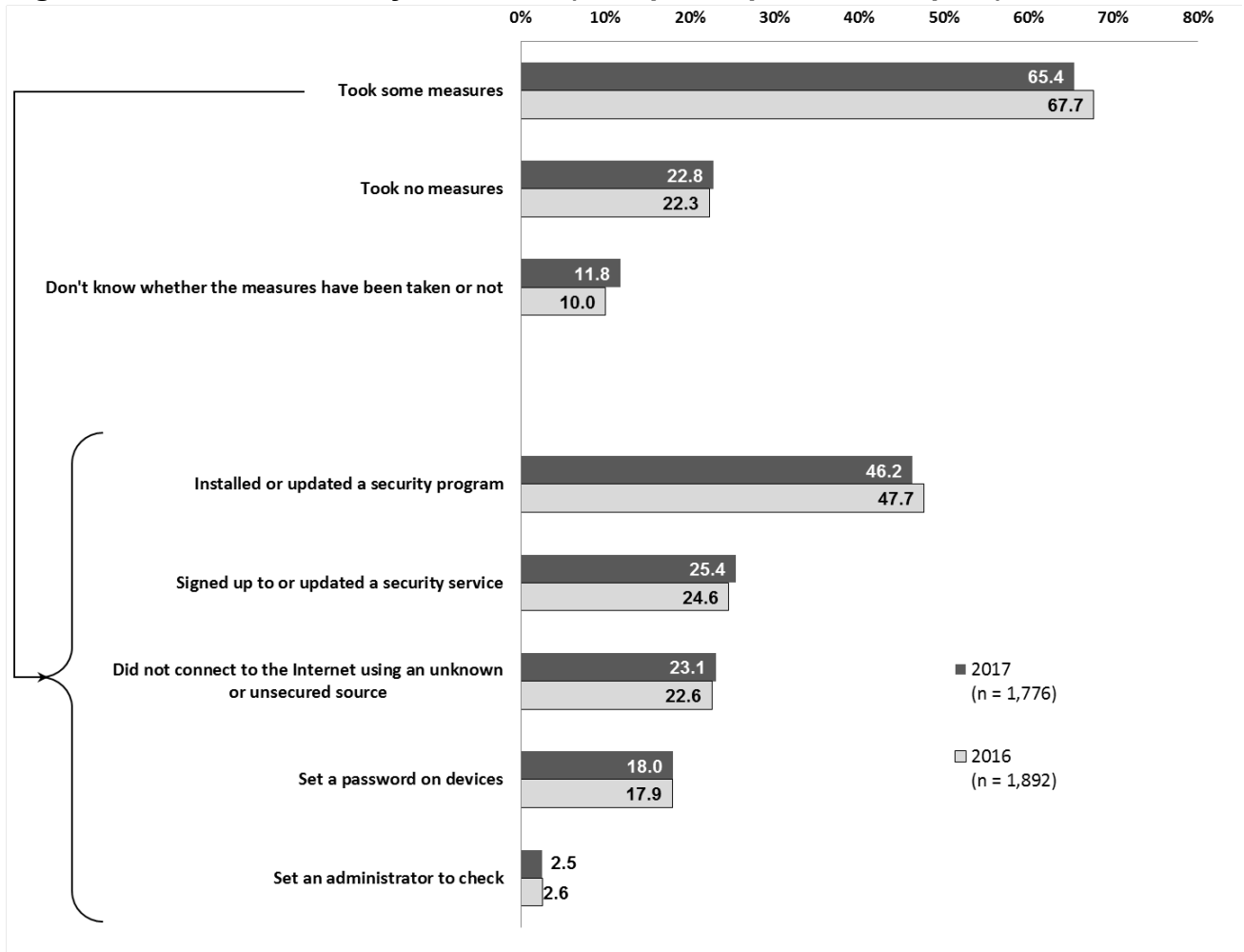
Note: as a percentage of households with at least one person who used the Internet in the past one year

(2) Concerns about using the Internet (individuals)

> The combined percentage of Internet users aged 12 or more who "feel concerned" and "feel rather concerned" during Internet use came to 66.8%, rising by 5.2 points from the previous survey. A similar rise is seen among those aged between 30 and 79.
>
> The most frequently cited type of concern about using the Internet was "leak of personal information and Internet use history" (cited by 89.5%), followed by "computer virus infections" (69.6%) and "spam" (53.5%), indicating a trend similar to that in the previous survey.

Figure 5-2: Concerns about using the Internet

Note: as a percentage of Internet users aged 12 or older

(Note) Percentage of Internet users who "feel concerned" and "feel rather concerned"
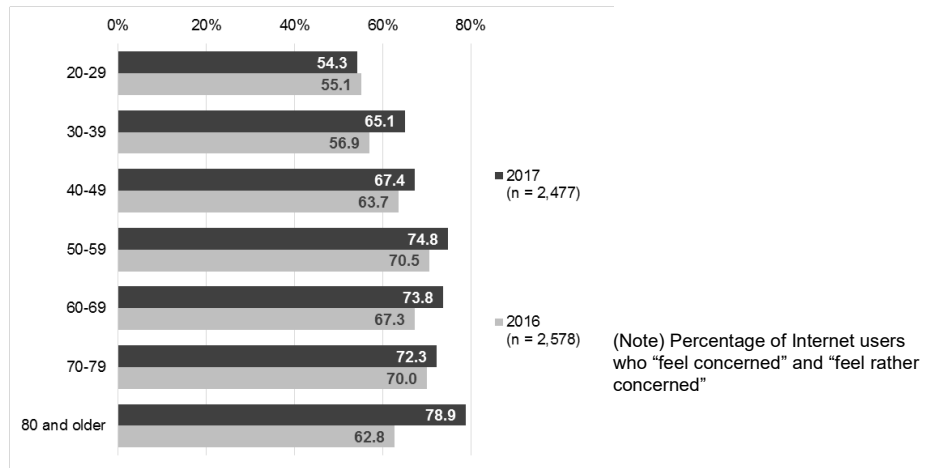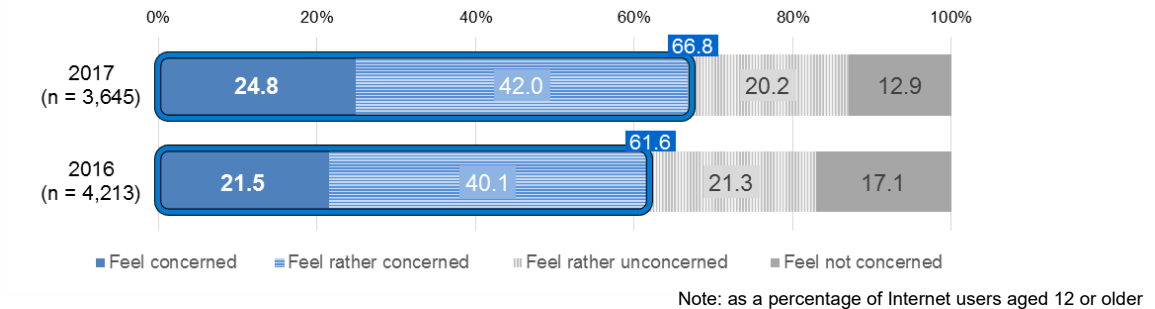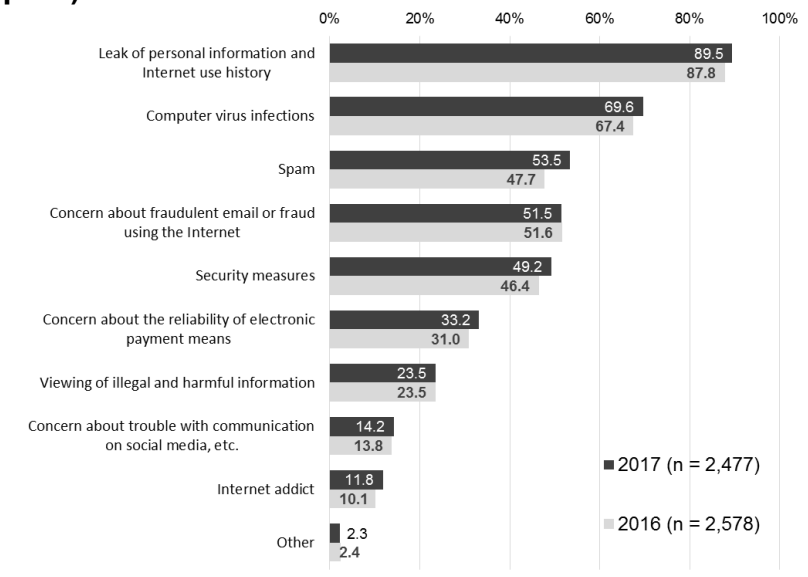
### Figure 5-3: Types of concerns about using the Internet (multiple responses accepted)

Note: as a percentage of individuals who replied either that they "feel concerned" or that they "feel rather concerned" when using the Internet

(3) Security breaches against information-communication networks and security measures implemented (businesses)

Among businesses that used information-communication networks, 50.9 percent reported some kind of loss resulting from a security breach during the use of information communication networks in the past year. By type of security breach, 44.1 percent discovered or were infected by a computer virus and 28.8 percent received targeted emails.

The percentage of businesses that implemented some security measures was 99.3 percent. By type of security measure, the implementation rate was highest, 88.9 percent, for "install anti-virus programs on computers and other devices (operating system, software, etc.), which was followed by "install anti-virus programs on servers" (66.5 percent) and "Training for employees." (57.6 percent).

Figure 5-4: Security breaches that occurred in the past year during the use of information-communication networks (multiple responses accepted)
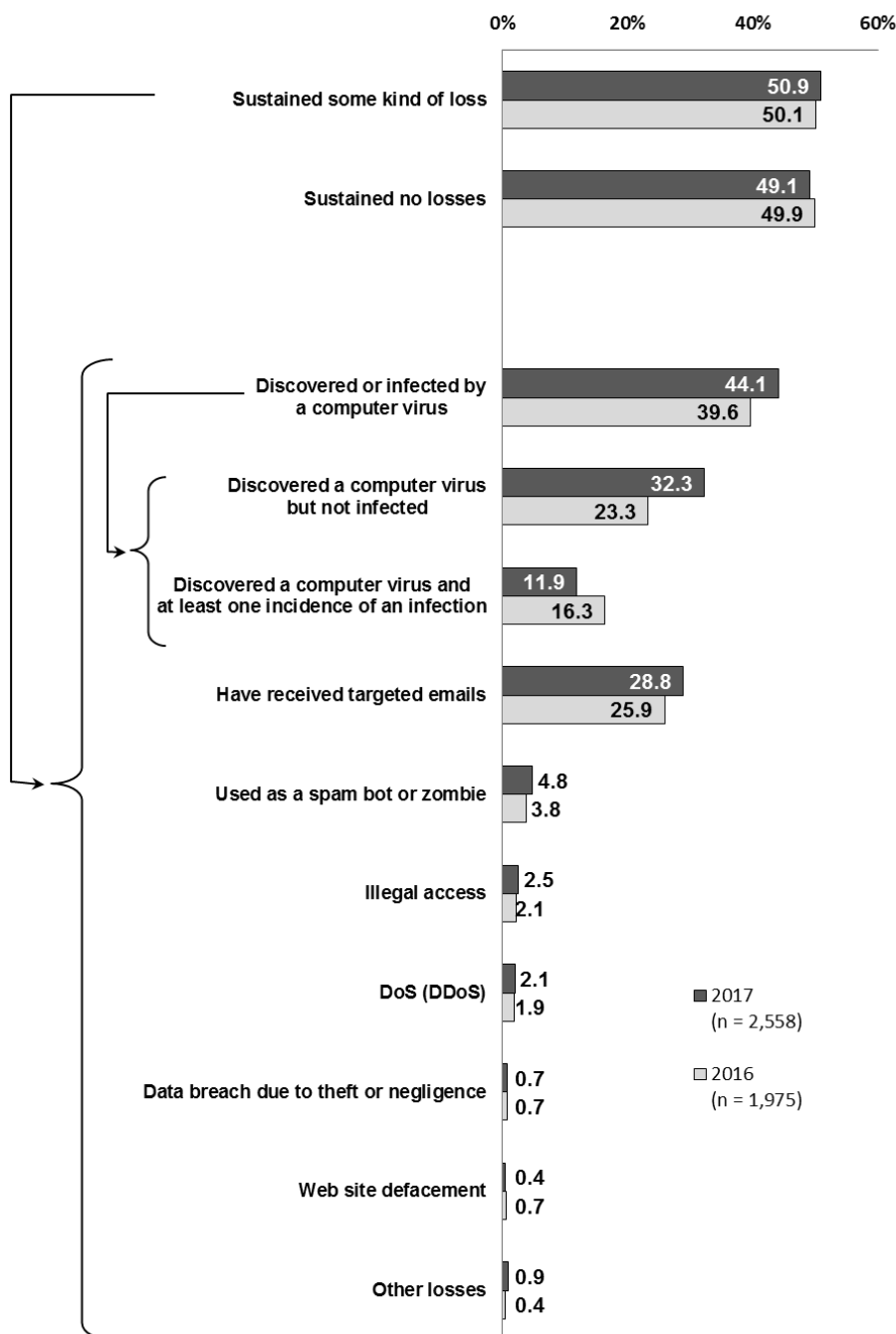
Note: as a percentage of businesses that used information-communication networks (company communication networks and the Internet)

Figure 5-5: State of security measures (multiple responses accepted)

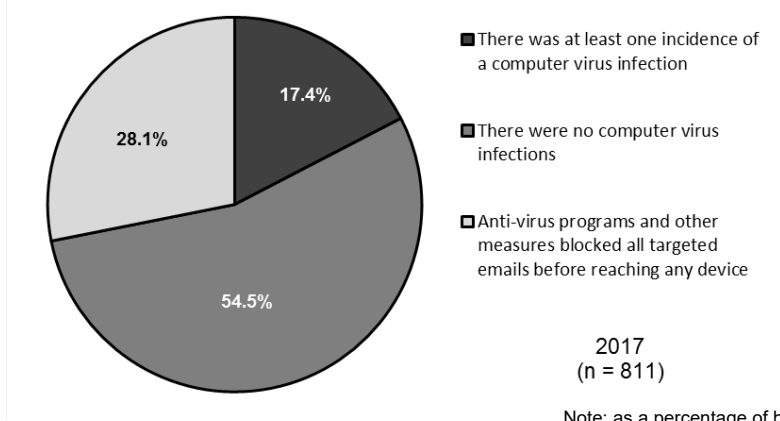| Measure	2017 (n = 2,554)	2016 (n = 2,014)
Implemented some measures	99.3	98.4
Not implemented any particular measure	0.7	1.6
Install anti-virus programs on computers and other devices (operating system, software, etc.)	88.9	88.2
Install anti-virus programs on servers	66.5	66.8
Training for employees	57.6	50.5
Control access with IDs, passwords, etc.	53.7	55.3
Install and maintain firewalls	48.2	46.1
Apply security patches for operating systems	44.2	39.9
Establish security policies	41.2	37.0
Maintain access logs	34.2	34.0
Construct anti-virus walls at external access points	26.3	23.4
Use proxy servers, etc.	22.0	19.6
Encrypt data or networks	19.8	18.5
Security audits	18.9	17.1
Line monitoring	17.4	14.9
Install and maintain intrusion detection systems (IDS) or intrusion protection systems (IPS)	15.8	14.1
Outsource security management	15.0	12.2
User authentication by means of authentication technologies	13.3	15.1
Establish manuals on responding to viruses	12.7	13.2
Install and maintain Web application firewalls	11.1	10.5
Other measures	29.3	28.3

Note: as a percentage of businesses that used information-communication networks (company communication networks and the Internet)

(4) Targeted email losses and security measures taken (businesses)

Of businesses which received targeted emails, 17.4 percent selected the reply "Targeted emails reached an employee's device and there was at least one incidence of a computer virus infection," while 54.5 percent selected "Targeted emails reached an employee's device, but there were no computer virus infections."
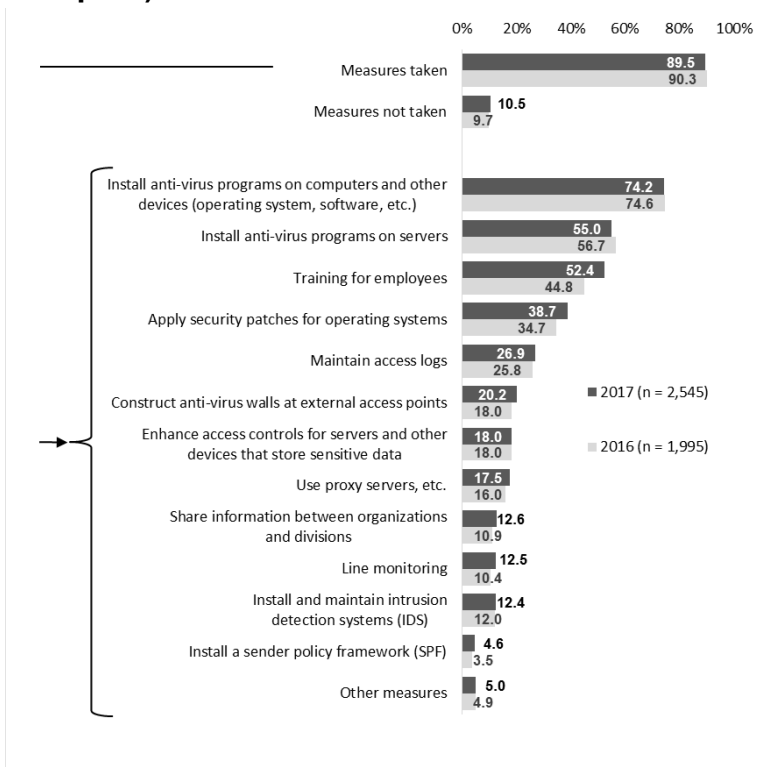
Of businesses that used information-communication networks, 89.5 percent implemented some security measures against targeted emails. The most common security measure was "install anti-virus programs on computers and other devices (operating system, software, etc.)," at 74.2 percent. This was followed by "install anti-virus programs on servers" (55.0 percent) and "training for employees" (52.4 percent).

Figure 5-6: Losses from targeted emails (2017)

- 17.4% ■ There was at least one incidence of a computer virus infection
- 54.5% ■ There were no computer virus infections
- 28.1% □ Anti-virus programs and other measures blocked all targeted emails before reaching any device

2017
(n = 811)

Note: as a percentage of businesses that received targeted emails

Figure 5-7: Security measures against targeted emails (multiple responses accepted)

	2017 (n = 2,545)	2016 (n = 1,995)
Measures taken	89.5	90.3
Measures not taken	10.5	9.7
Install anti-virus programs on computers and other devices (operating system, software, etc.)	74.2	74.6
Install anti-virus programs on servers	55.0	56.7
Training for employees	52.4	44.8
Apply security patches for operating systems	38.7	34.7
Maintain access logs	26.9	25.8
Construct anti-virus walls at external access points	20.2	18.0
Enhance access controls for servers and other devices that store sensitive data	18.0	18.0
Use proxy servers, etc.	17.5	16.0
Share information between organizations and divisions	12.6	10.9
Line monitoring	12.5	10.4
Install and maintain intrusion detection systems (IDS)	12.4	12.0
Install a sender policy framework (SPF)	4.6	3.5
Other measures	5.0	4.9

25

(5) Issues associated with use of information-communication networks (businesses)

"Concern about virus infections" was cited by the largest percentage of businesses, 47.4 percent, as an issue associated with use of information-communication networks, followed by "difficulties in establishing security measures" (40.9 percent) and "rising operational and management costs" (39.1 percent).

**Figure 5-8: Issues associated with use of information-communication networks (multiple responses accepted)**

Issue	2017 (n = 2,527)	2016 (n = 1,963)
Concern about virus infections	47.4	48.8
Difficulties in establishing security measures	40.9	36.8
Rising operational and management costs	39.1	38.2
Lack of operational and administrative personnel	37.3	41.3
Low security awareness among employees	34.7	32.8
Difficulties in restoring operations after a fault	26.8	25.2
Difficulties in quantifying benefits of network adoption	12.9	11.8
High communication charges	12.4	8.9
Low communication speeds	9.6	6.8
Difficulties in achieving benefits from network adoption	8.9	9.4
Concern about protection of copyrights and intellectual property	4.3	3.1
Concern about the reliability of electronic payments	3.7	4.3
Concern about the reliability of authentication technology	3.4	2.4
Other	2.6	2.2
No particular issues	11.0	12.7

Note: as a percentage of businesses that used information-communication networks (company communication networks and the Internet)

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6. Usage of Internet-enabled TV receivers by households

(1) Desired usages of Internet-enabled TV receivers

"Video on demand (VOD) or other streamed programming" was cited by the largest percentage of households (34.5 percent) as a service that they would like to use through Internet-enabled TV receivers, followed by "Watch recorded programs via a network" (25.9 percent).
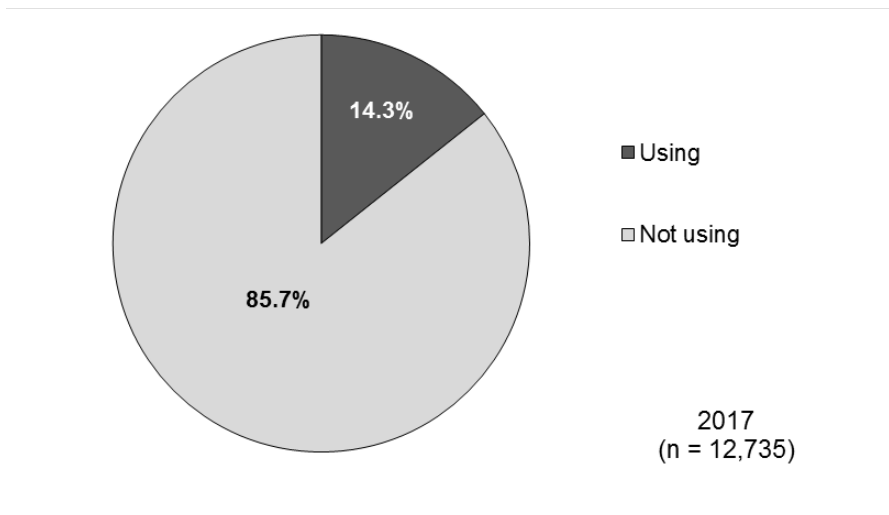
Figure 6-1: Usage of Internet-enabled TV receivers (2017)

Note: as a percentage of all households
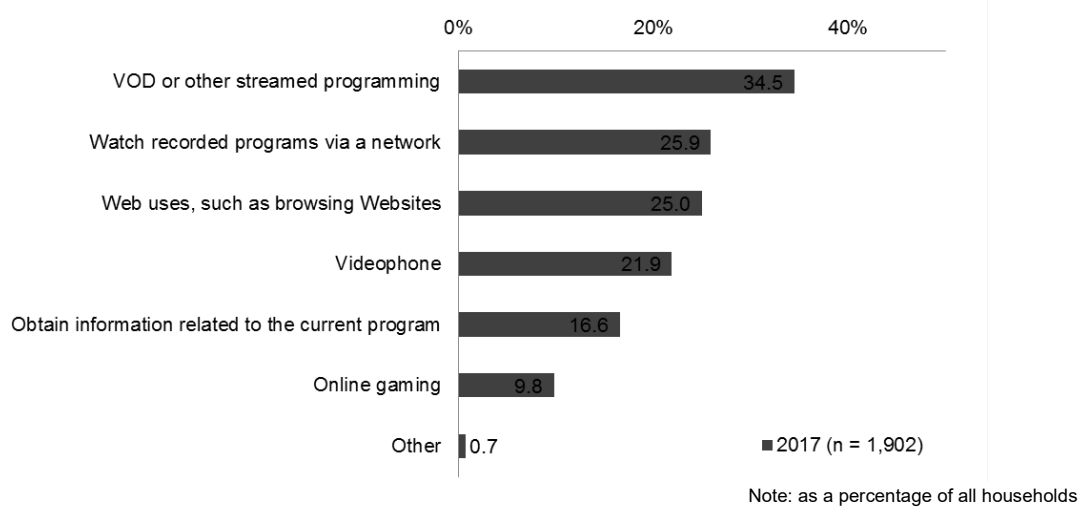
(2) Usage of Internet-enabled TV receivers

Of households with at least one person who used the Internet in the past year, 14.3 percent used Internet-enabled TV to access the Internet.

Figure 6-2: Usage of Internet-enabled TV receivers (2017, multiple responses accepted)

Note: as a percentage of households with at least one person who used the Internet in the past year

(3) Purposes of usage of Internet-enabled TV receivers

Looking at the purposes of usage of Internet-enabled TV receivers, "video on demand (VOD) or other streamed programming" was cited by the largest percentage, 37.1 percent, followed by "obtain information related to the current program" (34.5 percent), "web uses, such as browsing Websites, posting videos, using forums, chat, social networking, online shopping, etc." (28.0 percent).

Figure 6-3: Purposes of usage of Internet-enabled TV receivers (2017, multiple responses accepted)

Note: as a percentage of households using Internet-enabled TV receivers to access the Internet