

# Communications Market Report

NATIONAL  
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# 2019



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## Foreword

Continual rapid development in information and communications technologies is clearly the driving force behind the flourishing digital economy. Consequently, the communications sector has become more vital than ever to a nation's economy and its overall development. This can be underscored by the use of communications services not only affecting business operations and technological development within the communications industry, but also playing a key role in other sectors.

Conducting a comprehensive survey of communications thereby provides valuable insight to national development and has long been a means for organizations, such as Ofcom, the communications regulator in the UK, Ministry of Internal Affairs and Communications in Japan, KCC in Korea and IMDA in Singapore, to ascertain consumer behavior so that information can be regularly compiled and analyzed so as to determine key statistics and specific trends of the communications industry. Likewise, The National Communications Commission (NCC) of Taiwan conducted its first comprehensive communications market survey in 2017.

The aim of this year's survey was to acquire objective and detailed data on consumer behaviors and the status of the innovative applications through a comprehensive and in-depth investigation. Subsequently, the acquired information may serve as an indicator of the development of the digital economy of Taiwan, as well as a reference when determining future policies and regulations.

Part I: Overview of Communications in Taiwan provides an outline of the communications industry in Taiwan. Part II: Survey of Development of Digital Convergence in Communications begins with an outline of the background and research methods undertaken for this survey. The questionnaire was designed with particular referral to those conducted by Ofcom. With respect to sampling, a stratified three-stage probabilities proportional to size sampling was employed. In the first and second stages, samples were allocated based on the PPS principle; while in the third stage, samples were selected using purpose sampling and interviews to survey how Taiwanese people aged 16 and over use services in four categories: Telecommunications, Broadcasting, Broadband Usage, and Digital Convergence. In addition to the methods and structure, limitations of the sampling structure, samples received and the sample reasoning of this survey have all been clearly explained.

Thus, this report contains the results of the four surveys of telecommunications, broadcasting, broadband usage and digital convergence, which have then been combined to present an overall analysis and provide a comprehensive picture of consumer behavior in Taiwan. Then, a cross analysis including region, gender, age and marriage status has been shown to indicate the differences between groups.

Part III contains a comparison of domestic and international trends of digital convergence, whereby both international trends and global development in the communications industry have been shown alongside those of Taiwan. And then, in Part IV, final conclusions are given, as well as some suggestions for further consideration.

01

# Overview of Communications in Taiwan



# Telecommunications

## Market Revenue

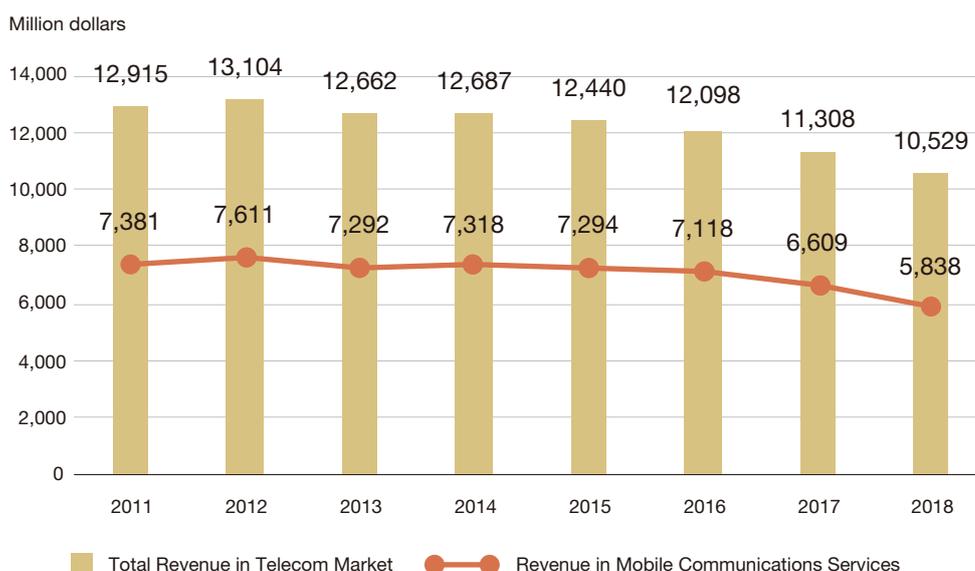
The total revenue of the telecommunications market and mobile communications services in Taiwan have both been decreasing in recent years. The former fell from US\$12.915 billion in 2011 to US\$10.529 billion in 2018, while the latter decreased from US\$7.381 billion in 2011 to US\$5.838 billion in 2018.

a little and had risen to 29.34 million in 2018; in contrast, the number of mobile broadband subscribers grew significantly from 9.93 million in 2011 and by the close of 2018, had reached 26.33 million.

## Number of Telecommunications Subscribers and Penetration

When comparing the numbers of subscribers of various telecommunications services in Taiwan between 2011 and 2018, it can be seen that the number of landline subscribers had decreased from 16.91 million in 2011 to 13.17 million in 2018; meanwhile, the number of fixed broadband subscribers had slightly increased from 5.4641 million to 5.725 million over the same period. The number of mobile phone subscribers fluctuated

When comparing the penetration of various telecommunications services in Taiwan between 2011 and 2018, it was noted that the penetration of landline had decreased from 72.66% in 2011 to 55.53% in 2018; meanwhile, fixed broadband penetration remained comparatively stable with a ratio of 24.13% in 2018. As for mobile phone penetration over the same period, this had increased slightly before moving lower to 123.66% in 2018; finally, the penetration of mobile broadband had more than doubled over the same period, from 42.67% in 2011 to 110.96% in 2018.



**Figure 1 Telecommunications Market and Mobile Communications Services Revenues in Taiwan**

Source: National Communications Council (NCC)

Note: The total revenues of Taiwan's telecommunications market and mobile communications services were originally calculated in NTD. For the sake of comparison, the figures were converted to U.S. currency based on the exchange rates of Central Bank of the Republic of China in those years.

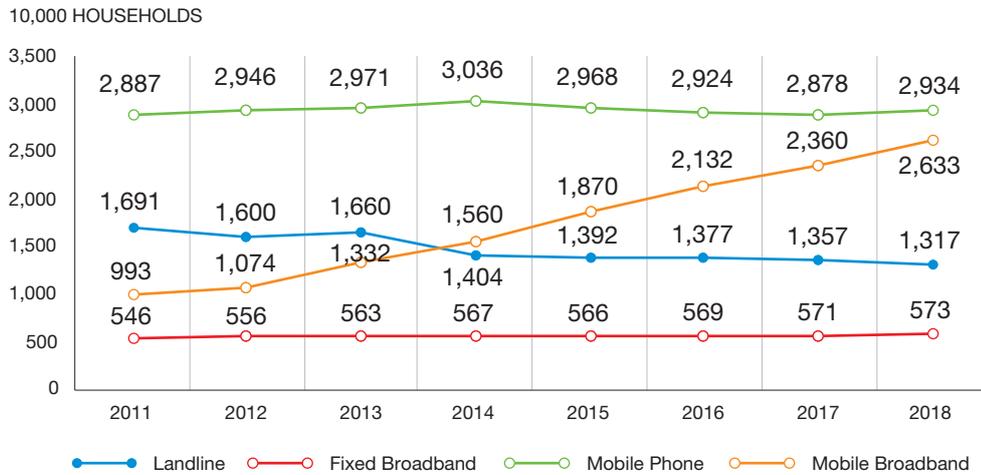


Figure 2 Subscriber Numbers of Various Telecommunications Services in Taiwan  
Source: NCC

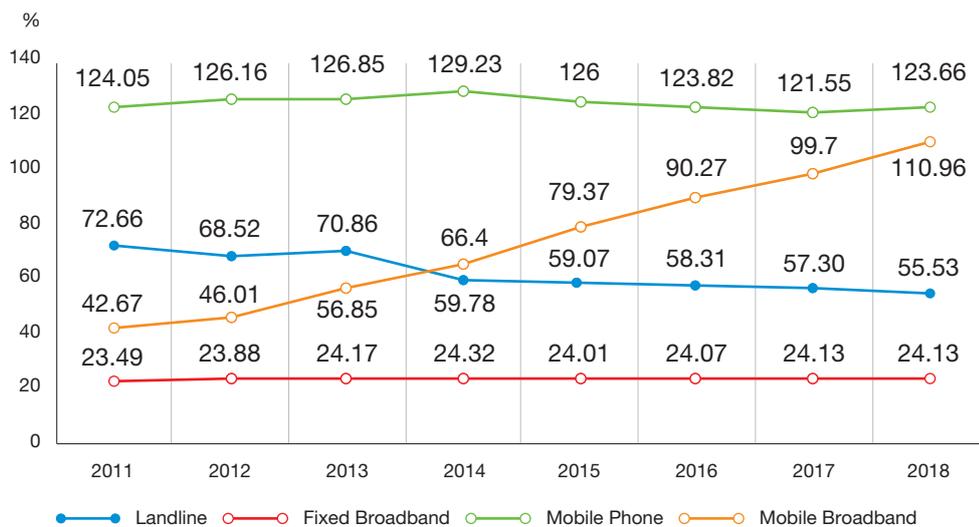


Figure 3 Penetration of Various Telecommunications Services in Taiwan  
Source: NCC

# Broadcasting

## Market Revenue

Since 2017, the revenue of Taiwan’s broadcast market has been calculated on a different basis from previous years; therefore, only revenues of 2017 and 2018 were compared. The revenue of the broadcasting market in various service sectors in 2018 have been provided henceforth:

Satellite TV revenue reached NT\$64.9 billion, a decrease of NT\$1.2 billion from 2017; revenue of Cable TV reached NT\$37.8 billion, a decrease of NT\$0.4 billion from the year previous; meanwhile, the revenue of terrestrial TV was NT\$8 billion, a decrease of NT\$0.3 billion from 2017; As for

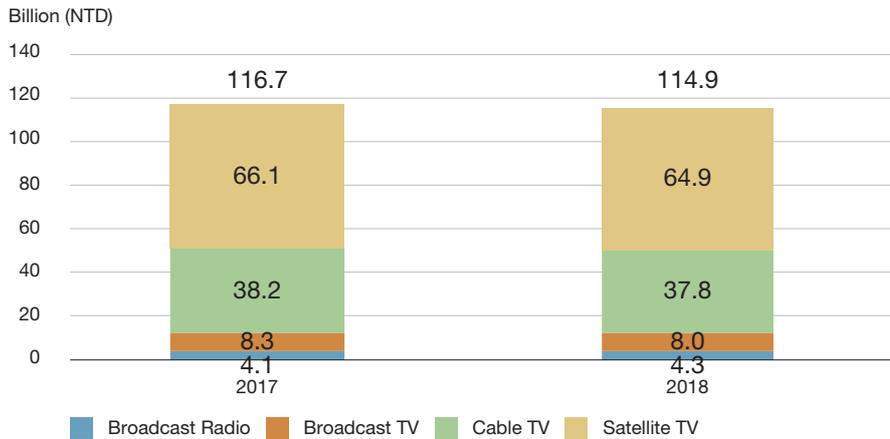


Figure 4 Broadcasting Revenue by Industry in Taiwan

Source: NCC

Note 1: The statistics submitted by public broadcast media have been included in the annual statistics from 2017.

Note 2: The financial information of all broadcast radio and television and cable radio and television enterprises with a satellite television license should be included in the satellite radio and television enterprise category from 2017 in accordance with the regulations.

terrestrial radio, revenue was NT\$4.3 billion, an increase of NT\$0.2 billion from the year previous. In total, revenue of Taiwan’s broadcasting industry came to NT\$114.9 billion, a decrease of NT\$1.8 billion from 2017.

remained fairly stable, fluctuating a little and moving down to 5.077 million in 2018, a decrease of 148,000 from 2017; in contrast, the number of IPTV subscribers had grown steadily over the same period and increased significantly in 2017 and 2018, reaching 2.01 million in 2018; meanwhile, the number of satellite TV subscribers had declined gradually to 7,000 in 2018 after reaching its peak in 2012.

### Number of Pay TV Subscribers

Cable television has remained the most popular form of pay television over recent years. Between 2011 and 2018, the number of subscribers had

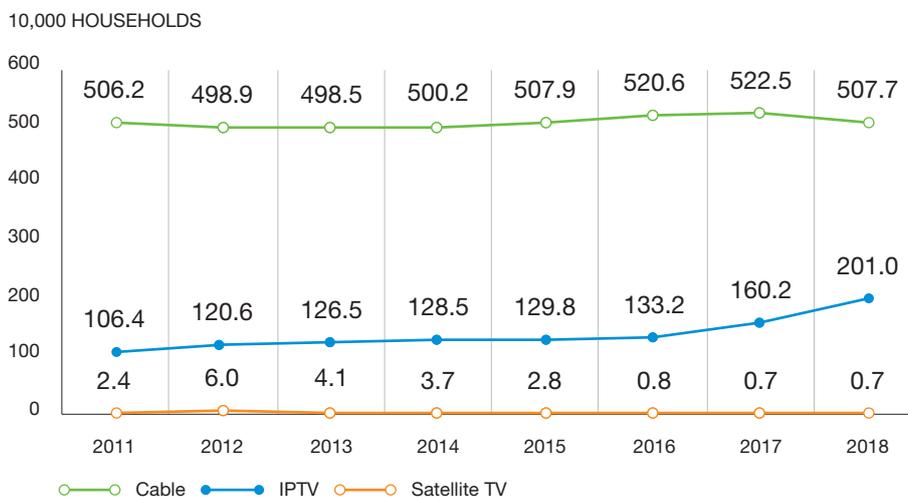


Figure 5 Pay TV Subscriber Numbers in Taiwan

Source: NCC

02

# Survey of Development of Digital Convergence



# Methodology

## Questionnaire Design

The questionnaires used for this survey were adapted from research undertaken by Ofcom, which has gained extensive experience of surveying consumer behavior and trends in the communications industry. The survey, which covers four categories, telecommunications, broadcasting, broadband usage, and digital convergence, was conducted with the objective of obtaining data on consumer behavior and preferences, as well as key developments and innovations in the digital economy so as to obtain a thorough analysis and comprehensive in-depth investigation of demand for such services.

## Population and Sampling Strategy

### Survey Population

The survey was conducted in Taiwan, Penghu, Kinmen and Matsu with people aged 16 and above (those who were born on and before December 31, 2003) being approached.

### Sampling Method

Due to the Personal Information Protection Act, household registers from the Ministry of the Interior were unavailable and a limited budget meant that sampling was designed and performed in three stages according to the principle of PPS (probabilities proportional to size) sampling. In the first and second stages, samples were allocated based on the PPS principle, while in the third stage samples were selected using purpose sampling.

### Pilot Test

Prior to the formal survey, pilot tests were conducted. Thirty successful samples were taken in each of the four categories, a total of 120 successful samples. The original seven levels were merged to five after the pretest<sup>1</sup>.

## Formal Survey

Prior to conducting the formal survey, the proportions of population in the geographic areas were calculated based on the demographic data provided by the Ministry of the Interior at the end of December 2018, and the numbers of samples for all geographic areas were determined based on the proportions, with the numbers of townships and the expected number of completed samples within every township adjusted. Consequently, a total of 1,100 samples were expected to be completed in each of the four investigations in Taiwan proper (including Penghu); Kinmen and Matsu a total of 60 samples. In view of the small population and extremely uneven distribution of population in the Hualien and Taitung area, the stratified two-stage PPS (probabilities proportional to size) sampling was actually used, while the stratified three-stage PPS sampling was used in other areas. During the third stage, a survey point was set up at gathering places (such as village office, activity center, and market) in certain townships.

The sampling units in each stage are explained as follows:

- A. During the two-stage sampling, the primary sampling units were “township” and then “people.” All of the “districts and townships” in the geographic stratum were included.
- B. During the three-stage sampling, the primary sampling units were “townships,” and the second sampling units were “villages”; the last sampling units were “people.”

<sup>1</sup> In the pilot study, the classifications established by Pei-jun Hou et al. (2008) were adopted as the basis for the stratified sampling: villages, towns, cities and districts were grouped into seven levels based on the degree of development, being city centers, commercial and industrial areas, emerging cities and townships, traditional industry townships, less-developed townships, aged townships and remote townships, with the last three levels – Levels 5, 6 and 7 – merged as one. The areas are defined as follows – North Area: Taipei City, New Taipei City, Keelung City, Taoyuan County, Hsinchu County and Hsinchu City, Miaoli County, Ilan County; Central

During the implementation of the survey, the gender and age structures of all communities were strictly controlled with view to ensuring that the structure of the survey results could be similar to that of the target population. In case of any inconsistency between obtained samples and the population, the results were weighted based on variables like gender, age, and community. The weighted sample number in every age group was not permitted to exceed the original sample number by  $\pm 60\%$ .

### Allocation of Samples

At least 1,160 valid samples were investigated in each questionnaire with a sampling error of within  $\pm 3\%$  at a 95% confidence level.

Since the original allocation of the survey site sampling is based on proportions of the entire population, these calculated decimal numbers had to be rounded to the nearest integers when the survey was actually performed. Moreover, to meet a specific requirement that the number of weighted samples in each age group must not exceed the original number of samples by  $\pm 60\%$ , the samples were allocated and adjusted accordingly.

Table 1 Allocation of Samples

| Geographic stratum                           | Level    | No. of People Aged 16 and above | Population Percentage | Planned Allocation of Samples | No. of Townships and Districts Selected | No. of Villages Selected | Total No. of Samples by Village |
|--|----------|---------------------------------|-----------------------|-------------------------------|---|--------------------------|---------------------------------|
| Taipei City, New Taipei City, Keelung, Yilan | Level 1  | 1,229,181                       | 18.98%                | 67                            | 3                                       | 2                        | 6                               |
|  | Level 2  | 3,193,854                       | 49.32%                | 174                           | 7                                       | 2                        | 14                              |
|  | Level 3  | 1,648,552                       | 25.46%                | 90                            | 4                                       | 2                        | 8                               |
|  | Level 4  | 404,406                         | 6.24%                 | 22                            | 1                                       | 2                        | 2                               |
|  | Subtotal | 6,475,993                       | 32.10%                | 353                           | 14                                      |                          | 30                              |
| Taoyuan, Hsinchu, Miaoli                     | Level 1  | 1,157,116                       | 36.61%                | 63                            | 3                                       | 2                        | 6                               |
|  | Level 2  | 1,480,087                       | 46.83%                | 81                            | 3                                       | 2                        | 6                               |
|  | Level 3  | 523,555                         | 16.56%                | 29                            | 1                                       | 2                        | 2                               |
|  | Subtotal | 3,160,758                       | 15.67%                | 172                           | 7                                       |                          | 14                              |
| Taichung, Changhua, Nantou                   | Level 1  | 914,020                         | 23.40%                | 50                            | 2                                       | 2                        | 4                               |
|  | Level 2  | 1,276,263                       | 32.68%                | 70                            | 3                                       | 2                        | 6                               |
|  | Level 3  | 1,278,250                       | 32.73%                | 70                            | 3                                       | 2                        | 6                               |
|  | Level 4  | 437,235                         | 11.19%                | 24                            | 1                                       | 2                        | 2                               |
|  | Subtotal | 3,905,768                       | 19.36%                | 213                           | 9                                       |                          | 18                              |
| Yunlin, Chiayi, Tainan                       | Level 1  | 926,449                         | 31.73%                | 51                            | 2                                       | 2                        | 4                               |
|  | Level 2  | 1,215,361                       | 41.63%                | 66                            | 2                                       | 2                        | 4                               |
|  | Level 3  | 777,832                         | 26.64%                | 42                            | 2                                       | 2                        | 4                               |
|  | Subtotal | 2,919,642                       | 14.47%                | 159                           | 6                                       |                          | 12                              |
| Kaohsiung, Pingtung, Penghu                  | Level 1  | 1,132,289                       | 34.97%                | 62                            | 2                                       | 2                        | 4                               |
|  | Level 2  | 989,921                         | 30.57%                | 54                            | 2                                       | 2                        | 4                               |
|  | Level 3  | 1,115,675                       | 34.46%                | 61                            | 2                                       | 2                        | 4                               |
|  | Subtotal | 3,237,885                       | 16.05%                | 177                           | 6                                       |                          | 12                              |
| Hualien, Taitung                             | Level 1  | 251,882                         | 52.86%                | 14                            | 1                                       | 1                        | 1                               |
|  | Level 2  | 224,652                         | 47.14%                | 12                            | 1                                       | 1                        | 1                               |
|  | Subtotal | 476,534                         | 2.36%                 | 26                            | 2                                       |                          | 2                               |
| Total  |          | 20,176,580                      | 100.00%               | 1,100                         |   |                          | 88                              |

## Survey Period

The interviews took place in the selected areas between June 1 and July 31, 2019.

## Implementation of Survey

### Timeline

Before the survey was formally launched, preparations for questionnaires and related affairs were undertaken between May 20 and 23, 2019. After the questionnaires were modified based on the conclusions from the meeting with the agency that commissioned this study, the survey formally began on June 1, 2019. The timeline is outlined as follows.

A. Preparation period: April 1 to May 24, 2019

B. Survey period:

- Phase 1: May 20 to May 23, 2019
- Phase 2: June 1 to July 31, 2019

C. Review period: July 30 to August 4, 2019

### Survey Method

Face-to-face interviews were adopted; a computer-assisted interview survey system was used during the interview, and was complemented with printed questionnaires.

### Sample Structure

This survey was conducted in Taiwan, Penghu, Kinmen and Matsu. Since the total number of those aged 16 and above in Kinmen and Matsu is 136,729, which is too small for analysis, the number of samples from Kinmen and Matsu was reduced to eight when weighted analysis was performed with samples from all 22 cities and counties. In order to compare the annual data, the samples of Taiwan proper (including Penghu) were separated from those of Kinmen and Matsu.

As of August 4, 2019, the telecommunications, broadcasting, broadband usage and digital convergence survey for this research had been implemented and reviewed by the research team, with 1,115, 1,105, 1,129 and 1,115 questionnaires

completed as valid samples respectively.

## Research Limitations

### Sample Frame Limitations

Based on the requirements of the NCC, at least 1,100 successful samples in Taiwan proper (including Penghu) were to be completed with the allocation of samples proportional to the population of every county or city.

In order to undertake rigorous sampling, research was conducted with reference to the sample structure used in Taiwan Social Change Survey by Academia Sinica. Nonetheless, it may be worth noting that this research differed from Taiwan Social Change Survey, where household registrations were used as a sampling frame. With no access to Taiwan's household registration database, a household survey seemed impossible. Instead, interviews were carried out at gathering places in townships or cities.

### Sample Recovery Restrictions

The survey questionnaires contained 78-109 questions. In order to meet the requirement of at least 1,100 successful sample responses, groups of two interviewers were arranged at bustling locations, such as parks and busy crossroads, to perform interviews.

During telecommunications, broadcasting, broadband usage and digital convergence surveys, the average number of those who did not comply was 7.7, 8.93, 8.65 and 8.6 respectively. Among the aged 55 and over groups, the average number of refusals was 12, 9.89, 12.71 and 12.22 respectively, making it much harder to achieve the planned number of interviews when compared with young people. Even so, the interviewers were urged to obtain the required number of samples by gender and age, so the weighted number of all age groups would not exceed the original number of samples by  $\pm 60\%$ .

### Sample Inference Restrictions

- A. Telecommunications Market: after weighting, the sample number of young people, such as ages 16-25, was 0.83 times greater; the sample number of ages 26-35 was 0.92 times greater; the sample number of ages 36-45 was 1.11 times greater; the sample number of middle-aged people such as ages 46-55 was 0.98 times greater; the sample number of ages 56-65 was 0.96 times greater; and the sample number of ages 66 and above was 1.29 times greater.
- B. Broadcasting Market: after weighting, the sample number of young people, such as ages 16-25, was 0.88 times greater; the sample number of ages 26-35 was 0.92 times greater; the sample number of ages 36-45 was 1.01 times greater; the sample number of middle-aged people such as ages 46-55 was 1.01 times greater; the sample number of ages 56-65 was 0.97 times greater; and the sample number of ages 66 and above was 1.29 times greater.
- C. Broadband Usage: after weighting, the sample number of young people, such as ages 16-25, was 0.75 times greater; the sample number of ages 26-35 was 0.91 times greater; the sample number of ages 36-45 was 1.06 times greater; the sample number of middle-aged people such as ages 46-55 was 1.1 times greater; the sample number of ages 56-65 was 0.98 times

greater; and the sample number of ages 66 and above was 1.36 times greater.

- D. Digital Convergence: after weighting, the sample number of young people, such as ages 16-25, was 0.76 times greater; the sample number of ages 26-35 was 0.9 times greater; the sample number of ages 36-45 was 1.07 times greater; the sample number of middle-aged people such as ages 46-55 was 1.05 times greater; the sample number of ages 56-65 was 1.06 times greater; and the sample number of ages 66 and above was 1.28 times greater.

Non-probability sampling was employed in this research; therefore, care should be taken when using the resulting statistical inferences.

## Results

### Telecommunications Market

#### Home Telephone Usage

When asked about which type of telephone was used at home, 68.2% of respondents replied that they used both landline and mobile phone. Meanwhile, due to widespread mobile communications and broadband internet, 27.5% said that they only used mobile phones at home while just 3.2% only used a landline.

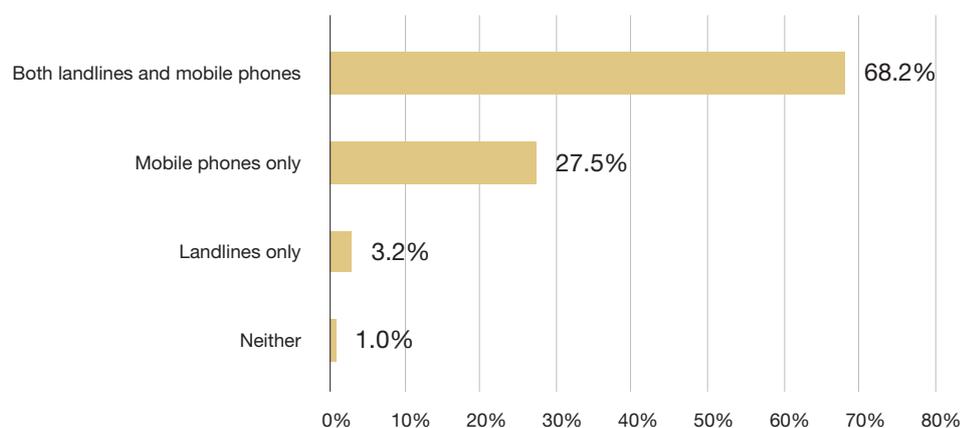


Figure 6 Home Telephone Usage

Base: N=1,115, single-choice

### Smart Phone Ownership per Household

Smart phone ownership per household in Taiwan reached 95.2%.

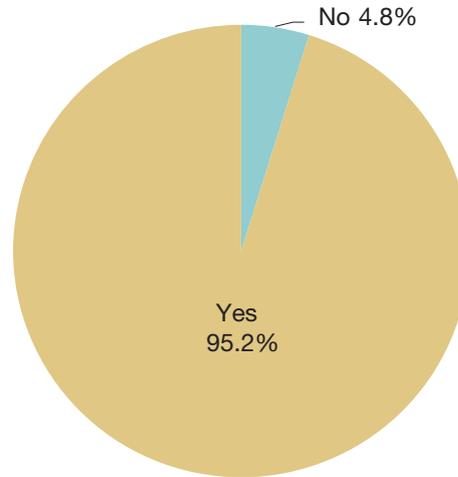


Figure 7 Smart Phone Ownership per Household  
Base: N=1,115, single-choice

### Most Commonly Used Mobile Phone Plans

The most commonly used mobile phone plans by those surveyed were monthly plans (92.7%), while prepaid plans and a combination of the two were used by 4% and 1.2% respectively.

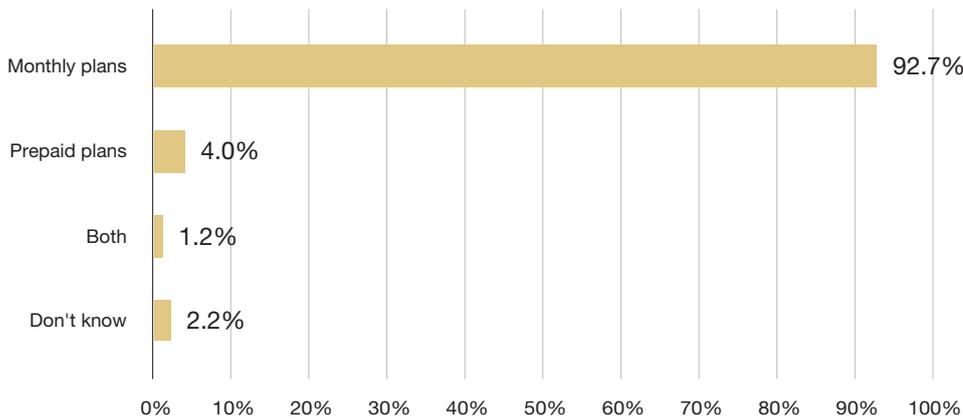


Figure 8 Most Commonly Used Mobile Phone Plans  
Base: N=1,072, single-choice (those who own a mobile phone)

### Mobile Phone Plans

Among the various mobile phone plans, the most commonly subscribed to were lock-in SIM only deals (60.2%), followed by phone and plans (29.7%) whereas no-lock-in SIM only deals made up only 6.9%.

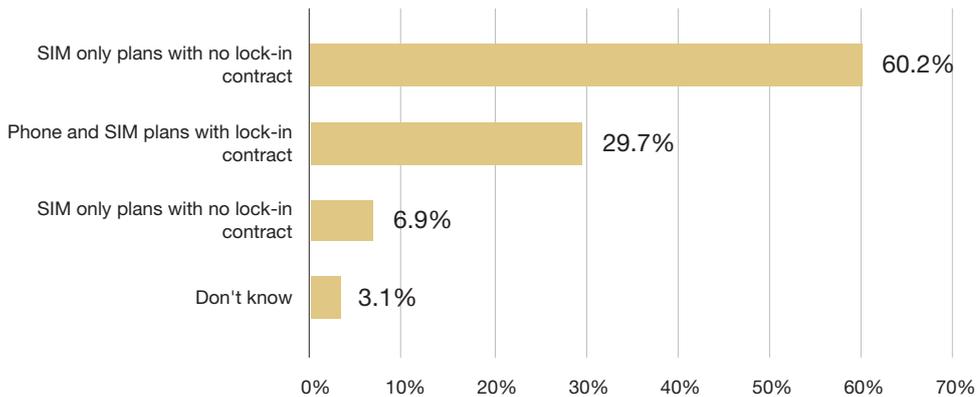


Figure 9 Mobile Phone Plans  
Base: N=1,049, single-choice (People who use any cell phone and know which mobile phone plan is adopted)

### Internet Usage

88.9% of those surveyed had used the internet, while 11.1% had not.

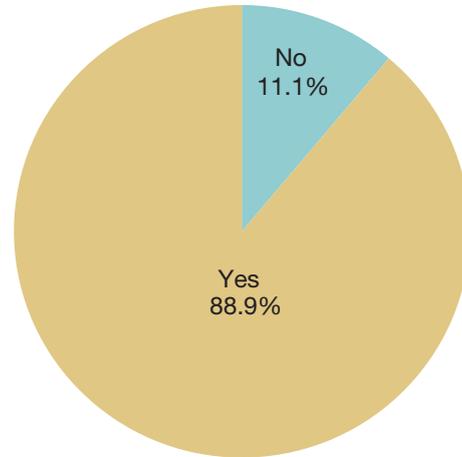


Figure 10 Internet Usage  
Base: N=1,115, single-choice

### Mobile Data Plans

In terms of mobile data plans, most respondents subscribed to unlimited data plans. Among them, unlimited data plans with unlimited data speed were most commonly used (65.7%), followed by unlimited data plans with limited data speed (7.8%) and people who did not know the answer (7.3%).

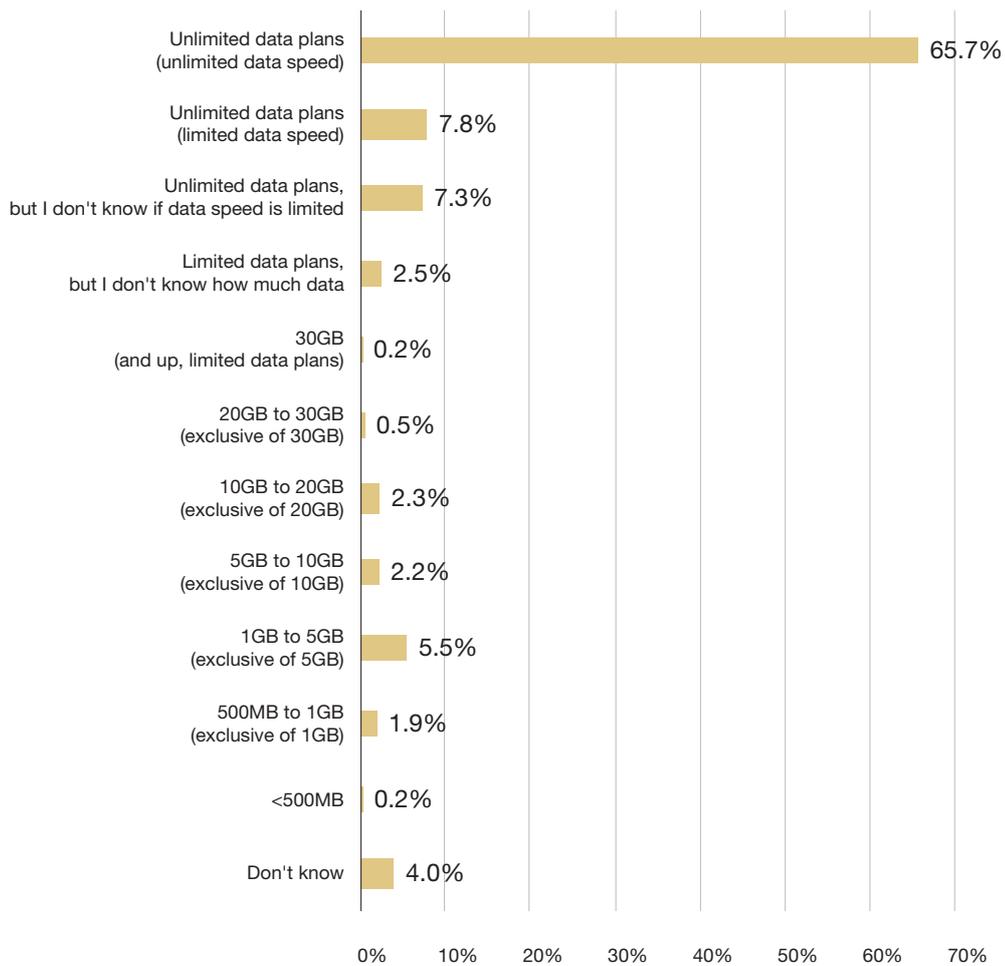


Figure 11 Mobile Data Plans  
Base: N=930, single-choice (People who use any mobile phone with a data plan)

### Most Commonly Used Mobile Network Services Out of Home

For those respondents who possess a smart phone, the most commonly used mobile network outside the home was 4G (95.2%).

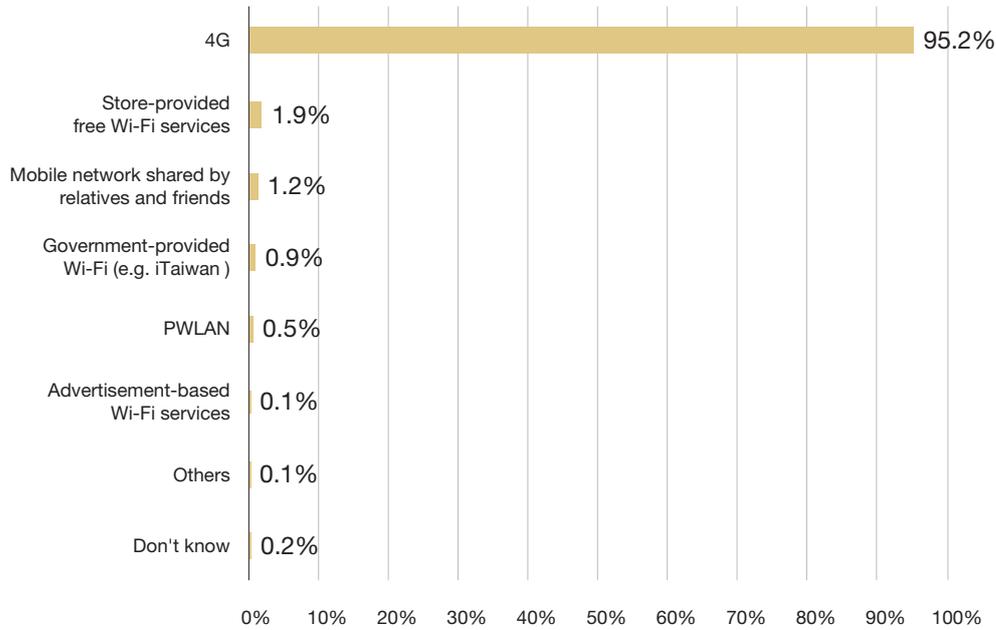


Figure 12 Most Commonly Used Mobile Network Services Out of Home

Base: N=967, single-choice (People who know which mobile network is used)

### Voice Call over the Internet

Up to 94.1% of those surveyed had made voice calls over the internet, while only 5.8% had not.

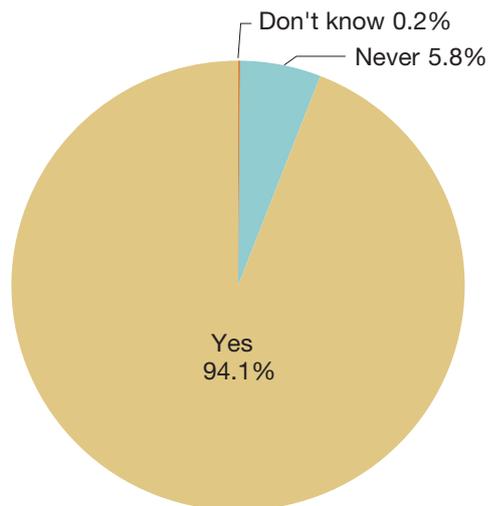


Figure 13 Voice Calls Services

Base: N=1,032, single-choice (People who know it is possible to make voice calls over the internet)

## Broadcasting Market

### Television and Radio

Turning to broadcasting, 63.3% of those surveyed only watched television while 27.3% respondents watched television and listened to radio, too; meanwhile, just 1.5% only listened to radio while 8% neither watched television nor listened to radio.

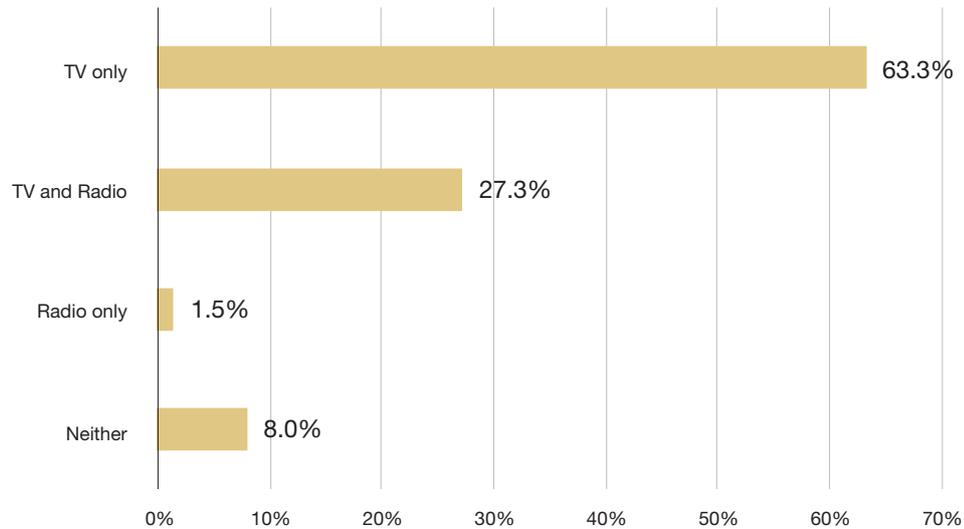


Figure 14 Television and Radio Usage

Base: N=1,105, single-choice

### Main Sources of Viewing Television

The most popular means of viewing television was cable TV (56.1%), followed by terrestrial TV (16.7%) and Chunghwa Telecom's MOD (14.3%).

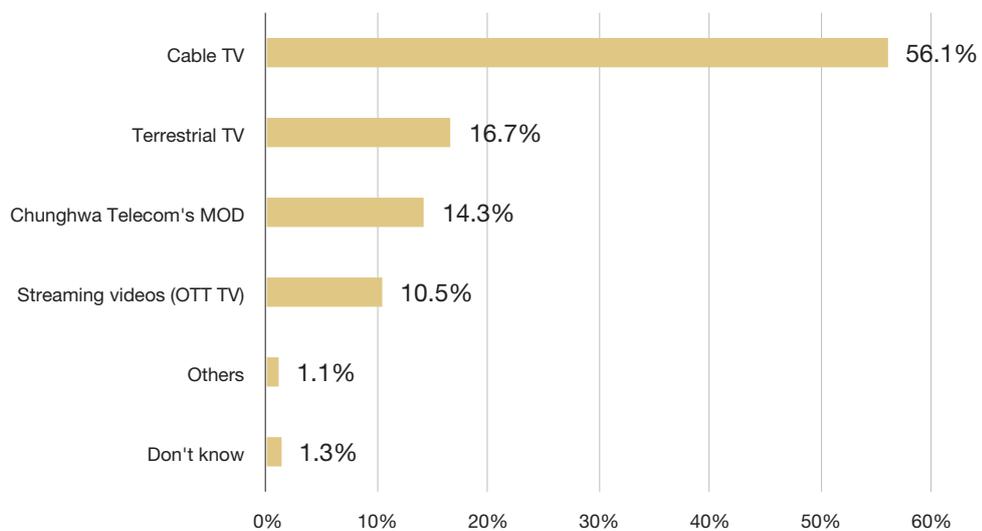
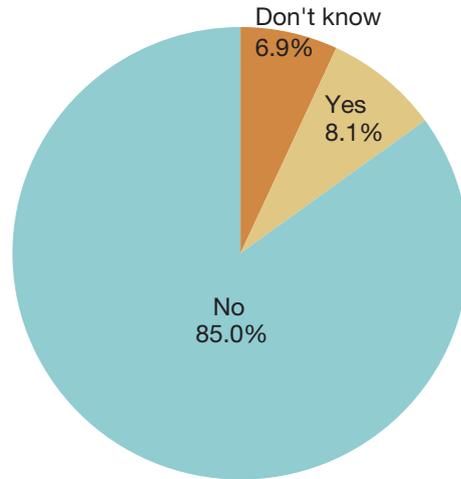


Figure 15 Main Sources of Viewing Television

Base: N=1,025, single-choice (People who know which TV service provider is selected at home)

### Ending Cable TV Subscriptions

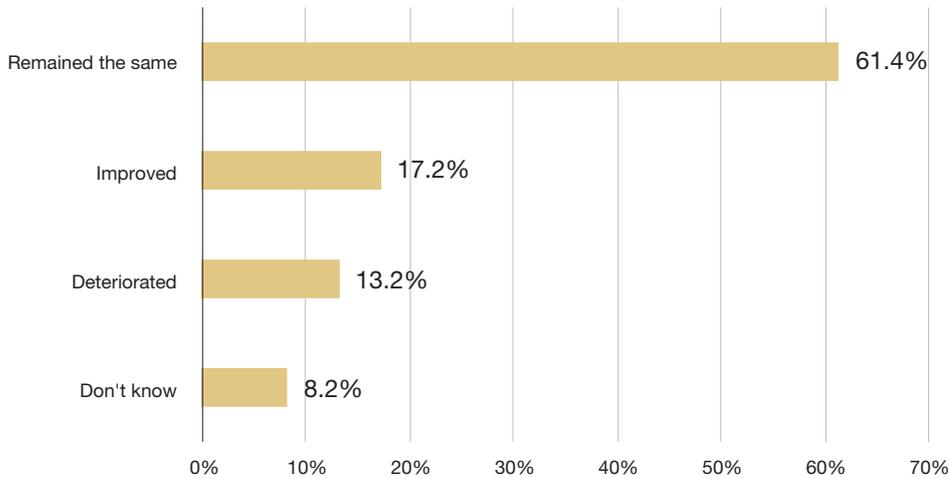
The results of the survey indicates that cable TV is primary means for viewing television. When asked whether they had considered ending their subscription, 85% of cable TV subscribers replied that they had not, with 8.1% replying affirmatively.



**Figure 16 Consider Ending Cable TV Subscription**  
 Base: N=669, single-choice (People who subscribe to cable TV at home)

### Quality of TV Programs

With regard to the quality of television programs, over 60% (61.4%) of those surveyed thought that the quality remained the same. In contrast, 17.2% replied that the quality had improved, while 13.2% thought it had deteriorated.



**Figure 17 Quality of TV Programs during the Previous 12 Months**  
 Base: N=1,000, single-choice (TV viewers)

## Radio Listening Frequency

Among those listening to radio, those who listen at least once a day made up the largest percentage (48.9%), followed by those who listen to the radio several times a week (34.4%).

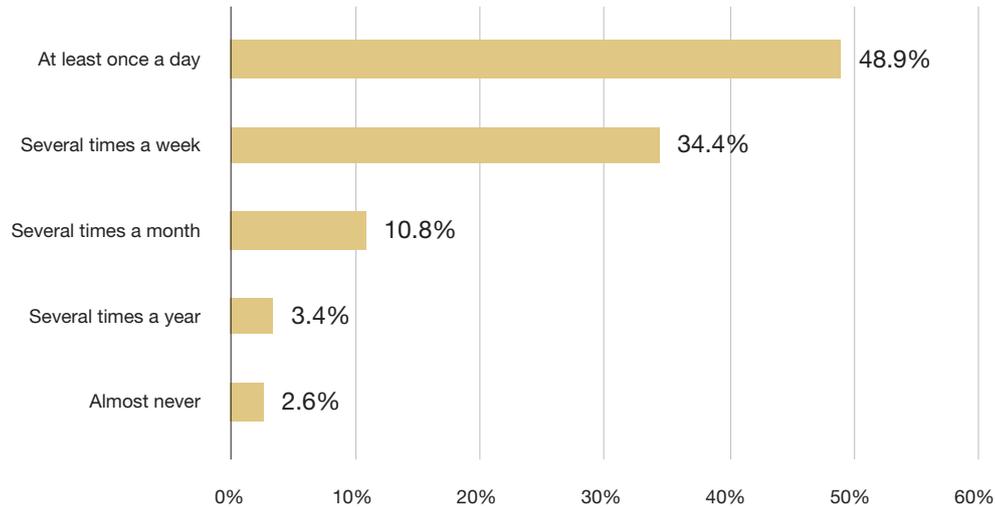


Figure 18 Frequency of Radio Usage

Base: N=318, single-choice (Radio listeners)

## Dependence on Information from Radio

When respondents were asked what they depended on the radio for, the most common reply was for music with the highest average dependence (6.71 points), followed by news broadcasts (5.14 points) and disaster broadcasts (5.13 points), while product marketing (3.18 points) was the least common.

Table 2 Dependence on Information from Radio

| Information  | Dependence (Average points) |
|--|-----------------------------|
| Music  | 6.71                        |
| News broadcasts  | 5.14                        |
| Disaster (such as flood, typhoon, earthquake) broadcasts | 5.13                        |
| Travel and meteorological information                    | 4.89                        |
| Other everyday life information                          | 4.83                        |
| Product marketing  | 3.18                        |

Base: N=318 (Radio listeners)

Source: Survey Results

### Attitudes toward Privacy Breaches

81.6% of those surveyed disagreed (including those who disagreed or strongly disagreed) with the media’s exposure of individuals’ privacy without prior permission, while only 3.9% agree (including those who either agreed or strongly agreed).

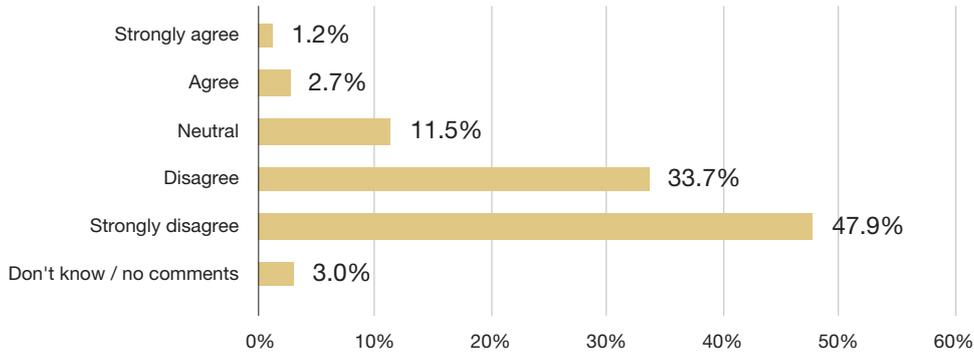


Figure 19 Attitudes toward Privacy Breaches of Media without Permission

Base: N=1,105, single-choice

## Broadband Usage

### Internet Security Measures

The most commonly used measure to protect internet security was anti-virus software (61.5%), followed by firewalls (35.2%) and complicated passwords set on devices they use; while more than 20% did not take any measures.

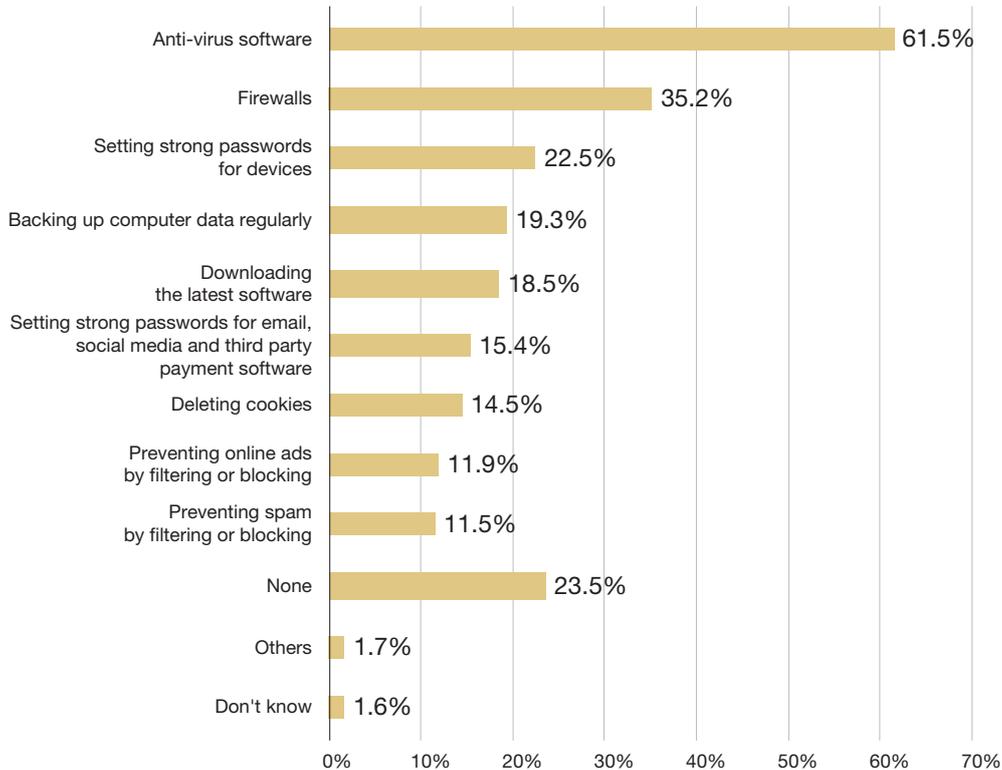


Figure 20 Internet Security Measures

Base: N=899, multiple-choice (People who have been online)

### Concerns about Using the Internet

When asked about whether they had concerns about going online, over 50% (58.5%) of those surveyed gave a negative reply, while 41.5% replied that they had.

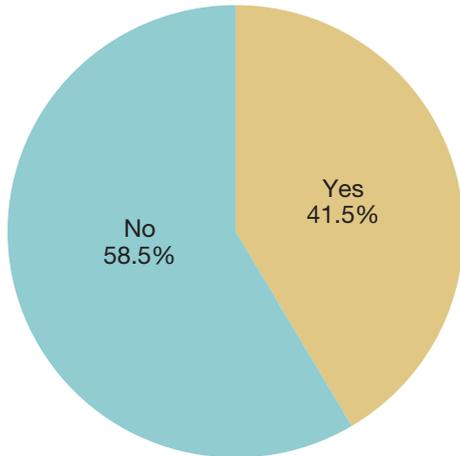


Figure 21 Concerns Online

Base: N=1,129, single-choice

### Social Media or Instant Messaging App Account

Up to 96.4% of those surveyed had at least one social media (e.g. Facebook, Instagram, and Twitter) or instant messenger account (e.g. Facebook, Messenger, LINE, Skype, WhatsApp, WeChat), while only 2.9% did not.

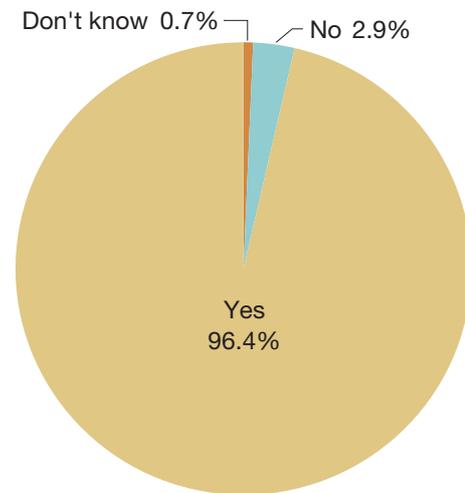


Figure 22 Those with Social Media or Instant Messaging App Accounts

Base: N=899, single-choice (People who have been online)

### Means to Obtain Information Online

When searching for particular information online, over 80% (83.3%) of those surveyed visited search engines (e.g. Google). This was followed by YouTube (48.2%) and social media (47.9%).

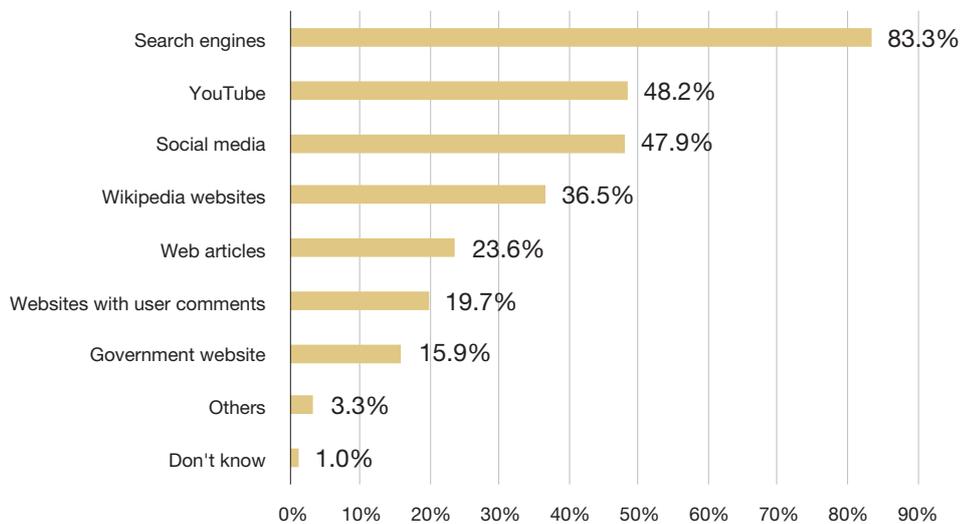


Figure 23 Means to Obtain Information Online

Base: N=899, multiple-choice (People who have been online)

### Methods of Verifying Authenticity of Information Online

Respondents tended to verify the information from the internet by comparing with other websites (46.2%), looking for the credibility of the source (such as the name of the author and links to the original source of data) (41.9%), and determining whether the website was genuine through its URL (28.2%).

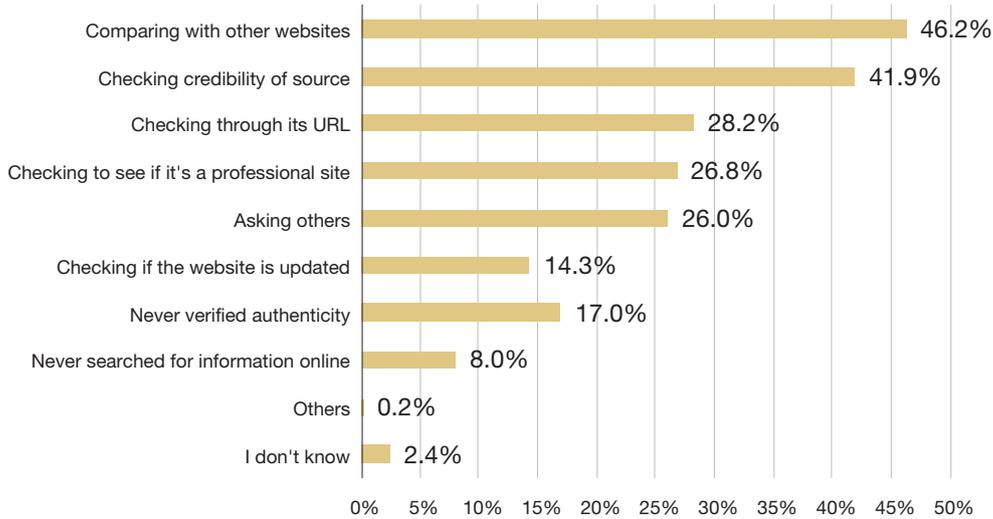


Figure 24 Methods of Verifying Authenticity of Information Online

Base: N=899, multiple-choice (People who have been online)

### Experience of Online Transactions

Although nearly 70% (69.2%) of those surveyed had bought products or services online, most (80.7%) had had no experience in online selling.

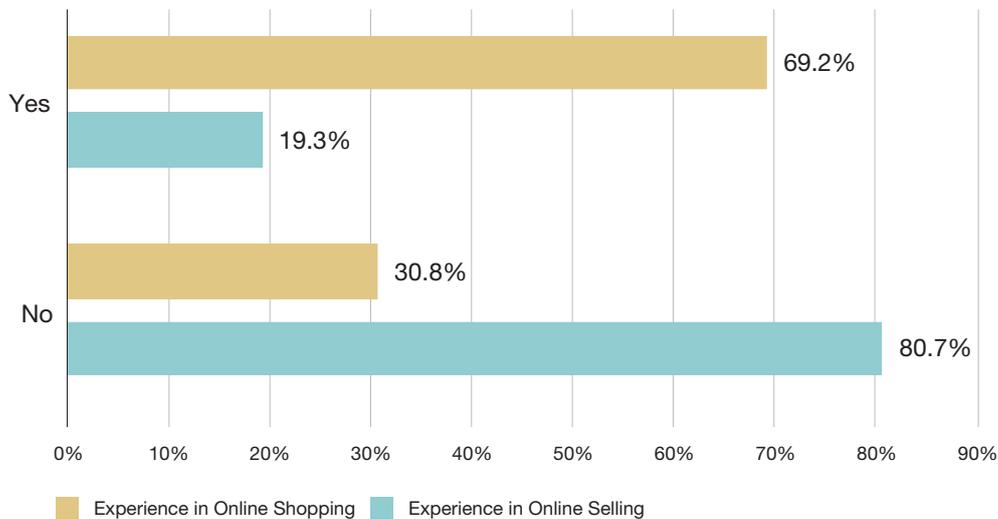


Figure 25 Experience of Online Transactions

Base: N=899, single-choice (People who have been online)

## Reading or Writing Product Reviews

Over 60% of those surveyed had read relevant reviews written or published online by others before deciding whether to buy a product while only 22.8% had written an online review themselves after purchasing a product or service.

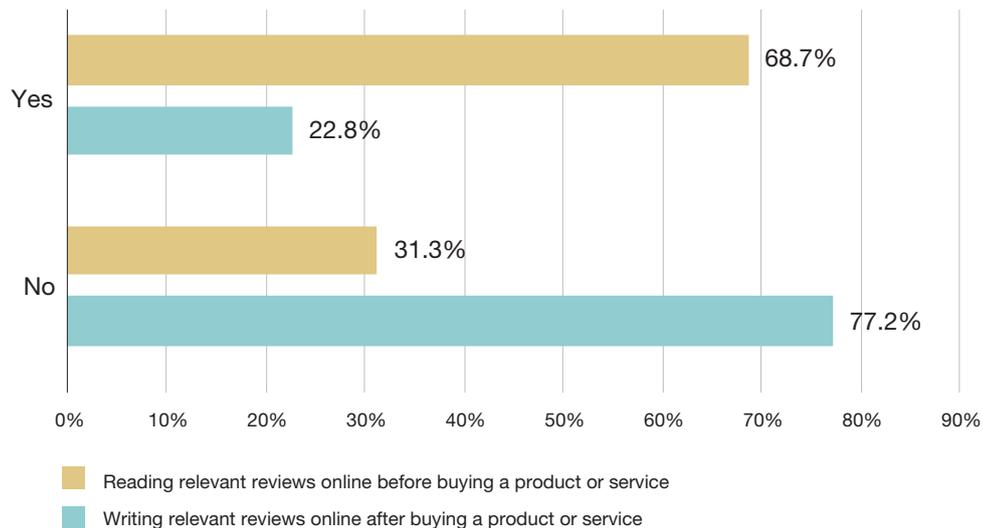


Figure 26 Reading or Writing Product Reviews

Base: N=899, single-choice (People who have been online)

## Considerations before Registering on a Website

Prior to before registering on a website and providing personal information 63.9% of those surveyed considered whether the website was secure with 48.6% considering whether it was a familiar company or brand and 44.6% of respondents considering whether it guaranteed not to leak personal information before signing up on a website with personal information.

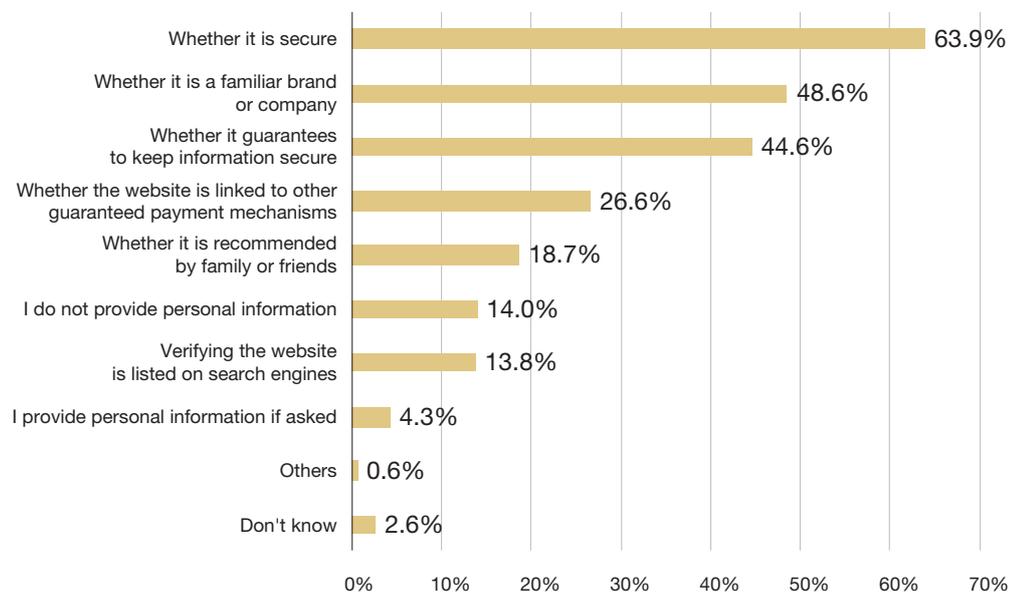


Figure 27 Considerations Prior to Registration on a Website

Base: N=899, multiple-choice (People who have been online)

## Digital Convergence

### Most Commonly Used Devices for Video

The most commonly used device for viewing videos was smart phones (50.7%), followed by television sets (non-connected) (30.7%); meanwhile both connected smart TV sets and desktop computers were used by 5.6% of respondents to view video content.

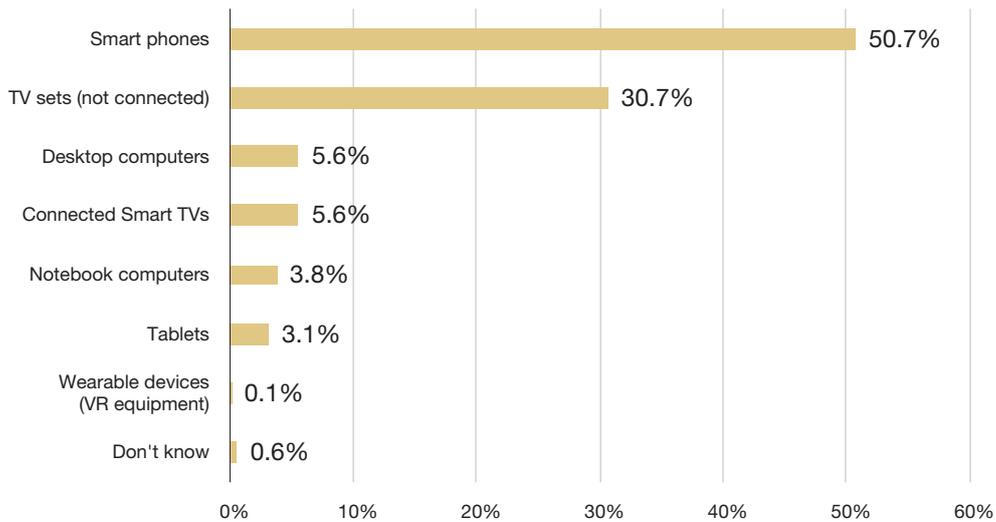


Figure 28 Most Commonly Used Devices for Video

Base: N=1,092, single-choice (People who answered they use devices for video watching)

### Experience in Watching Streaming Videos

45.1% of those surveyed had viewed streaming videos (including pay and free videos).

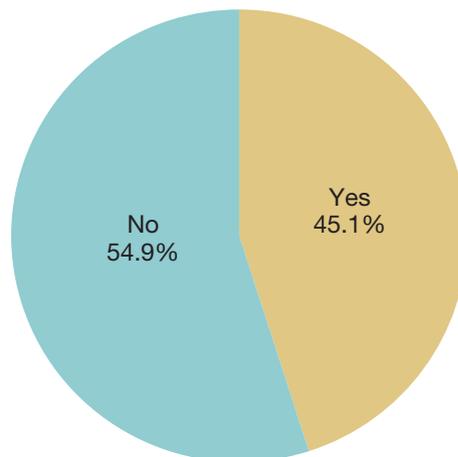


Figure 29 Streaming Videos

Base: N=1,115, single-choice

### Experience in Watching Online Collective Videos

74.6% of those surveyed had watched online collective videos, and 25.4% had not.

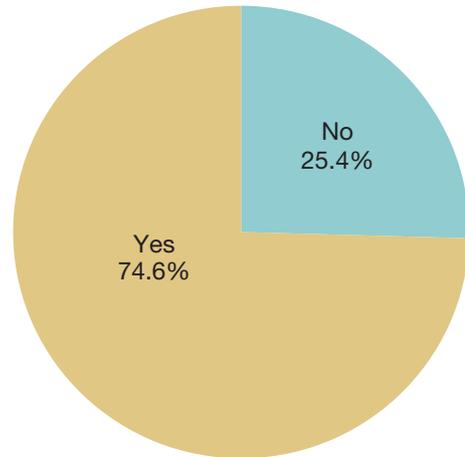


Figure 30 Viewing Online Collective Videos

Base: N=1,115, single-choice

### App Download

Turning to the download of apps over the previous twelve months, most respondents (68%) had downloaded free apps, while 25% had paid for apps (including mostly free and mostly paid).

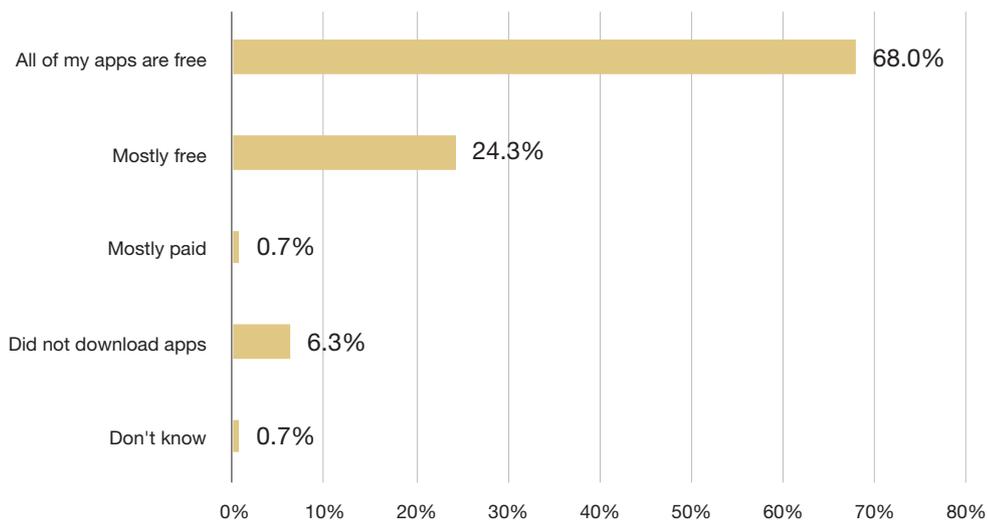


Figure 31 App Downloads over the Previous 12 Months

Base: N=857, single-choice (People who know how to download apps)

### Mobile Payment Usage

26.7% of those surveyed had used mobile payment (paying with a mobile device), whereas 73.3% had not.

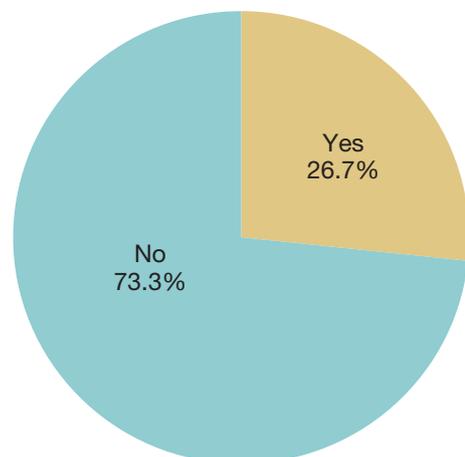


Figure 32 Mobile Payment Usage

Base: N=1,115, single-choice

### Main Source of News

For the majority of respondents, television (54.6%) was the main source of news, followed by social media / internet forums (14.2%) and web portals / apps (12.9%).

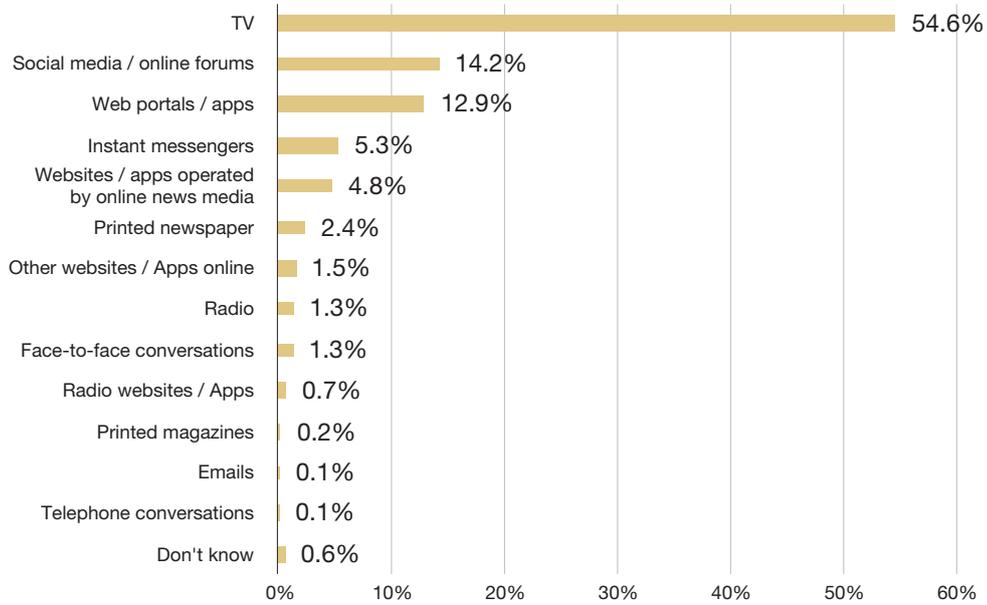


Figure 33 Main Sources of News  
 Base: N=1,081, single-choice (News viewers / readers)

### Accuracy of News

Television was considered the most accurate source of news by most respondents (39.1%). Other sources of news were considered the most accurate by less than 10%, while 31% thought the other sources were inaccurate.

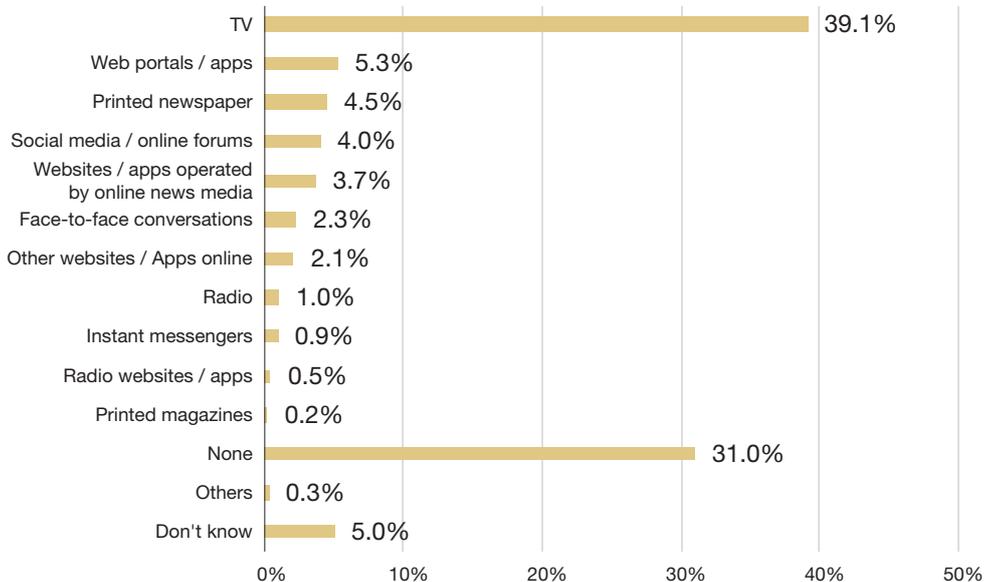


Figure 34 Accuracy of News  
 Base: N=1,115, single-choice

03

# Domestic and International Trends of Digital Convergence



# Comparison of Supplied Data

## Landline Penetration

When comparing landline penetration in various nations between 2011 and 2018, it was noted that the penetration in most nations had declined, asides from Japan, where the penetration remained stable. In contrast, penetration in both Taiwan and the US

had declined significantly. Once a nation with the highest landline penetration, Taiwan was surpassed by Hong Kong when the penetration dropped significantly in 2014.

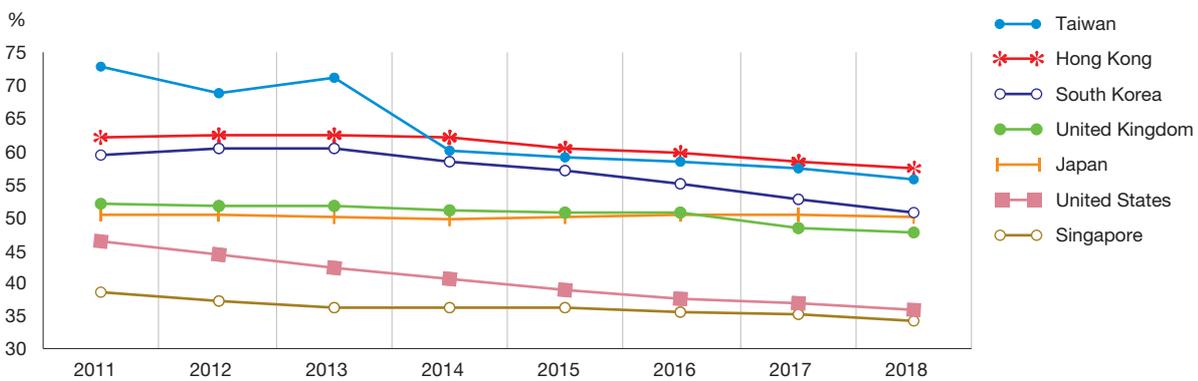


Figure 35 Landline Penetration in Various Nations

Source: ITU's Telecom/Information & Communications Database.

## Fixed Broadband Penetration

When comparing fixed broadband penetration in various nations between 2011 and 2018, it was found that the penetration in most nations had risen, except in Taiwan, where the penetration remained stable, and Singapore, where the

penetration had decreased by a small amount. The fixed broadband penetration in Hong Kong at first declined but then rose. South Korea had the highest fixed broadband penetration, followed by the UK.

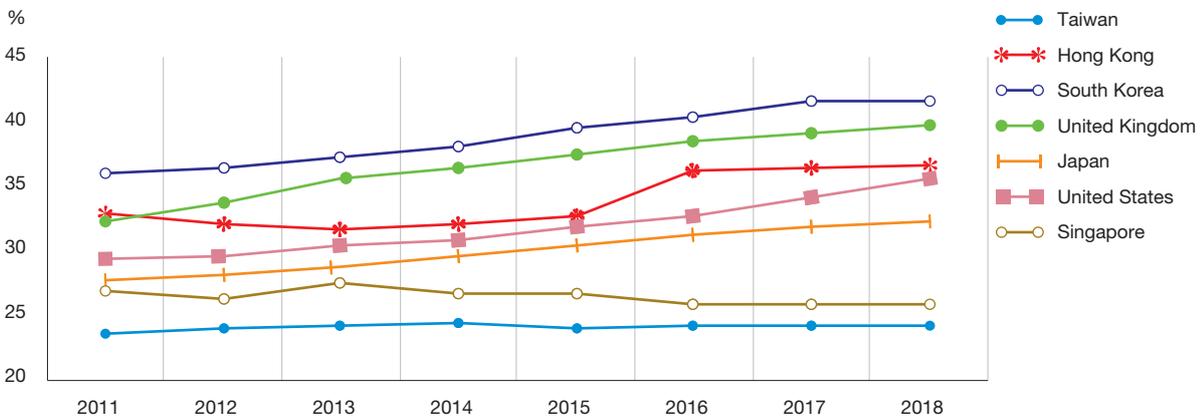


Figure 36 Fixed Broadband Penetration in Various Nations

Source: ITU's Telecom/Information & Communications Database.

Note 1: Since the 2011-2014 Taiwan figures from the ITU database contains the number of Wi-Fi subscribers, the figures used in the report are based on the 2017 NCC's communications statistics.

### Mobile Phone Penetration

When comparing mobile phone penetration in various nations between 2011 and 2018, it was found that the penetration in Taiwan, Singapore and the UK had slightly decreased, while in Japan, South Korea and the US, the penetration

had risen. Meanwhile penetration in Hong Kong fluctuated during this time. With the highest landline penetration, Hong Kong was the only area with a penetration rate of over 200%, indicating a significant difference from other nations.

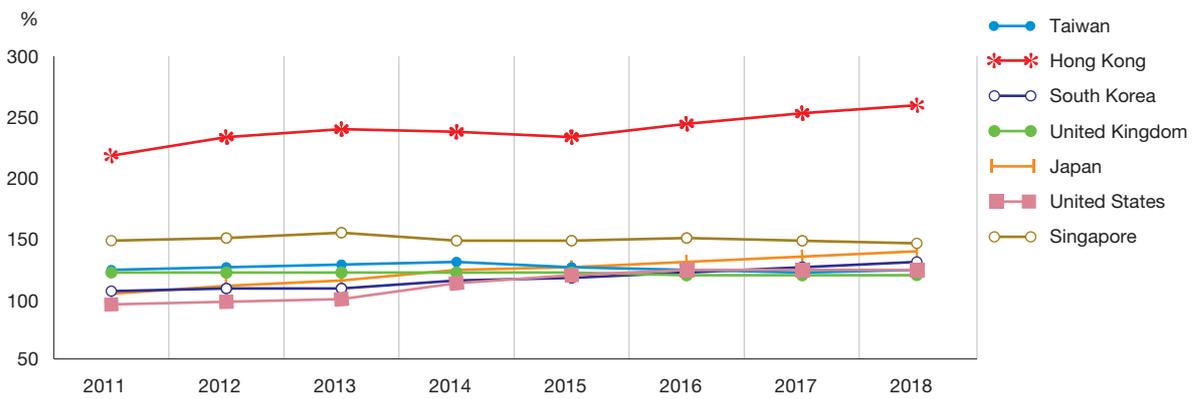


Figure 37 Mobile Phone Penetration in Various Nations  
Source: ITU's Telecom/Information & Communications Database.

### Penetration of Mobile Broadband Internet

When comparing mobile broadband penetration in various nations between 2011 and 2018, it was found that the penetration in most nations had generally risen. In Japan, it rose sharply in 2017

and surpassed Singapore to become the nation with the highest penetration, while the penetration in Taiwan grew at a steady pace and surpassed the UK in 2016.

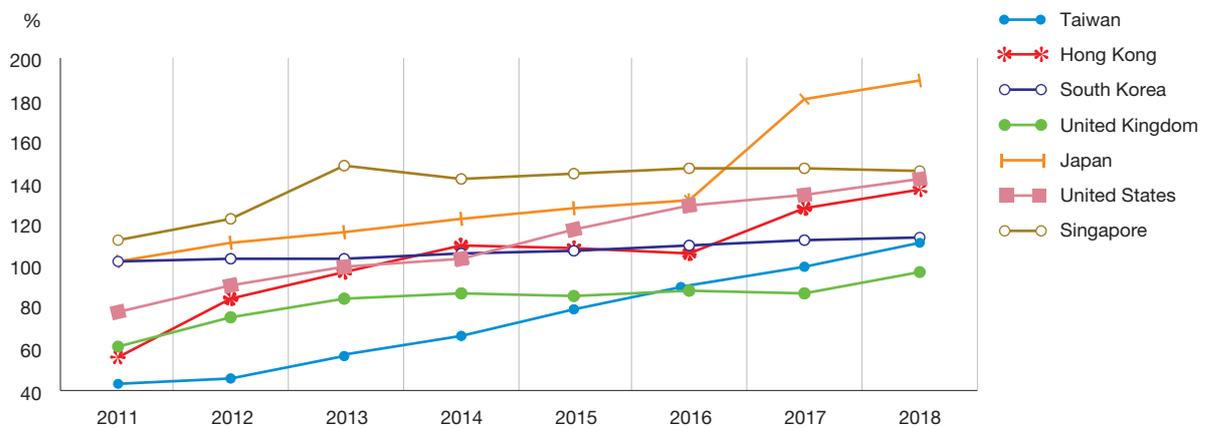


Figure 38 Mobile broadband Internet Penetration in Various Nations  
Source: ITU's Telecom/Information & Communications Database.

## Cable TV Penetration

When comparing cable TV penetration in various nations between 2011 and 2017, although it can be seen that South Korea had the highest penetration, it has decreased in recent years; meanwhile, penetration in Taiwan remained fairly steady while in Japan it grew slightly; in the

US, it started to decrease in 2012 and dropped dramatically in 2014 while in the UK, it fluctuated slightly with no major changes; as for Hong Kong and Singapore, only data of two years are available, but both household penetration had dropped from the year previous.

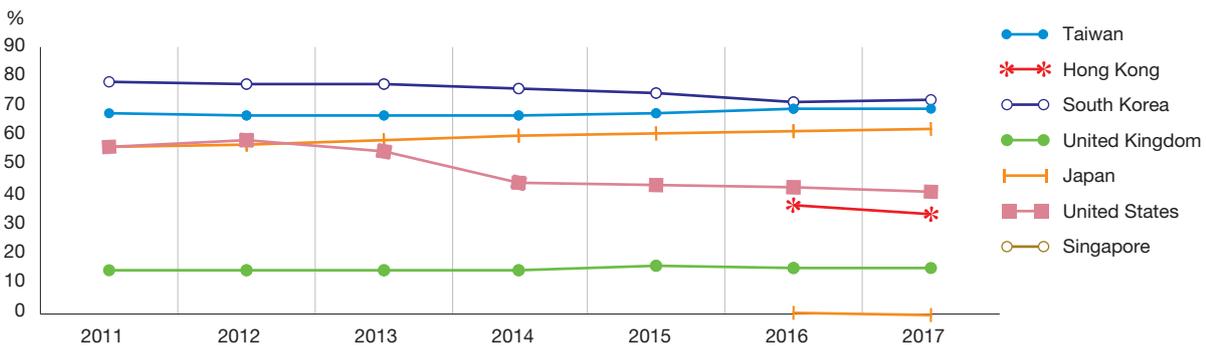


Figure 39 Cable TV Penetration in Various Nations

Source: ITU's Telecom/Information & Communications Database, National Communications Commission (NCC).

Note 1: The cable TV household penetration is calculated by dividing the number of cable TV subscribers by the number of households.

Note 2: The ITU database contains data on the number of cable TV subscribers in various nations no later than 2017.

Note 3: The 2011 and 2012 figures on the number of cable TV subscribers in Taiwan are taken from the statistics of NCC.

Note 4: The ITU database contains only data on the number of cable TV subscribers in Hong Kong and Singapore in 2016 and 2017.

## Comparison of 5G Policies

The 5G policies in the leading countries, such as the UK, the US, Japan, South Korea, Singapore, and Hong Kong, and Taiwan can be hereby outlined: The UK Government has proposed an industrial green paper and has released policy documents “Next-Generation Mobile Technology: UK’s 5G Strategies” and “5G Launched in UK” to promote a pilot field plan with overall social and industrial strategies taken into consideration. Turning to North America, the US launched the “5G Fast Plan” with the aim of ensuring sufficient spectrum is released and construction of base stations can be accelerated in preparation for the development of 5G. Meanwhile, Japan has promoted technology research and development, international cooperation, and 5G spectrum planning with an overall plan, hoping to realize a 5G society in 2020 with an ICT growth strategy as its vision. South Korea’s “5G+ Strategy” states that efforts will be made to “build a 5G + strategic industry with the focus on the support

system,” “build a development model for both the past and future industries based on the cooperation between public and private sectors,” and “revitalize 5G services and establish a safe environment for use of 5G.” Meanwhile, Singapore has placed emphasis on building a 5G ecosystem and has committed to “developing a regulatory framework and policies to maximize economic value and consumer welfare,” “developing a reliable and flexible 5G system and services,” “improving workers’ expertise in 5G and future networks,” and “ supporting various applications to strengthen Singapore’s global position in innovation.” Where as in Hong Kong, the government plans to build a 5G-based smart city according to its “Smart City Blueprint.” Finally, here in Taiwan, the “Taiwan 5G Action Plan (2019-2022)” was approved to prepare the island for 5G applications and industrial innovation and accelerate the development of 5G technology and industry in Taiwan.

04

# Conclusions



# Telecommunications Market

According to this year's communications market survey, a majority of those surveyed used both a landline and mobile phone, while 27.5% only use a mobile phone. Among them, up to 87.5% may or will not have a landline installed over the coming 12 months. When it comes to why they did not intend to install a landline, more than 80% replied that mobile phone use could replace landline, while 36.3% answered that "they don't need it." Moreover, the percentage of those who or whose family members had made voice calls over the internet had risen from 88.2% in 2017 to 94.1% in 2019. Thus, it can be noted that the prevalence of internet communications services had greatly dissuaded those surveyed from using a landline.

Up to 94.8% of those surveyed used a smart phone, while the most commonly used mobile network service outside the home was 4G (95.2%). In terms of mobile data plans, over 80% (80.8%) of those surveyed subscribed to unlimited data plans; among these plans, the percentage of unlimited data plans with unlimited speed increased from 49.5% in 2017 to 65.7% in 2019. Yet, the average monthly mobile phone bill had decreased from NT\$825 in 2017 to NT\$728 in 2019 due to fierce competition in the market. As for the most popular places to access the internet with a mobile phone, almost half (49.5%) of those surveyed gained accessed at home the most often, followed by the workplace (33.6%).

Over 80% (86.2%) of those surveyed accessed the internet at home; among them, the percentage of those with fixed broadband at home decreased from 75.9% in 2017 to 68.2% in 2019. Meanwhile, the most commonly used means to access the internet in Taiwan was mobile broadband (sharing 4G connection with others), which increased from 54.8% in 2017 to 72.8% in 2019 and shows a much higher ratio than that of the fixed broadband (ADSL, fiber-optic and cable). After cross-regional operations was permitted for cable TV, nearly 20% (19.6%) of those surveyed had changed television operators in their area (if any), which was a slight increase from 2018 (17.2%).

As for the quality of various telecommunications services, respondents were the most satisfied with the quality of landline calls (7.52 points), followed by that of mobile phone calls (7.46 points) and that of mobile phone connection (7.22 points). In contrast, respondents were least satisfied with fixed internet connections (6.77 points). Thus, it can be seen that satisfaction with the landline call quality has decreased from 7.73 points in 2018, but remained almost the same as 2017; although satisfaction with the quality of mobile phone calls and internet connection has risen year by year, satisfaction with the fixed broadband connection dropped to even lower than in 2017 (6.87 points).

## Broadcasting Market

Although 90.6% of those surveyed watched television with 93.9% possessing at least one television set at home, only 23.1% owned a smart TV. Cable TV remained the primary source of viewing television (56.1%), but the percentage is lower than in 2018 (63.1%). This was followed by terrestrial (16.7%) and Chunghwa Telecom's MOD (14.3%). Although streaming video was the fourth most common, its share had significantly risen from 3.4% in 2018 to 10.5% in 2019. Among those who subscribe to cable TV and Chunghwa Telecom's MOD, 8.1% and 13.8% respectively said they would consider discontinuing the subscription in the coming 12 months, both of which were higher than the previous two years.

In terms of viewing hours, the 20:00-21:00 time slot (46.8%) can be considered prime time, followed by 21:00-22:00 (39.6%), and 19:00-20:00 (38.3%); in terms of type of TV programs, local news broadcasts were the most viewed (70.9%), followed by weather broadcasts (49.8%) and international news broadcasts (45.1%).

With regards to the quality of programs during the previous 12 months, over 60% (61.4%) of those surveyed said the quality had remained the same; 17.2% responded that the quality had improved, while 13.2% said it had deteriorated. Those who said the quality of TV programs had improved contributed the improvements to the diversity of programs (69.2%), more fun or entertaining effects brought by programs (38.5%), and content being updated according to trends (37.5%). Those who said the quality of TV programs had deteriorated contributed the deterioration to too many reruns (68.5%), too frequent product placement marketing (57.2%) and politically biased news broadcasts (53.4%). It can be seen that the percentage of those who said too many reruns dropped from 73.4% in

2017 to 48.6% in 2018 before rising once more to 68.5% in 2019. The percentage of the remaining had increased dramatically.

Nearly 40% (39.8%) of those surveyed said they had viewed television content that they found annoying or offensive during the previous 12 months, which was higher than the previous two years. The most common complaint was overly repetitive news broadcasts (55.3%), followed by biased political news broadcasts (49.1%), political campaign propaganda (48.6%) with these ratios all being higher also. The most disliked programs were political talk shows (55.8%) and news broadcasts (34.4%).

In terms of radio listening, the proportion of those who listen to the radio has decreased from 36.8% in 2017 to 28.8% in 2019. Of these, more than 60% (61.1%) listen in a vehicle. Meanwhile, the proportion of those who listen to the radio on a mobile phone increased to 32.4%, thereby being more popular than radio sets (31.9%). In terms of time slots, most of those surveyed listened to the radio during 8:00-9:00 (25.7%), followed by 7:00-8:00 (23.8%) and 9:00-10:00 (20.2%). Among the data gained regarding content most commonly listened to, most depended on the radio for music (6.71 points), followed by news (5.14 points), disaster broadcasts (5.13 points), travel and weather broadcasts (4.89 points), other daily information (4.83 points) and product marketing (3.18 points).

56.8% of those surveyed replied that they were aware of laws regulating TV programs, while 48.3% were aware of laws regulating radio programs. Thus, this indicates that although those surveyed are less familiar with radio programs, familiarity with both laws has increased.

In terms of privacy protection, those surveyed did not think the privacy of public figures (72.3%) and individuals (81.6%) should be exposed without permission; television was considered more likely to expose individual's privacy without permission by more than 30% of those surveyed. However, in the era of digital convergence, privacy breaches by emerging media were also noteworthy. The survey shows 16% of respondents believed that

emerging media (including news websites / Apps, TV station websites / Apps, other websites / Apps) were one of the main sources of exposing privacy without permission, second only to television (35.8%); meanwhile, 19.8% said it was common for all media. As for the media most likely to expose individuals' privacy without permission, emerging media (20.1%) was second, while 16.6% thought it was common for types of media.

## Broadband Usage

On average, those surveyed had 12.21 years' experience using the internet. Most (68.1%) had never encountered any problem online. Among the situations encountered during the previous 12 months, virus attacks (14.2%) and fraudulent activities (12.2%) were the most common. Among online social networking activities, use of social media made up the highest percentage (86.9%), followed by surfing websites (80.4%). Meanwhile, communicating on instant messaging apps and viewing videos on open video platforms accounted for 72.2% and 71.5% respectively. The average confidence level of those surveyed in using the internet was 6.44, with over 40% (41.5%) expressing concerns. Among these concerns, personal information leaks (82.4%) and fraudulent activities (62.1%) were the main causes for concern when online.

Due to the prevalence of online social media, the percentage of those who had at least one social media or instant messenger account had grown from 83.6% in 2017 to 96.4% in 2019. Of them, LINE (76.9%) was the most commonly used social media or instant messenger, much higher than the second most common, Facebook (11.7%). During the previous 12 months, more than 70% (73.9%) of those surveyed had viewed social media content they find inappropriate or offensive, but 44.9%

did not take any action. Of those that did, 35% blocked the offending publisher of content they found to be inappropriate or offensive, and 33.7% chose to report it through the reporting function. When viewing information from social media, over 70% (72.4%) of those surveyed had questioned the authenticity of the content published on these websites or apps, while 58% thought the content was only in part real; nevertheless, nearly 60% (58.3%) tended to believe what they read or saw online.

Over 60% (64.6%) of Facebook users said they had seen inappropriate content on Facebook, but only 52% reported it to Facebook. The reasons for not reporting to Facebook included "the inappropriate content did not bother me" (35.8%) and "not wanting to interfere or be noticed" (35.7%).

Over half (54.7%) of those surveyed had provided incorrect or false information on the internet for the sake of information security, an increase year by year. However, almost 40% (39.3) were willing to provide their personal information on the internet to obtain something wanted.

The introduction of new online financial services in Taiwan has resulted in booming e-commerce. The proportion of those with online shopping

experience had increased from 55.5% in 2017 to 69.2% in 2019. The number of purchases and the amount of money spent online had also increased significantly. Nonetheless, the proportion of those with sales experience was still relatively low (19.3%). In terms of the products purchased online, kitchenware, daily necessities and stationery (37%) accounted for the largest share, followed by boutiques, bags and apparel accessories (32%) and household items, furniture and bedding (31.9%).

When searching for particular information online, over 80% (83.3%) of those surveyed had visited search engines. This was followed by YouTube (48.2%), and social media (47.9%). Prior to purchasing a product or service, 68.7% of those surveyed had read relevant reviews written online by others; still, after purchase, only 22.8% had written a review online.

Among the perceived benefits of internet use during either work or daily life, “finding information is easy” was top of the list, with a ratio of 72.7% in 2019. This was followed by “allows me to stay informed of the latest news and social issues” (54.8%). As for the disadvantages, “visual deterioration / shoulder and neck pain / poor health” (65.5%) made up the largest share, followed by “interruption of daily routine / feeling tired the following day” (37.9%). However, 20.4% replied that internet use had not caused any disadvantages. In addition, “life with the internet is never boring” (6.35) was the most commonly agreed upon statement regarding the internet. Agreement on “life without the internet becomes boring” (5.72), “Not easy to disconnect from the internet” (5.22), “I don’t know how to search for data without the internet” (5.16), and “I don’t know what’s happening out there without the internet” (5.13) all rated higher than five.

## Digital Convergence

In an era of digital convergence, the most commonly used device for viewing video by those surveyed was smart phones (50.7%). The proportion has risen dramatically from 27.4% in 2017 to 50.7% in 2019, while the proportion of the second most commonly used device, television sets (non-connected), decreased from 34.1% in 2017 to 30.7% in 2019.

With the rise of the OTT TV services around the world in recent years, the proportion of those surveyed who had watched streaming videos grew rapidly from 30.8% in 2017 to 45.1% in 2019. Of them, the proportion of viewers decreases with age. Those aged 16-25 accounted for 73.5%, while those aged 66 and above constituted merely 10.3%. “Flexible viewing time” (59.9%) was the most common reason for viewing streaming videos,

followed by “recommended by family or friends” (38.2%) and “recommended by social media” (37.1%). Although the proportion of those who had viewed streaming videos increased dramatically, most of them had viewed free content. Currently, the proportion of those who pay to subscribe to online streaming video services remains around 20% (19.4%), not much different from two years ago. In the pay streaming video market, iQiyi (54.8%) and Netflix (50.2%) lead the market with a market share both above 50%.

In terms of the communications activities, talking on telephone (81.8%) remained the most popular activity for those surveyed, followed by using instant messenger (76.3%) and using social media (74.2%), both of which reached more than 70% surpassing the ratio of watching TV (66.8%).

The most commonly used internet device for those surveyed was a smart phone. The ratio has grown year by year from 80.4% in 2017 to 88.6% in 2019.

Over 70% (74.6%) of those surveyed had viewed online collective videos and up to 99.3% had watched YouTube, the most popular kinds of videos being entertaining drama programs, movies and humorous short clips. Among the YouTube viewers, over 40% (44.4%) said they had viewed YouTube content that they had found inappropriate, but only 32.8% had reported to YouTube.

In terms of live radio, almost 60% (59.7%) of those surveyed said that they were aware that they could listen to live radio on mobile phones, while 26.9% said that they were aware that they could listen to the radio on connected computers; in contrast, 31.1% remained unaware of either. When listening to live radio, 45.8% of those surveyed used mobile phones, while non-radio listeners made up 42.5%. In terms of the apps on mobile phones, nearly 70% (68%) of those surveyed downloaded free apps with the most popular kind of apps being social (55.3%), games (43.1%) and music-related (32.9%).

Mobile payment users accounted for 26.7% of respondents, significantly increasing from 17.2% in 2018. Of them, the young constituted a larger share than seniors and high-income earners made up a larger share than low-income earners. In terms of payment services, more than 50% (53.4%) used LINE Pay, followed by Apple Pay (44.2%), with the remaining accounting for less than 20%.

When it comes to the main reason for using mobile payment, the most popular reason was convenience (81.4%); while “no need” (45.8%) and “concerned about security” (19.6%) were the main reasons for non-use.

In an age of information convergence, although television remained the main source of news and information for those surveyed, the proportion had decreased from 63.7% in 2017 to 54.6% in 2019. In contrast, the percentage of the second main source, emerging media, had grown from 23.6% in 2017 to 34.1% in 2019, indicating that those surveyed had shifted from traditional media to online media for news. With regard to news accuracy, although television was also deemed the most accurate news source, the percentage had dropped dramatically from 56.9% in 2017 to 39.1% in 2019. The percentage of those who thought television (55.1%) to be impartial also reduced significantly, lower than that of printed newspaper (59.7%) and radio (58.6%).

79.3% of those surveyed had viewed online videos. Of them, nearly 30% (27.7%) said they had watched content they found inappropriate that would raise concerns recently; these videos were mainly short clips on YouTube and Facebook (65.1%), and programs broadcast on the internet and TV synchronously (39%). The content found inappropriate by those surveyed was mostly bad language (51.4%), violence (42.2%), pornography / nudity / sexual content (40.9%).

# Development Trend of Digital Convergence in Taiwan

## Supply and Demand Analysis

According to the statistics on supply in Taiwan's communications industry, mobile broadband penetration in Taiwan has grown steadily in recent years, rising from 99.7% in 2017 to 110.96% in 2018. This indicates that the mobile broadband services are well developed in Taiwan. Moreover, the "NT\$499 Unlimited Data Plan" launched by a telecommunications operator in May 2018 also significantly boosted mobile broadband penetration. Although the mobile phone penetration fell from 129.23% in 2014 to 121.55% in 2017, it rose again to 123.66% in 2018. In contrast, landline penetration has been declining since 2013 falling to 55.53% in 2018. The aforementioned statistics show that the landline market in Taiwan has become saturated, but room for growth in the mobile phone market remains. As for internet coverage, this had increased further from 99.6% in 2017 to 99.9% in 2018. In addition to providing effective internet services, such high coverage lays a good foundation for the development of value-added mobile broadband applications in Taiwan.

According to the results of this survey, respondents spent an average of 36.81 hours online per week, the same level as in 2018 (37 hours); access to the internet was mostly gained by mobile broadband in Taiwan with a ratio increasing from 50% in 2017 to 68% in 2019; up to 80% of those surveyed subscribed to unlimited data plans (including both unlimited and limited data speeds, and people who did not know the answer), while 65.7% subscribed to unlimited data plans with unlimited speed. When it comes to the average monthly mobile phone bill, the amount had decreased from NT\$825 in 2017 to NT\$728 in 2019.

The development of digital convergence has caused a shift in choice of mass media in Taiwan. Although cable TV remained the most popular platform for viewing television, the percentage had decreased from 63.1% in 2018 to 56.1% in 2019 while the number of subscribers had also fallen from 5.22 million to 5.07 million. Meanwhile, the percentage of those subscribing to Chunghwa Telecom's MOD had grown from 20.3% in 2018 to 25% in 2019 with the number of subscribers exceeding 2 million by the end of 2018, possibly due to the assertive promotion undertaken by Chunghwa Telecom and improvements in its MOD services in recent years by partnering with Netflix, a global streaming video giant, as well as launching Fox+ content and customizable channel packages. However, in terms of the main platform for viewing television, the share of Chunghwa Telecom's MOD has not grown as expected, reducing from 16.5% in 2018 to 14.3% in 2019, returning to almost the level in 2017 (14.7%). In contrast, despite OTT TV ranking fourth for the past three years, the proportion had risen significantly from 3.4% in 2018 to 10.5% in 2019.

In the age of information convergence, those surveyed gained news through more sources. With the rise of emerging media, the surveys conducted over the past three years have all suggested that although television remains the main source of news and information for those surveyed, the proportion continues to fall (63.7% in 2017 to 54.6% in 2019). Moreover, the percentage of the second most common type of source, emerging media, had grown from 23.6% in 2017 to 34.1% in 2019. Meanwhile, Television was also considered

the most accurate source of news by those surveyed with the ratio decreasing from 56.9% in 2017 to 39.1% in 2019, while the percentage of those who considered emerging media as the most accurate source of news had reduced from 19% in 2018 to 15.6% in 2019.

With regards to privacy protection, television was considered most likely to expose the privacy of public figures without permission; the percentage has grown slightly from 35.6% in 2018 to 35.8% in 2019. The percentages of emerging media and magazines had decreased from the year previously, but emerging media (16%) had come ahead of magazines (14.3%) to rank second. Nearly 20% (19.8%) said privacy breaches were common in all media. With regard to public privacy breaches, the percentage of those who thought television was the main source most likely to expose public privacy had increased from 33.2% in 2018 to 36.3% in 2019, while emerging media ranked second for the third straight year, though slightly decreasing than the previous year; meanwhile, 16.6% thought that breaches were common in all types of media.

## International Comparison

When comparing the development of the communications industry in Taiwan with other nations, one finds that in terms of mobile communications, as of the third quarter of 2019, the mobile communications penetration in Taiwan had reached 115.58%. In contrast, according to the Ericsson research report on the development of mobile communications in major regions around the world, the global mobile subscription penetration is 104%. Of them, the penetrations in Central and Eastern Europe (141%), Western Europe (123%), Asia Pacific (117%), China (114%), Middle East (111%), and North America (105%) were all higher than the average; while the penetrations in Latin America (101%), India (86%) and Africa (82%) were all lower than the average.

When taking a further look at the type of mobile

communications used in each region, one finds that according to the Ericsson research report, most mobile subscriptions in North America (91%), Northeastern Asia (88%), West Europe (69%), Latin America (51%), India (48%) and Middle and East Europe (42%) were on 4G networks while the majority of mobile subscriptions in Southeastern Asia were on 3G networks (44%), followed by 4G networks (34%); while a majority of mobile subscriptions in Middle East and Africa were on 2G networks (43%) with 4G subscriptions accounting for just 17% as of the third quarter of 2019. In contrast, all mobile subscriptions in Taiwan had shifted to 4G networks by 2019 with the mobile network population coverage reaching 99.9% in 2018, enabling quality communications services to the public and improving customer satisfaction with the quality of mobile phone calls, which had increased from 6.93 in 2017 to 7.22 in 2019.

With the development and prevalence of broadband networks, OTT TV services have grown rapidly worldwide in recent years. Digital TV Research (2019) predicted that the number of OTT TV subscriptions around the world would grow from 273 million in 2017 to 531 million in 2024. According to Digital TV Research (2019), OTT TV revenue around the world reached US \$ 68 billion (about NT\$ 2.05 trillion) in 2018, an increase of US\$ 38 billion (about NT\$ 1.15 trillion) from 2016. Of them, the United States had the largest market worldwide, with US\$26.804 billion in revenue in 2018, which accounted for approximately 39.4% of global revenue. In addition, according to the report of the Convergence Research Group Ltd. (2019), the number of OTT TV subscriptions outnumbered that of pay TV subscriptions in the United States between 2018 and 2019 (Figure 8-12), which indicated the OTT TV service in the United States had gradually matured.

In addition, the Media Nations 2019 report released by the British authority Ofcom also pointed out that although the U.K. audiovisual market was

still dominated by pay TV services, nearly half (47%) of households subscribed to subscription video-on-demand (SVoD), such as Netflix, Amazon Prime Video, Now TV and Disney Life, and other services. Moreover, YouTube and Netflix had been the third and fourth most watched channels in the UK, only second to BBC One and ITV.

When looking at the audiovisual market in Taiwan, it can be ascertained that according to the survey, the most popular TV platform for in-home TV viewers is cable TV. The proportion had declined slightly from 67.2% in 2018 to 64.6% in 2019. Meanwhile, the market share of both cable TV and Chunghwa Telecom's MOD had risen from the previous year, while the ratio of the online streaming video (OTT TV) had also increased from 5% in 2018 to 11.6% in 2019. In terms of usage, the main source of television viewing for those surveyed was still cable TV, but the proportion had decreased from 63.1% in 2018 to 56.1% in 2019, while the proportion of streaming videos had increased from 3.4% in 2018 to 10.5% in 2019. However, although the proportion of those streaming videos had grown from 30.8% in 2017 to 45.1% in 2019, the percentage of households or individuals with a paid subscription to online streaming video services had remained at around 20%, and had even declined slightly from 21.1% in 2018 to 19.4% in 2019.

According to the above data, it can be noted that the OTT TV market in Taiwan is still in its infancy compared with the UK and the US, with the proportion of those paying for streaming videos accounting for only around 20% being particularly noteworthy. Therefore, an obvious cord-cutting movement in the video market has not yet occurred. Cable TV remains the main platform for viewing television and is not especially threatened by OTT TV for the time being. Nevertheless, the recent cooperation between Netflix and Chunghwa Telecom shows that OTT TV and pay TV (cable TV, MOD) can be complementary with each other.

## **2019 Communications Market Report**

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