



Communications Market Report



NATIONAL
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Communications Market Report

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The background of the cover is a night-time photograph of a city skyline, likely New York City, with numerous skyscrapers illuminated. Overlaid on this image are several vertical lines of varying heights, each topped with a glowing sphere and a wireless signal icon (three concentric arcs). These lines represent communication signals or data streams. A large, white, stylized graphic element, resembling a thick, curved arrow or a bracket, frames the central text and extends across the page. The overall color palette is dominated by deep blues and purples from the night sky, with warm yellows and oranges from the city lights. A solid dark blue band runs along the bottom of the page, and a thin vertical green stripe is visible on the right edge.

Preface

Communications Market Report

Preface

With the ever-changing information and communication technologies, the fifth generation mobile networks (5G) and Internet of Things (IoT) have been developed. The era of digital convergence has changed the way of information communications, consumer behaviors and demands. In response to the changes in the market demands, enterprises have been leaving the traditional industrial framework and developed digital services to embrace the digital age. Emerging businesses have risen due to the convergence of telecommunications and broadcasting; however, unprecedented industrial impacts and challenges have also emerged. In the light of the changes in the ecosystem and business management models of the communications industry, it has become the government's priority to compile data on consumer use of communications technologies and stay well-informed of supply-demand changes in the market with view to adjusting existing regulations that can facilitate an environment of healthy competition and remaining flexible to adapting to the development trends.

The 2022 Report on Communications Market is the National Communications Commission's (NCC) sixth annual comprehensive report that is an investigative analysis of the communications industry both at home and abroad. Normally, such reports not only present statistics on industry supply, but also outline the results of a market survey on demand with the aim of providing a general overview of specific developments and trends in the communications market. The survey on demand turned out to be difficult and cancelled due to the COVID-19 pandemic in 2021. This year, the survey was resumed, with the original four survey categories of communications market, broadcasting market, broadband and

development of convergence incorporated into two: communications and networking, and broadcasting and convergence.

In the first section of this report, the research methods, survey implementation and research limitations of the communications and broadcasting market survey are described in detail. In the second section, the information on the development trends of the overall international communications industry, as well as the demand trends in global markets have been compiled. The industrial aspects and demands in the telecommunications and broadcasting markets in Taiwan are analyzed in the third and fourth parts, providing an overall picture of the development of the domestic communications industry and consumer behavior in Taiwan. Lastly, the fifth section provides a summary of the aforementioned chapters, presents the dynamic context and transformation directions of the overall communications market, analyzes challenges and development opportunities, and gives an outlook of the current domestic communications market based on comprehensive observations of the national context; it also offers some specific suggestions as reference to support the legal and industrial planning and development in Taiwan.



Chapter 1

Outlook of International Telecommunications and Broadcasting Markets

Communications Market Report

International Telecommunications Market

According to the statistics on the global communications industry¹ by IDC, an international market survey institution, the revenue of the communications services² reached US\$1.56 trillion (around NT\$43.88 trillion³) in 2021, with a growth rate of 1.6%. It's worth noting that during COVID-19 outbreak, the telecommunications industry was less impacted compared to the other industries. In fact, telecommunications services have even become a pillar of the global economy, allowing people to remain at work, learn and engage in normal social and entertaining activities remotely. The economic recovery after the slowdown of the pandemic has also increased the revenue of telecom services in all regions. The growth rate in Asia was 2.1%, which was especially high compared to the other regions; the growth rates in America and Europe, Middle-East, and Africa (EMEA) were 1.5% and 1.1%, respectively. However, the global inflation and the higher market base rate have led to a decrease in the purchasing power of enterprises and consumers. The revenue growth of the communications industry has thus slowed down (Figure 1.1).

As for the global mobile communications market, there have been more than 210 telecommunication operators launching commercial 5G services and more than 20 companies providing 5G standalone (SA) applications. What the service providers mainly focus on for the consumers was enhanced mobile broadband (eMBB) that ensured the provision of expanded broadband service, accompanied by other

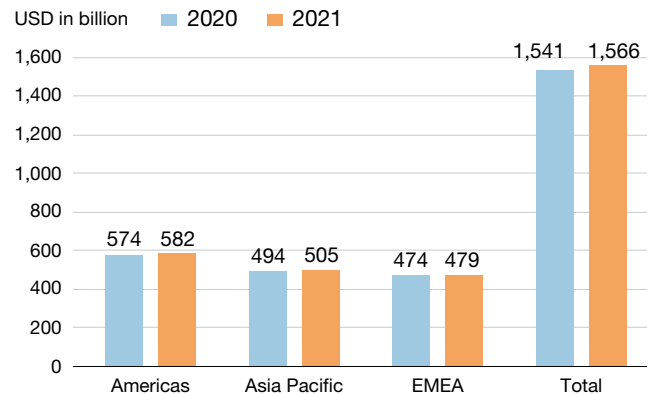


Figure 1.1 Revenue of the Global Communications Industry

Source: IDC, 2022. Worldwide Telecommunications Services Market Saw Higher than Expected Growth in 2021, But the Future is Shadowed by the Looming Economic Slowdown, According to IDC. <https://www.idc.com/getdoc.jsp?containerId=prUS49090722>

key development directions such as 5G FWA and AR/VR entertainment experience. The focus for the enterprises, on the other hand, was to assist them in applying the 5G technology to smart manufacturing, smart transportation and smart cities.⁴

According to the "Ericsson Mobility Report" released in 2022 by the international market survey institution, Ericsson, there were 82 billion mobile communication users in 2021 around the world; the number of 5G users in the world has reached 620 million up to the first quarter of 2022, and is projected to rise to 4.4 billion in 2027, with the number of 4G users declining to 3.5 billion (Figure 1.2). The international main development trends of the national communications market are shown below.

International Broadcasting Market

As indicated in the Global Entertainment & Media Outlook 2022-2026 released by PricewaterhouseCoopers (PwC), the revenue of global entertainment and media industry decreased by 2.3% in 2020, but then showed a strong rebound by 10.4%

¹ IDC, 2022. Worldwide Telecommunications Services Market Saw Higher than Expected Growth in 2021, But the Future is Shadowed by the Looming Economic Slowdown, According to IDC. <https://www.idc.com/getdoc.jsp?containerId=prUS49090722>

² The revenue of the pay television services included.

³ The figure was calculated based on the 2021 exchange rate (NTD:USD = 28.022:1) announced by the Central Bank of the Republic of China (Taiwan).

⁴ Ericsson, 2022. Ericsson Mobility Report. <https://www.ericsson.com/49d3a0/assets/local/reports-papers/mobility-report/documents/2022/ericsson-mobility-report-june-2022.pdf>

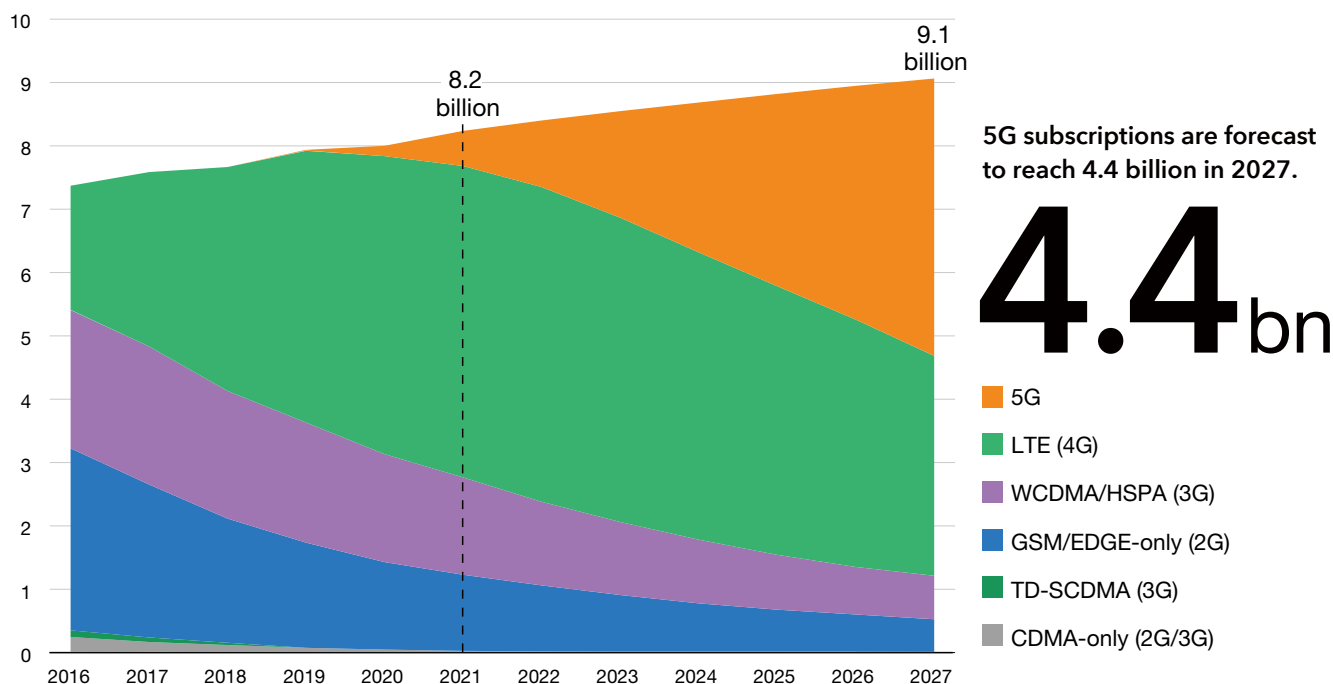


Figure 1.2 Global Users of Mobile Communications

Source: Ericsson, 2022. Ericsson Mobility Report. <https://www.ericsson.com/49d3a0/assets/local/reports-papers/mobility-report/documents/2022/ericsson-mobility-report-june-2022.pdf>

in 2021. The overall revenue has reached US\$2.3 trillion (approx. NT\$64.45 trillion). As digital content has become the mainstream of development, the demand for digital advertising has sharply increased at the same time. It is estimated that the revenue of

the overall industry will gradually grow year by year and reach US\$2.9 trillion (approx. NT\$81.26 trillion) in 2026 with the compound annual growth rate of 4.6% (Figure 1.3).

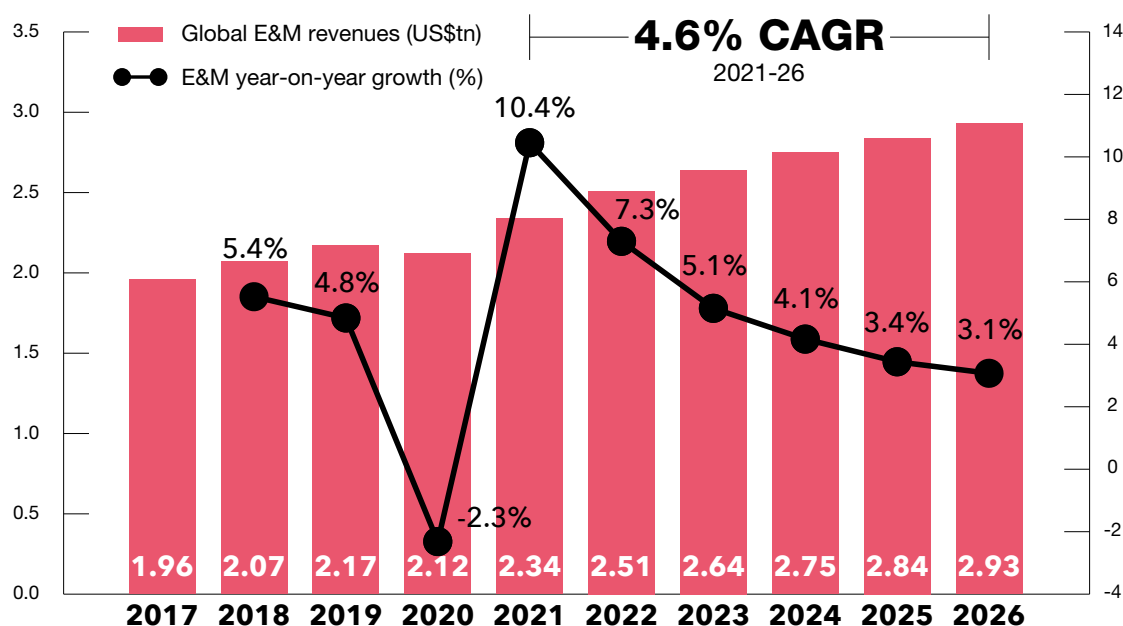


Figure 1.3 Revenue of the Global Entertainment and Media Industry

Source: PwC, 2022. Global Entertainment & Media Outlook 2022–2026. <https://www.pwc.com/gx/en/industries/tmt/media/outlook.html>

The revenue trends of the industry segments have been further analyzed. It is estimated that the film segment, though slowly recovering, will not be able to return to the prosperity of 2019 prior to the pandemic, namely the achievement of US\$45.2 billion (approx. NT\$1.26 trillion), until 2023. The overall film segment is likely to grow from US\$22.8 billion (approx. NT\$638.901 billion) in 2021 to US\$52.7 billion (approx. NT\$1.47 trillion) in 2026. Meanwhile, the revenue of traditional television segment will continue to fall because of the OTT market, projecting to drop from US\$231 billion (approx. NT\$6.47 trillion) in 2021 to US\$222.1 billion (approx. NT\$6.22 trillion) in 2026 at a compound annual growth rate of -0.8%. In contrast, the OTT TV segment will grow from

US\$79.1 billion (approx. NT\$2.21 trillion) in 2021 to US\$114.1 billion (approx. NT\$3.19 trillion) in 2026 at a compound annual growth rate of 7.6%. Also, with the digitization of the media industry, the proportion of the output value of digital advertising in the overall advertising market has steadily increased. The revenue of digital advertising has grown by 31.6% in 2021 compared to the performance in 2020, reaching up to US\$468.4 billion (approx. NT\$13.12 trillion); it is expected to grow to US\$723.6 billion (approx. NT\$20.27 trillion) in 2026 at a compound annual growth rate of 9.1% (Figure 1.4). The international main development trends of the national broadcasting market are shown below.

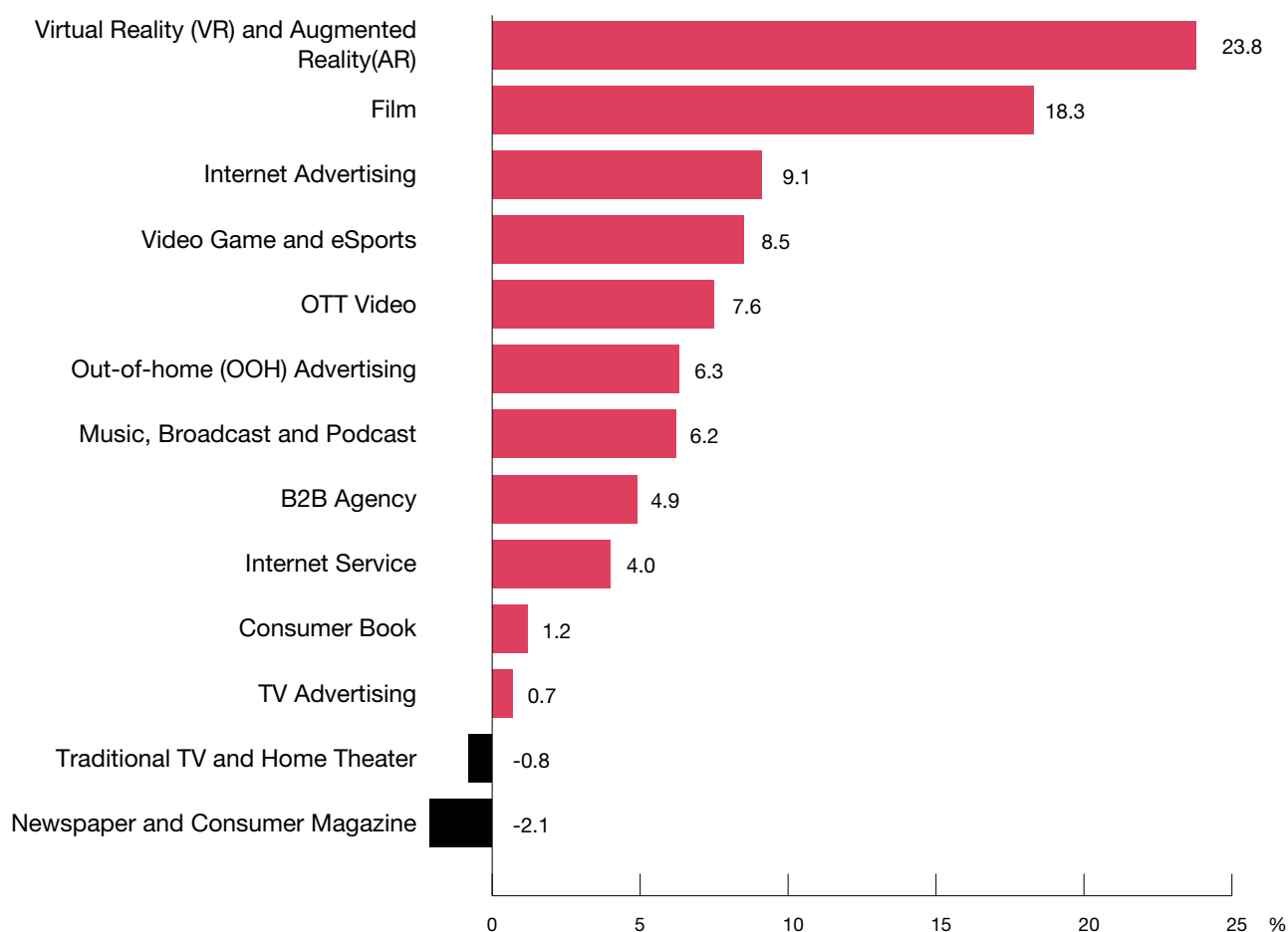


Figure 1.4 Global Revenue Forecast 2020-2025 by Segment

Source: PwC, 2022. Global Entertainment & Media Outlook 2022–2026. <https://www.pwc.tw/zh/publications/topic-report/2021-taiwan-enm-outlook.html>



Chapter 2

Development Trends of the Domestic Telecommunications Market

Communications Market Report

Domestic Telecommunications Industry

The structure of the mobile communications market in Taiwan is mainly supported by the major operators: Chunghwa Telecom, FarEasTone, Taiwan Mobile, Taiwan Star Telecom and Asia Pacific Telecom. As of December 2021, Chunghwa Telecom held the highest market share (38.91%) in the mobile communications market, followed by FarEasTone (25.9%) and Taiwan Mobile (24.02%).⁵ These three enterprises accounted for more than 80% of the total market.⁶

The fixed line voice market is mainly dominated by Chunghwa Telecom, Asia Pacific Telecom, Taiwan Fixed Network, and New Century Infocomm Tech. As for the fixed broadband, with the upgrade of technologies and equipment, the market depends on two kinds of fixed line services—FTTX and cable modem. The FTTX market is dominated by telecommunication operators (such as Chunghwa Telecom) while the cable modem market is dominated by cable television providers, such as Kbro, Home+, TFN Media, Taiwan Broadband, etc.

In terms of the implementation of communications policy, in February 2020, NCC released the first batch of 5G mobile broadband licenses. Some of the bond from winning bids was used to enhance public 5G infrastructure, reduce the digital divide between urban and rural areas, and promote digital public welfare, in order to accelerate the deployment of 5G infrastructure and boost the public welfare of citizens.

In addition, in response to the increasing needs for network traffic around the world as well as the goal of strengthening Taiwan's network connection capability at home and abroad and the safety of

bandwidth, the Executive Yuan developed the "Smart Nation Program (2021-2025)," planning to set up Asia-Pacific submarine cables and 5G cloud IoT center and bolster the overall network resilience. To cope with the market demands and keep in line with the policy implementation, Chunghwa Telecom has actively participated in the submarine cable deployment plan in international areas as a major submarine cable operator in Taiwan. This helps support diverse 5G services while promoting the collaboration between Taiwan and other Southeast Asian countries.

Moreover, in this 5G era, the communications and broadcasting industries have converged, and telecommunication services have become diversified. In order to encourage innovation and healthy competition, NCC eased the conventional regulatory framework behind the Telecommunications Act, putting the Telecommunications Management Act into effect on July 1, 2020. Type I and Type II telecommunications enterprises under the structure of the original Telecommunications Act must complete the transition to the new act within three years upon the adoption of the Telecommunications Management Act. As of December 2021, 47 enterprises had already completed registration of transition from Telecommunications Act to Telecommunications Management Act.

The following pages provide a more in-depth analysis of the overall communications market in Taiwan, focusing on both the mobile communications and fixed communications markets, as well as broadband internet and an overview of communications resources.

Overall Communications Market

Revenue of the telecommunications market in Taiwan showed a downward trend between 2012 and 2021. The total telecommunications revenue reached NT\$388.1 billion in 2012, but then fell to less than NT\$300 billion in 2019 due to the spread of free

⁵ The calculation was based on the proportion of each telecommunication operator's revenue of mobile communications in the overall revenue of Taiwan's mobile communications industry in 2021.

⁶ NCC, 2021. Statistical Report of Mobile Communications Market Q4 2021. https://www.ncc.gov.tw/chinese/files/22032/3773_47334_220328_1.pdf

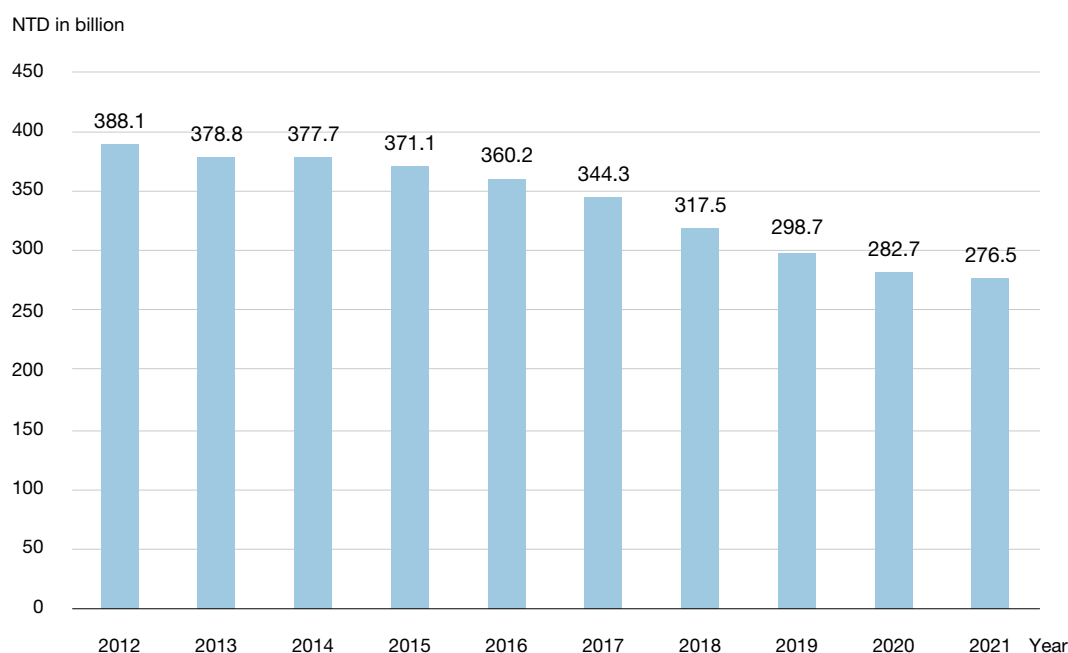


Figure 2.1 Telecommunications Revenue

Source: NCC.

instant messaging software. The release of the 5G mobile broadband licenses in 2020 also prompted the telecommunication operators to aggressively invest in the network deployment. Further, the COVID-19 pandemic impacted the sales of mobile phones and the business of international roaming as well. Consequently, we can see a drop in the revenue of the overall telecommunications market declining to NT\$276.5 billion in 2021 (Figure 2.1).

In terms of the proportion of each telecommunications service in the total revenue of telecommunications services, the mobile communications service has made up more than 50% from 2014 to 2021, becoming the primary revenue source of the telecommunications market. It is followed by the fixed-line Internet and value-added service, with the proportions of 14.69% to 18.84% respectively. As shown in the further analysis of trends, the revenues of the telecommunications services such as landline call, toll call and international call fell during the 2014 to 2021 period owing to the ubiquity of free voice communications software. The

revenue proportion of mobile communications service dropped slightly from 58.83% in 2016 to 54.26% in 2019, but rebounded a little to 56.07% in 2021 thanks to the gradual increase in 5G penetration since the introduction of 5G in 2020. The revenue proportion of fixed-line Internet and value-added service has shown a year-by-year upward trend between 2014 to 2020; however, impacted by the greater penetration of mobile broadband, the proportion somewhat declined to 17.18% in 2021. Regarding the circuit rental, as the information and communications industry has become the development core in Taiwan and internet service providers, content providers and network server providers have had a higher demand for exclusive broadband connection and mass data transfer, the revenue proportion of circuit rental has grown from 9.84% in 2014 to 12% in 2021. Moreover, with the changes in the consumer habits related to television and film, the users of MOD (Multimedia On Demand) platforms have increased; the revenue proportion of MOD has grown slightly year by year from 1.02% in 2014 to 2.26% in 2021 (Figure 2.2).

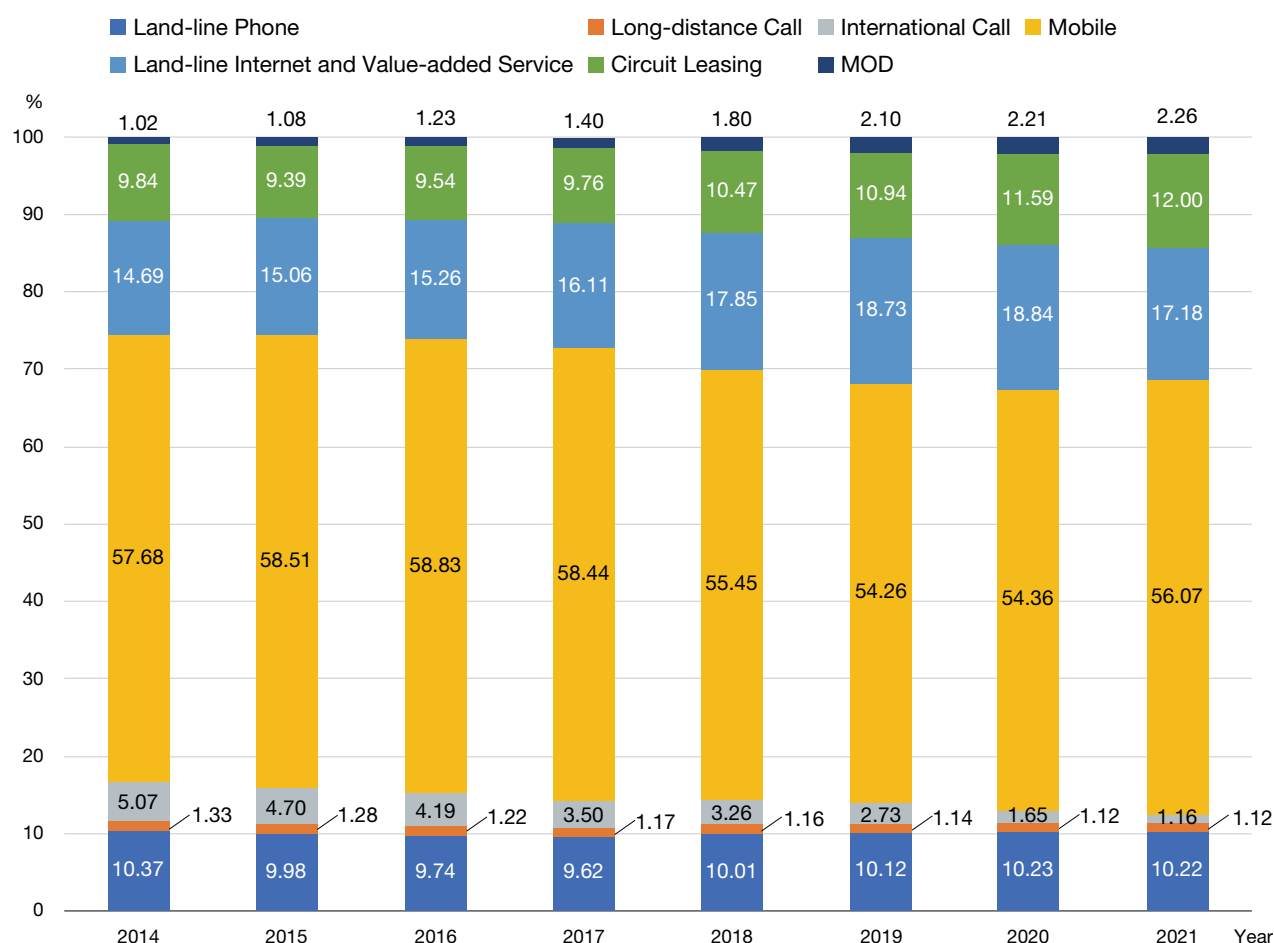


Figure 2.2 Proportion of Each Telecommunications Service in the Total Revenue of Telecommunications Services from 2014-2021

Source: NCC.

Note 1: Figures were rounded; it is possible that the sum of the figures and the total do not equal 100%.

Note 2: Mobile communications include 2G, 3G, 4G, 5G, PHS and WBA.

The growth trends of the number of users and penetration of telecommunications in Taiwan was analyzed, and the results showed that the overall number of mobile communication users has been stable, with 29.58 million users in 2021. The number of accounts of fixed broadband has also steadily increased. Since 2020, demand for steady and high-speed network quality has risen because of the pandemic, which has contributed to a higher broadband application rate; the number of fixed broadband accounts has therefore increased to 6.25 million in 2021. The number of landline users, on the other hand, has gradually dropped from 12.41 million in 2012 to 10.52 million in 2021 because of the spread of free instant messaging software (Figure 2.3).

Mobile Communications

The revenue of mobile communications in Taiwan has shown a downward trend from 2012 to 2021. The total revenue of mobile communications once reached up to NT\$225.4 billion in 2012, but then declined to NT\$153.7 billion in 2020. Nevertheless, since the introduction of 5G services in 2020, more people have simultaneously adopted or turned to 5G services while the telecom charges have increased, resulting in a slight rebound of the overall revenue of mobile communications to NT\$155 billion in 2021 (Figure 2.4).

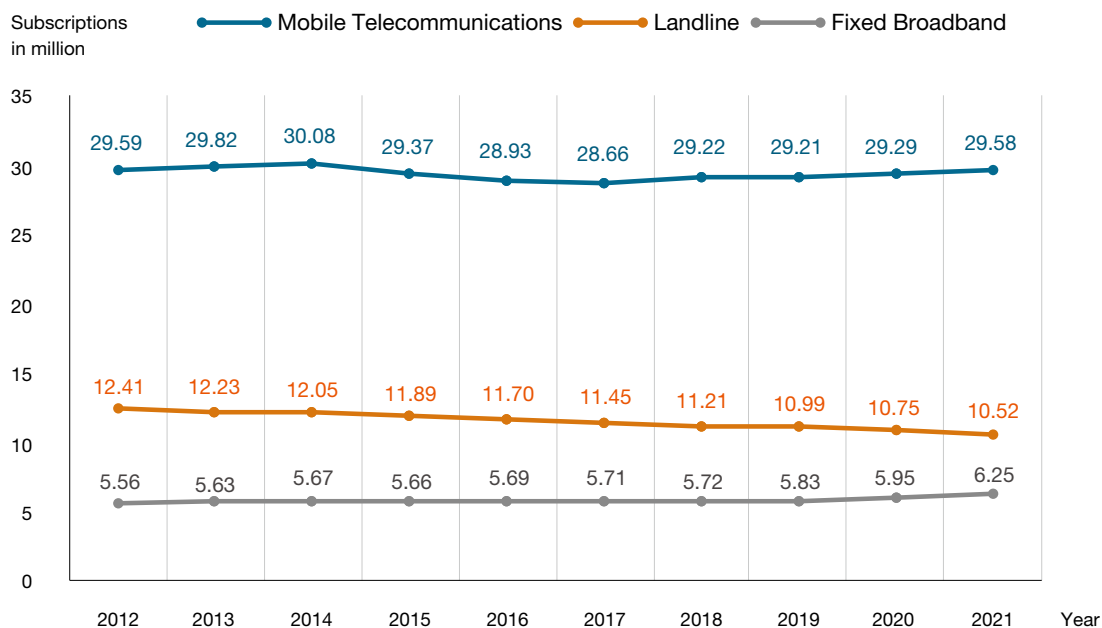


Figure 2.3 Number of Telecom Users

Source: NCC.

Note: Fixed broadband included ADSL, FTTx, Cable modem and Leased Line; the number of PWLAN accounts was not covered.

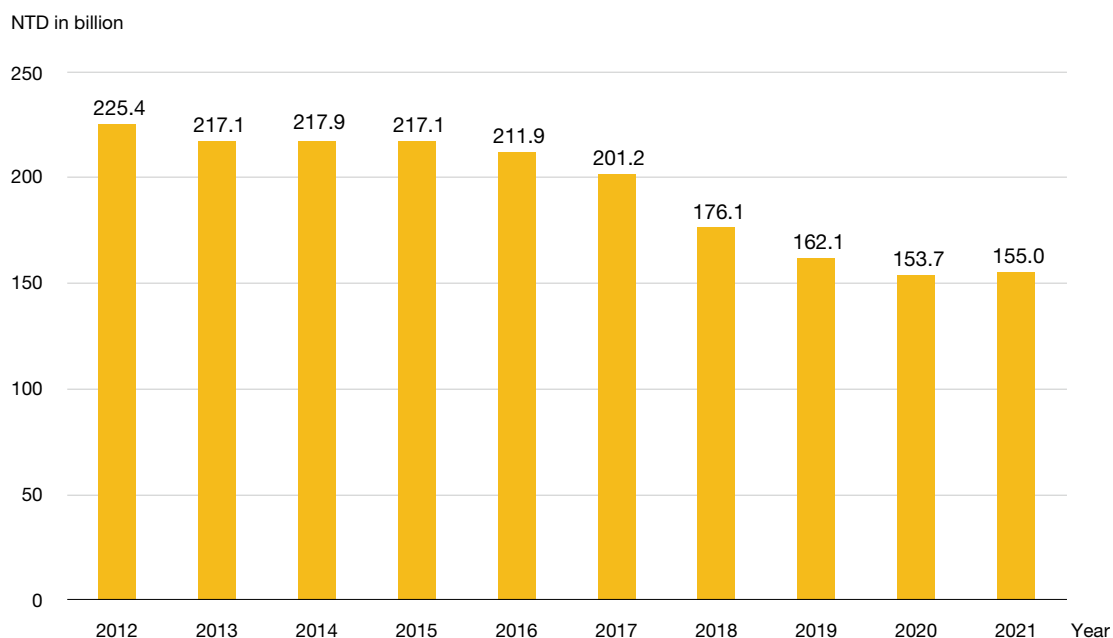


Figure 2.4 Total Revenue of Mobile Communications

Source: NCC.

Note 1: 4G services added in 2014.

Note 2: The PHS services have become unavailable since March 2015, and so have been the WBA services since November 2015.

Note 3: 5G services added in 2020.

In terms of the changes in the ARPU of mobile communications, the ARPU once reached NT\$1,088 when the 4G services were introduced in 2014. However, due to the fierce competition in the 4G services market, the ARPU declined year by year to NT\$459 in 2019. In 2020, the 5G services were launched; the ARPU further dropped to NT\$438 because of the 4G+5G services. Later, as 5G users increased, the relatively expensive 5G charges have accounted for a higher proportion while the low charging market strategies have gradually been eliminated, allowing the ARPU to rise slightly to NT\$444 in 2021 (Figure 2.5).

Fixed Communications

The overall revenue of fixed communications in Taiwan shows a downward trend from 2012 and 2021. The total revenue of fixed communications in 2021 was NT\$121.5 billion, a decrease of NT\$41.2 billion compared to 2012. As indicated in the further analysis of the fixed network data, the revenue of fixed network data reached NT\$92.7 billion in 2014 thanks to the active promotion and deployment of optical

fiber and cable broadband by the government and the industry. Later, it fell gradually to NT\$80.7 billion in 2021 due to the ubiquity of fixed network technology. The fixed line voice revenue has reflected a year-by-year decreasing trend as well; it was NT\$34.6 billion in 2021, which is NT\$38.7 billion less than that in 2012 (Figure 2.6).

According to the analysis of the structure of total fixed communications revenue, the difference between the proportions of fixed network data revenue and fixed line voice revenue has widened steadily since 2012; the fixed network data revenue accounted for more than 70% (70.8%) in 2020 and remained at 70.01% in 2021 (Figure 2.7).

Broadband Internet

For the fixed broadband, the numbers of subscribers of FTTX and cable modem have steadily increased due to the optical fiber and cable television broadband operators' active deployment of high-speed network infrastructure, as well as the upgrade and promotional packages; the number of ADSL subscribers, by contrast, has fallen year by year. In

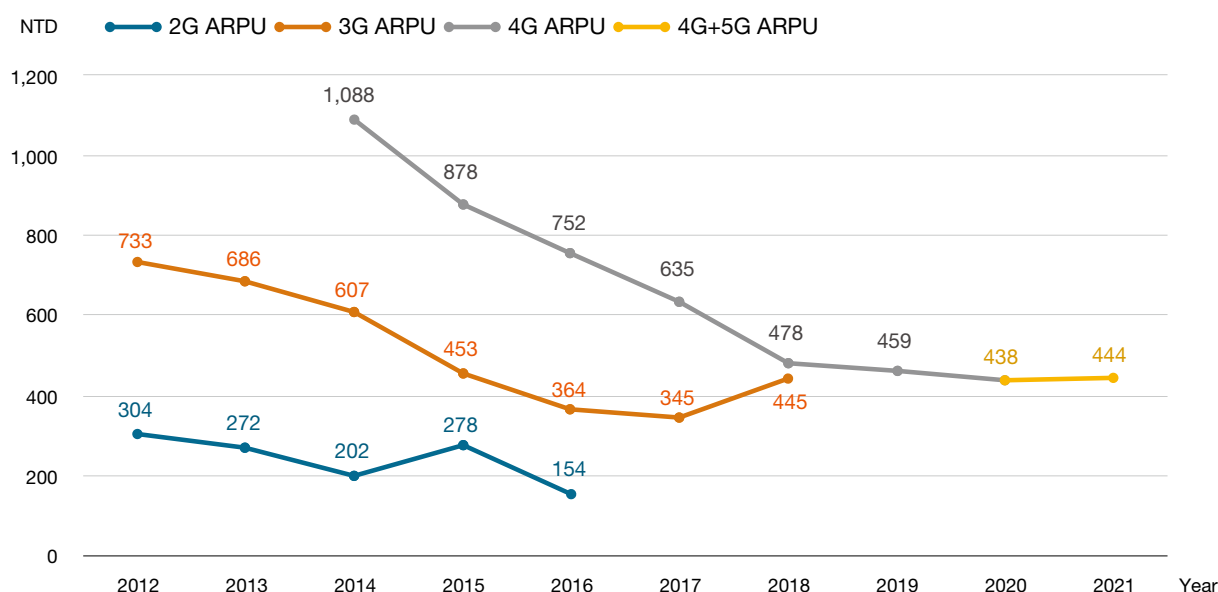


Figure 2.5 ARPU of Mobile Communications

Source: NCC.

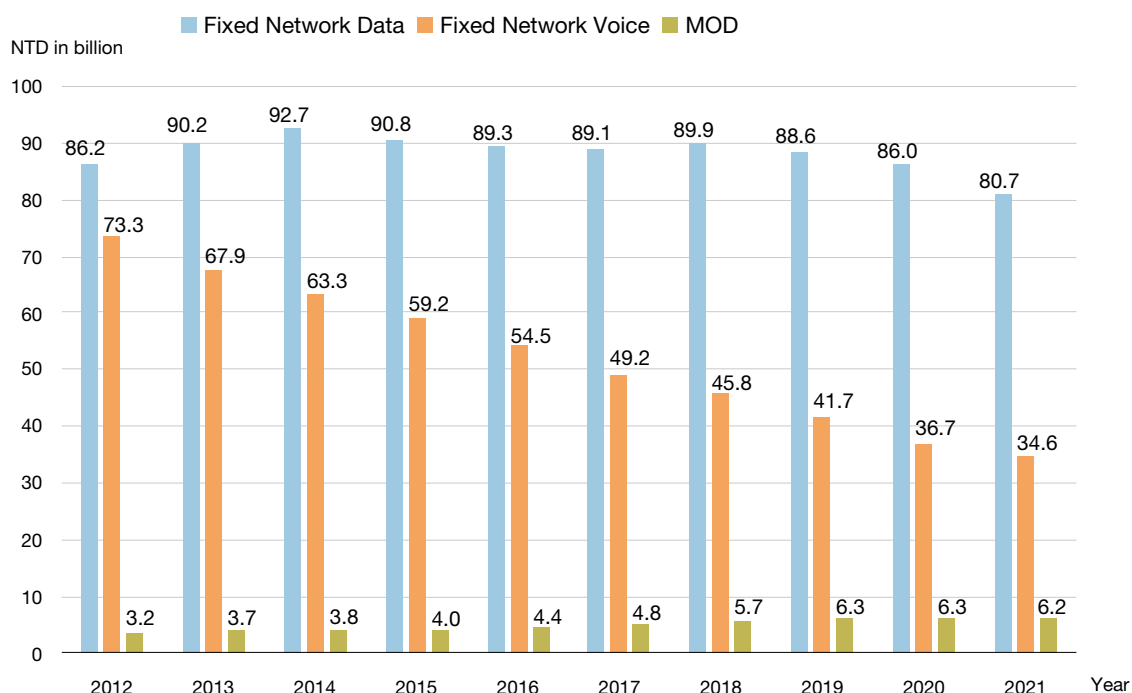


Figure 2.6 Revenue of Fixed Communications

Source: NCC.

Note 1: Fixed network data communications revenues include the internet, value-added service and circuit rental revenues.

Note 2: Figures were rounded; the total value may not equal the sum of all.

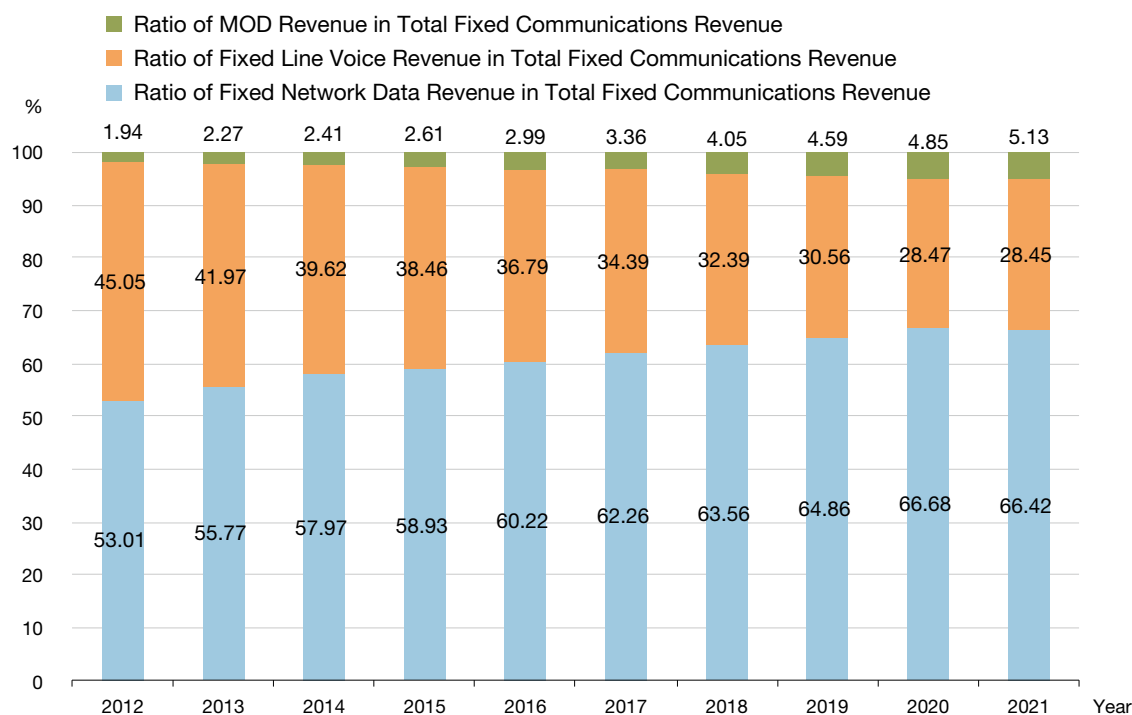


Figure 2.7 Revenue Structure of Fixed Communications

Source: NCC.

Note: Figures rounded; the total value may not equal the sum of all.

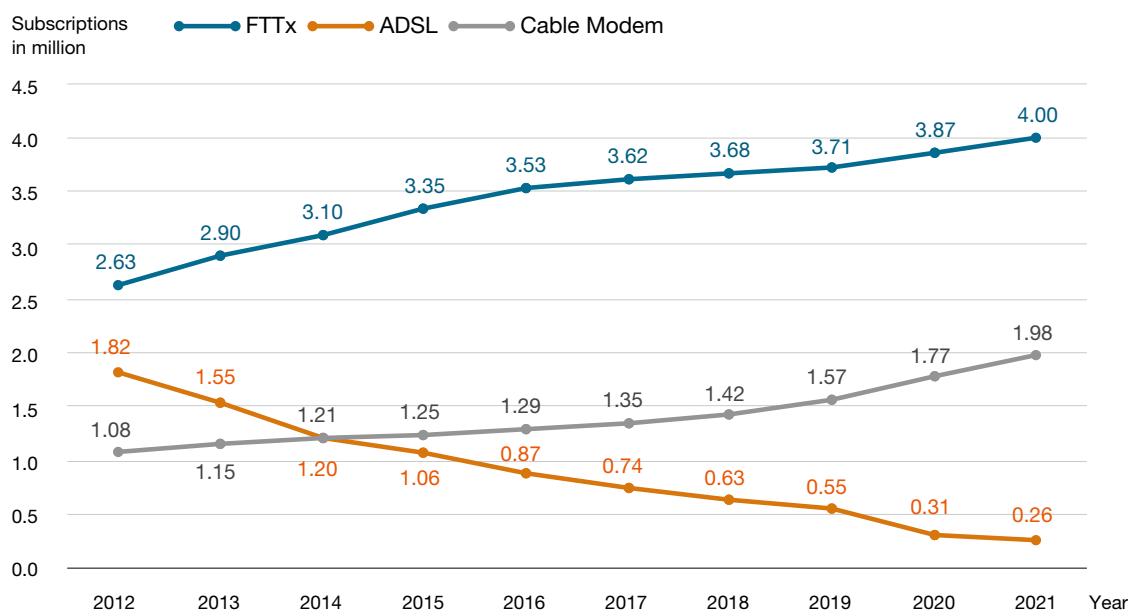


Figure 2.8 Fixed Broadband Users

Source: NCC.

2021, FTTX was the primary means of fixed network technology, with the number of subscribers reaching 4 million. In the same year, the number of cable modem subscribers was 1.98 million, while the number of ADSL subscribers declined to 0.26 million (Figure 2.8).

According to the statistics on the number of subscribers to Taiwan's four major fixed network operators⁷, the number of FTTX subscribers using 100Mbps optical fiber and above has grown from 10,000 in 2012 to 2 million in 2021, representing more than 50% (54%) of the total FTTX subscribers. The rapid digitization of lifestyle resulting from COVID-19 has stimulated people's demand for better network quality; the pursuit for a stable connection environment with high-speed network further led to the slight growth in the number of FTTX subscribers in 2021 (Figure 2.9).

⁷ Taiwan's four major fixed network players are Chunghwa Telecom Co., Ltd., Taiwan Fixed Network Co., Ltd., Asia Pacific Telecom Co., Ltd. and New Century Infocomm Tech Co., Ltd. In 2020, the number of ADSL subscribers of the four major fixed network operators combined was 720,000; the number of FTTX subscribers was 3.59 million.

Overall Communications Resources

Mobile Communications

The second generation mobile services (2G) in Taiwan were terminated in June 2017, and the GSM900 and DCS1800 frequency bands and equipment formerly used with 2G services have been adopted by the mobile broadband services. The third generation mobile services (3G) ended on December 31, 2018, and the 2100MHz frequency band formerly used with 3G and the 1800MHz frequency band available since 2017 have been adopted by the mobile broadband services. The 3.5GHz and 28GHz frequency bands awarded by auction in 2020 were assigned for the fifth generation mobile services (Table 2.1).

TWNIC Management of Domain Names

The registration and management of Taiwan's country code top level domain (ccTLD) business is managed by the Taiwan Network Information Center (TWNIC).

The operation of the internet depends on the internet protocol (IP for short) addresses for exchange.

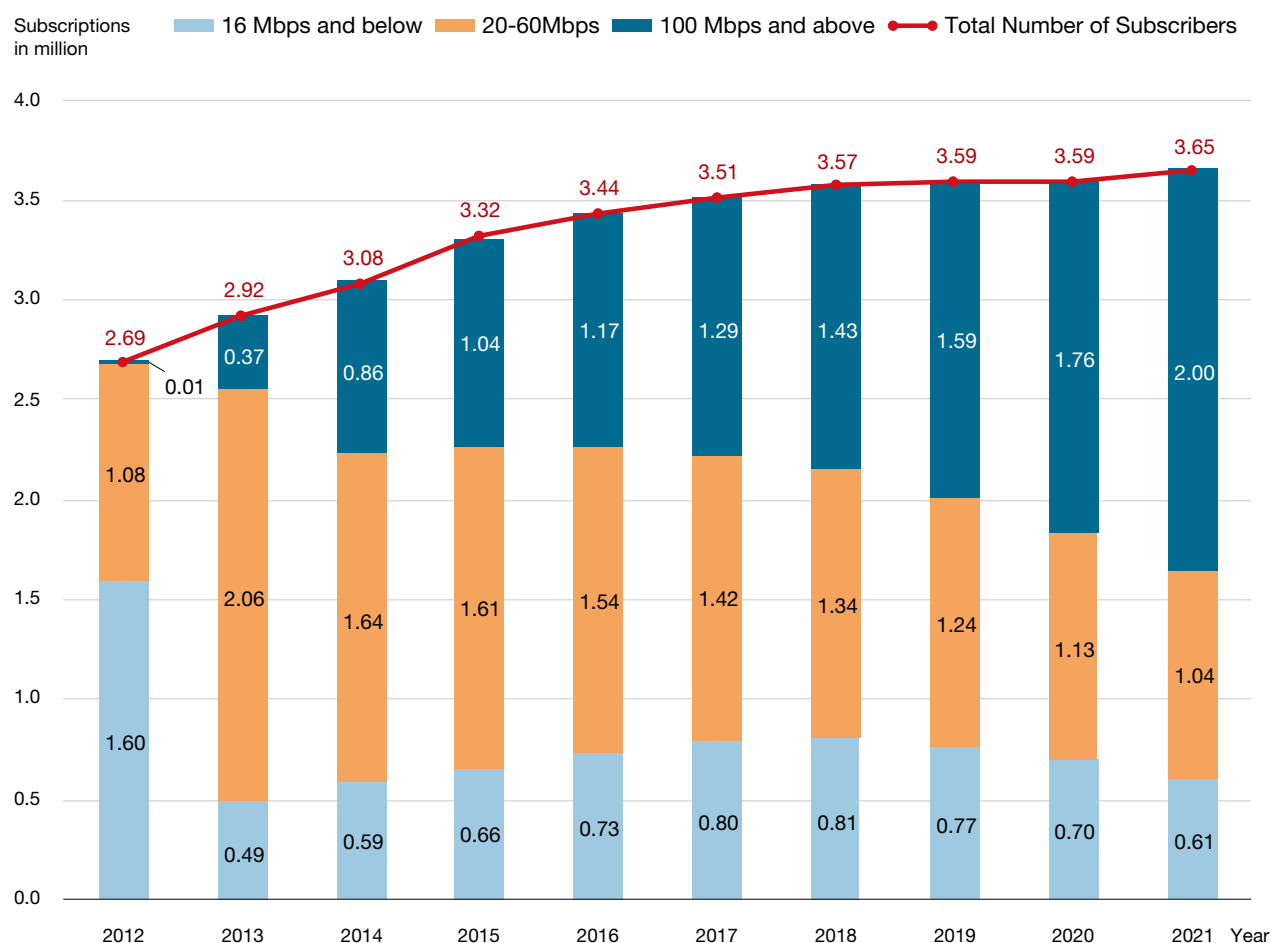


Figure 2.9 FTTX Subscribers of Four Major Fixed Network Operators in Taiwan

Source: NCC.

Table 2.1 Spectrum Status

Frequency	Status
700MHz	Uplink 703-748MHz/downlink 758-803MHz; assigned to mobile broadband services with the license valid until the end of 2030.
900MHz	Uplink 885-915MHz/downlink 930-960MHz; assigned to mobile broadband services with the license valid until the end of 2030.
1800MHz	Uplink 1710-1775MHz/downlink 1805-1870MHz; assigned to mobile broadband services with the license valid until the end of 2030.
2100MHz	Uplink 1920-1980MHz/downlink 2110-2170MHz; assigned to mobile broadband services with the license valid until the end of 2033.
2500MHz, 2600MHz	2500-2570MHz, 2620-2690MHz (paired frequency segment) and 2570-2620MHz (unpaired frequency segment); assigned to mobile broadband services with the license valid until the end of 2033.*
3.5GHz	3300-3570MHz assigned to 5G with the license valid until the end of 2040.
28GHz	27900-29500MHz assigned to 5G with the license valid until the end of 2040.

Source: NCC.

Note: 2570-2595MHz includes the guard band 2570-2575MHz; 2595-2620MHz includes the guard band 2615-2620MHz.

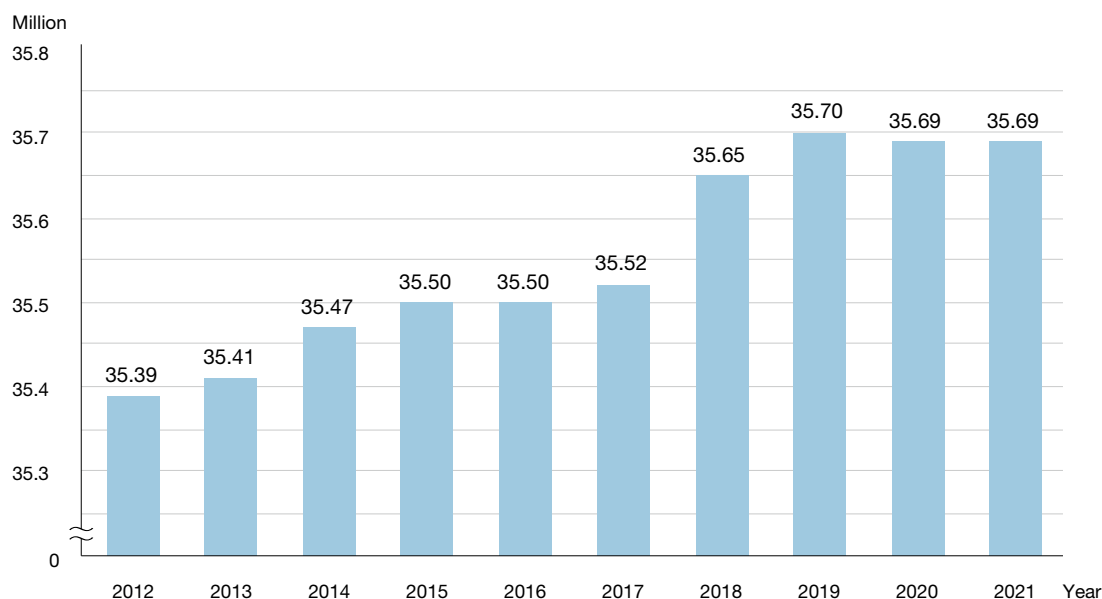


Figure 2.10 IPv4 Addresses Issued in Taiwan

Source: Results from TWNIC December 2021.

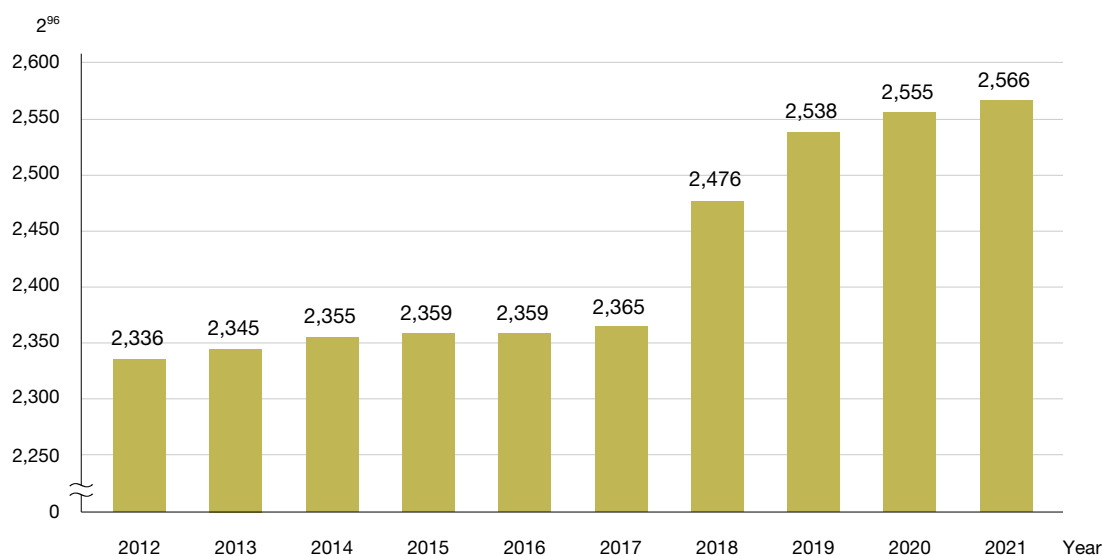


Figure 2.11 IPv6 Addresses Issued in Taiwan

Source: Results from TWNIC December 2021.

The internet protocol version 4 (IPv4) is the first version that has been widely used. As of December 2021, a total of 35,693,568 IPv4 addresses had been issued in Taiwan, ranking Taiwan as 15th globally⁸ (Figure 2.10).

However, due to the rapid development of the internet in recent years, IPv4 addresses have begun

to be insufficient; as a result, IPv6 network has started to be deployed internationally in an active manner. As of December 2021, a total of 2,566x296 IPv6 addresses had been issued in Taiwan (Figure 2.11), ranking Taiwan 25th in terms of the number of issued addresses.⁹

8 IPv4 ranking is based on APNIC statistics (including the number of addresses TWNIC and others have applied to APNIC).

9 IPv6 ranking is based on APNIC statistics (including the number of addresses TWNIC and others have applied to APNIC).

Survey of the Domestic Telecommunications Market

Comparison of Trends in 2017-2022

To correspond to the development status of the domestic communications industry, certain questions of the questionnaires have been incorporated, deleted or added and the survey method has changed from face-to-face interviewing during the preceding years to telephone interviewing. Since the questionnaire design and survey method are different from those in the past, it is not appropriate to directly compare the 2022 survey data with the data in the past years. The report of this year, however, looks into the overall trends from a broader perspective to provide reference.

Mobile Phone Only Group Exceeds 50%

• Current Situation (2022)

When asked about the type of telephone used at home, 51.7% of the surveyed said they only use a mobile phone, 40.5% said they use both landline and mobile phone, with 7.8% saying they use the landline only (Figure 2.12).

• Year-on-year Comparison

When comparing data between 2017 and 2022¹⁰, it was noted that most of the surveyed between 2017 and 2020 said they used both the landline and the mobile phone at home, but the ratio decreased year by year, falling from 79% in 2017 to

64.3% in 2020; while the ratio of the mobile phone only users increased from 17.7% in 2017 to 31.8% in 2020; the ratio of the landline only users slightly increased from 2.2% in 2017 to 3.4% in 2020. When analyzing the survey data between 2017 and 2022, it was noted that respondents tended to switch from dual users to mobile phone only users, with the landline only users accounting for the smallest share.

Over 70% Use 4G, Claiming 4G is Fast Enough

• Current Situation (2022)

Those who had not transferred from 4G to 5G network constituted 71.4%; while those who had represented 27% (Figure 2.13). When it comes to the reasons for transferring to 5G, the predominant

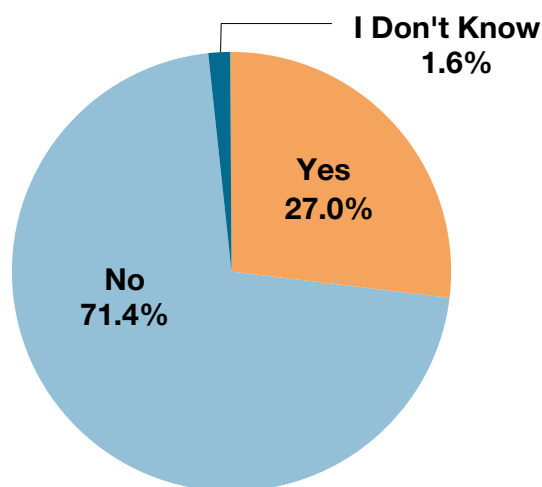


Figure 2.13 Transfer from 4G to 5G

Base: N=1,106, single-choice (Those who use the mobile phone and the internet)

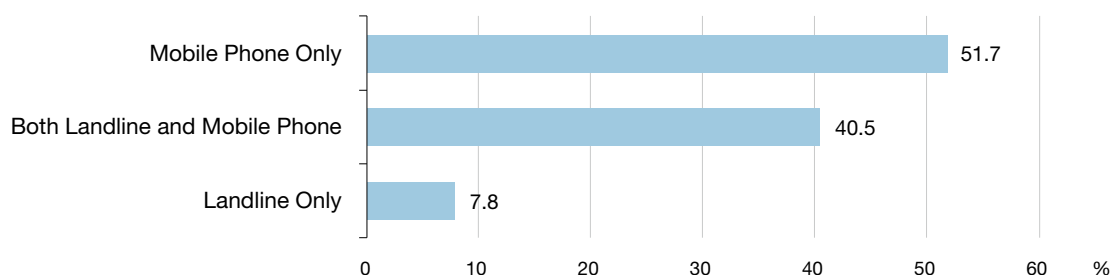


Figure 2.12 Home Telephone Usage

Base: N=1,309, single-choice

¹⁰ No 2021 survey data is available since the annual communications market survey was cancelled that year due to the COVID-19 pandemic.

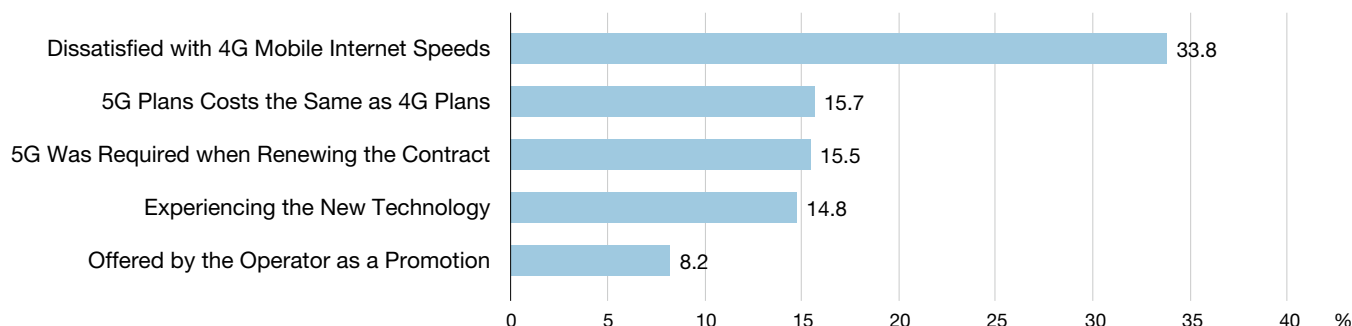


Figure 2.14 Reasons for Transferring to 5G (Top 5)

Base: N = 299, multiple answers allowed (Mobile phone owners who access the internet and has transferred to 5G)

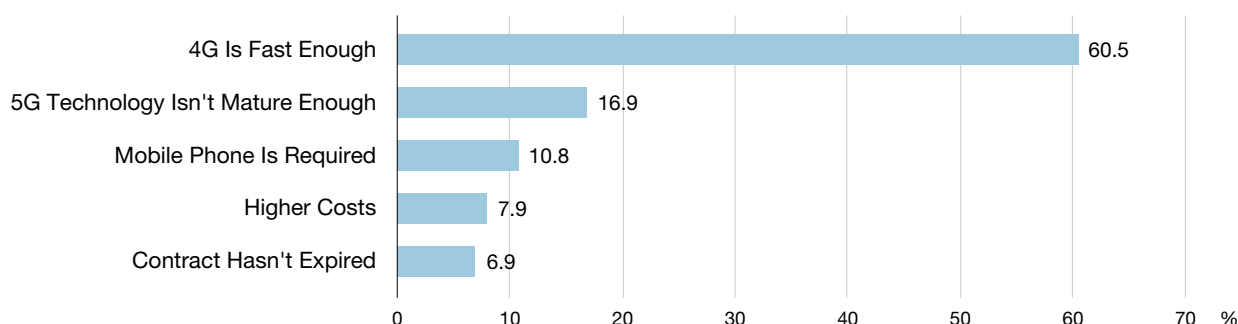


Figure 2.15 Reasons for not Transferring to 5G (Top 5)

Base: N = 790, multiple answers allowed (Mobile phone owners who access the internet but has not transferred from 4G to 5G)

reasons were “dissatisfied with 4G mobile internet speeds” (33.8%), followed by “5G plans costs the same as 4G” (15.7%), and “5G was required when renewing the contract” (15.5%) (Figure 2.14). When it comes to the reasons to remaining with 4G, the predominant reasons were “4G is fast enough” (60.5%), followed by “5G technology isn’t mature enough” (16.9%) (Figure 2.15).

• Year-on-year Comparison

This item, which was added this year, cannot be compared across years.

FTTX Primary Technology in Home Fixed Broadband

• Current Situation (2022)

When asked if they subscribe to the fixed internet at home, 65.8% of the respondents replied affirmatively, with FTTX (30.2%) as the predominant

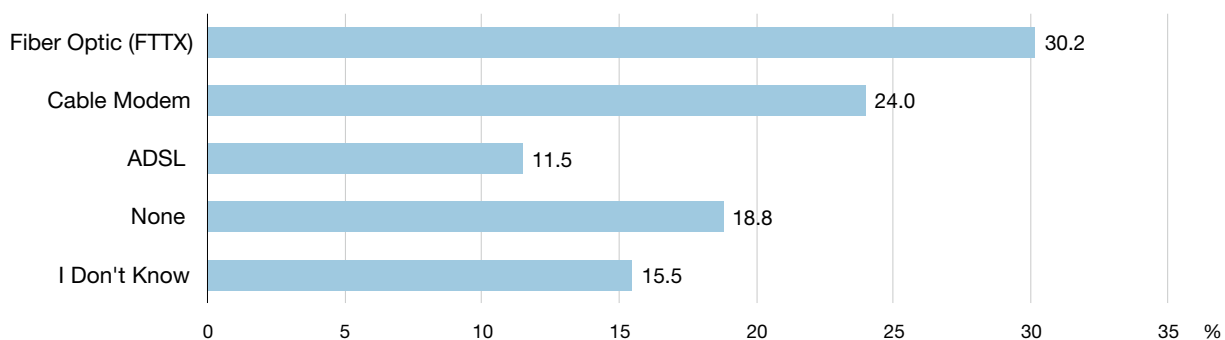


Figure 2.16 Fixed Internet Connection Used at Home

Base: N=1,174, single-choice (Those who can access the internet at home)

connection, followed by cable modem (24%), with ADSL (11.5%) as the least common; while those who do not subscribe to fixed internet at home accounted for 18.8% (Figure 2.16).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that most of the surveyed between 2017 and 2020 said they subscribed to FTTX or ADSL, followed by cable broadband. The ratio of ADSL subscribers was lower than that of FTTX subscribers and cable broadband subscribers in 2022 as the broadband technology advances and equipment is upgraded by telecom operators in Taiwan.

Mobile Broadband Internet Most Common Form of Internet Access at Home

• Current Situation (2022)

According to the survey results, the most used form of internet (4G, 5G) connection was mobile broadband internet (46.4%), followed by fixed broadband internet (43%), and shared mobile hotspots (3.2%) (Figure 2.17).

• Year-on-year Comparison

Between 2017 and 2022, most of the surveyed said they accessed the internet at home via mobile broadband.

Internet Use 86.3%

• Current Situation (2022)

When asked about the internet use (including social media and instant messengers), 86.3% of those surveyed replied affirmatively; while 13.7% replied negatively (Figure 2.18).

• Year-on-year Comparison

Since this question was added in 2018, comparisons were made to provide insight to trends between 2018 and 2022. The proportion of internet users in Taiwan has exceeded 80% over the years (86.2% in 2018; 88.9% in 2019; 89% in 2020; 86.3% in 2022).

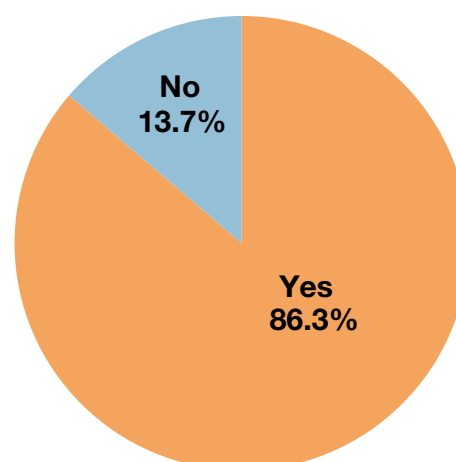


Figure 2.18 Internet Usage

Base: N=1,309, single-choice.

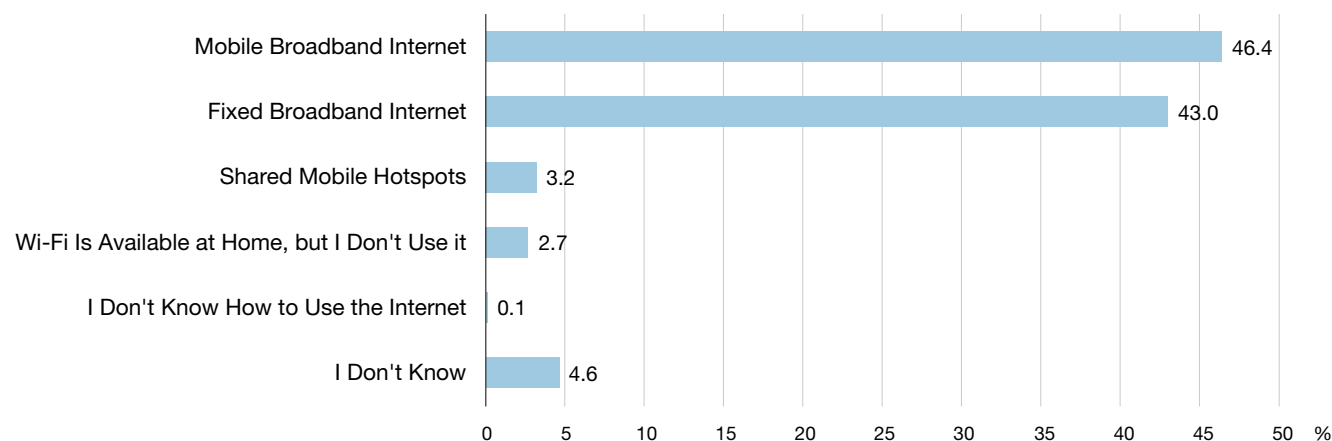


Figure 2.17 Most Common Form of Internet Access at Home

Base: N=1,174, single-choice (Those who can access the internet at home)

Over 30% Take No Measures Against Cyber Security

• Current Situation (2022)

When asked about the measures taken to protect internet security, most of the surveyed said anti-virus software (16.6%), followed by filters or blockers to prevent spam or advertisements (12.1%), updating software regularly (10.3%), and complicated passwords set on devices or applications (including emails, social media, third-party payment software) (9.7%); while 34.8% said they did not take any actions (Figure 2.19).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that most respondents said they used anti-virus software to protect the cyber security,

followed by firewalls between 2017 and 2020 and filters or blockers in 2022 to prevent spam or advertisements.

Personal Information Leaks and Internet Fraud Most Common Concerns Online

• Current Situation (2022)

When asked about the concerns about going online, most respondents (16.4%) said they were concerned about "personal information leaks / "identity theft," followed by "internet fraud" (12.5%), and "excessive or inappropriate advertising" (10.3%). In addition, approximately 32.5% replied "none" (Figure 2.20).

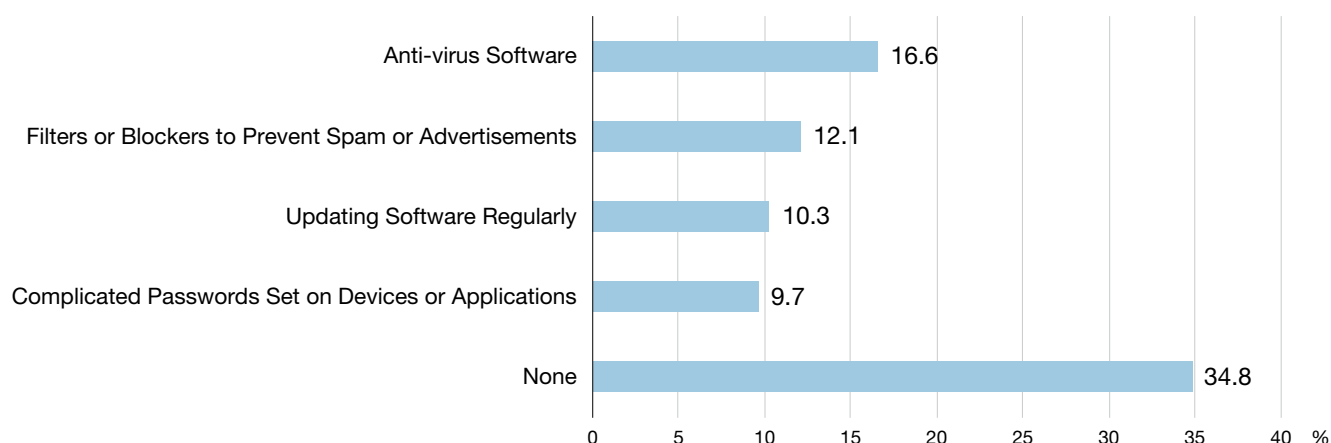


Figure 2.19 Internet Security Measures Taken (Top 5)

Base: N=1,129, multiple answers allowed (Those who use the internet)

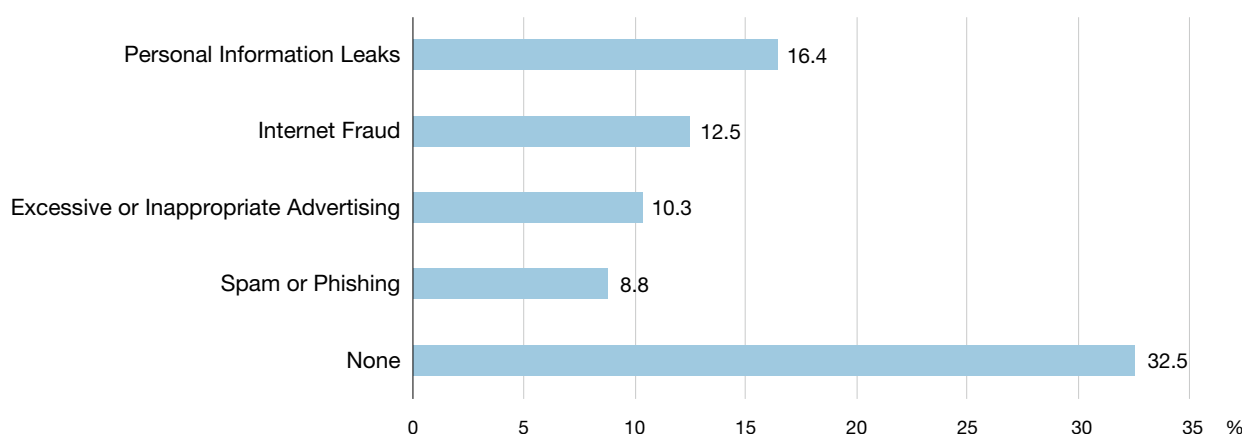


Figure 2.20 Concerns while Online (Top 5)

Base: N=1,309, multiple answers allowed

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that most respondents said they were most concerned about personal information leaks while going online, followed by internet fraud.

LINE Most Commonly Used Social Media

• Current Situation (2022)

When asked about active social media or app accounts, most respondents (75.9%) said LINE, followed by Facebook (Facebook Messenger) (59.8%) and Instagram (23.9%) (Figure 2.21).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that LINE was the most commonly used social media or app, followed by Facebook (including Facebook Messenger) and Instagram.

Increase in Offensive and Inappropriate Content on Social Media and Instant Messaging

• Current Situation (2022)

Over eighty percent (81.2%) of the surveyed said they had always, often or rarely seen offensive or inappropriate content on social media or instant messaging during the past twelve months, and only 16.9% said they had never done so (Figure 2.22).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that when respondents were asked how often they had spotted offensive or inappropriate content on social media or instant messenger during the past 12 months, the most common answer was “never” in 2017 and 2018 and “rarely” between 2019 and 2022, indicating an increase in offensive or inappropriate content seen on social media.

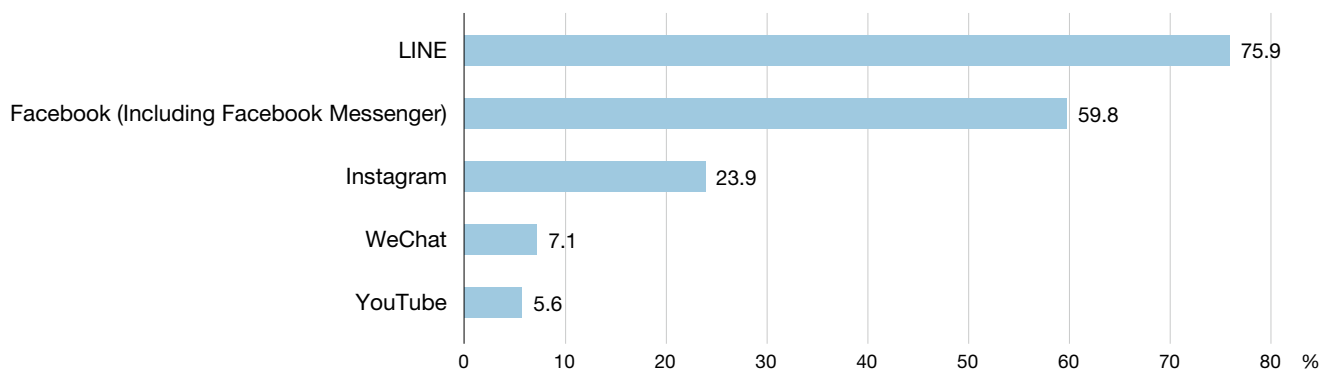


Figure 2.21 Active Social Media or App Accounts (Top 5)

Base: N=1,129, multiple answers allowed (Those who use the internet)

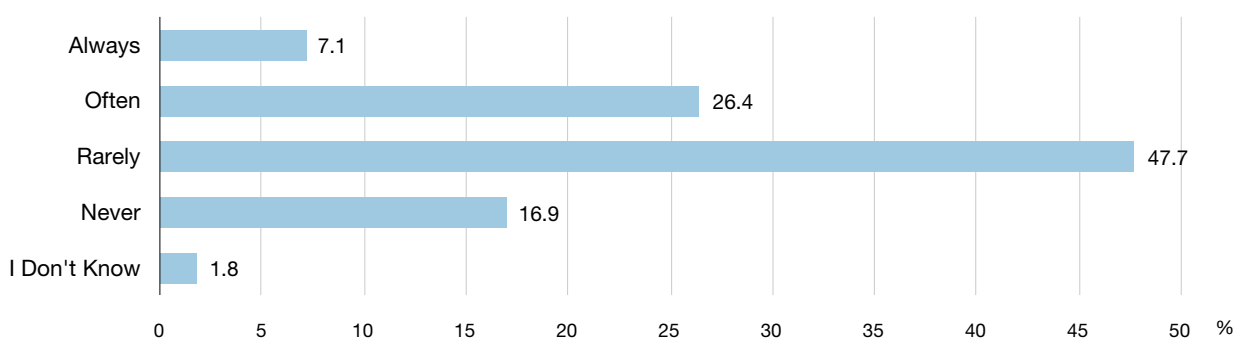


Figure 2.22 Frequency of Offensive or Inappropriate Content on Social Media or Instant Messaging during the Past 12 Months

Base: N=968, single-choice (Those who have any active social media or instant messenger account)

Search Engines Most Common Source of Information Online

• Current Situation (2022)

When asked how to obtain the information on the Internet, over eighty percent (82.2%) of the surveyed said they use search engines, followed by social media or instant messenger, and YouTube (Figure 2.23).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that search engines were the main source of information online for most respondents, and the ratio has exceeded 80% (81.4% in 2017; 83.3% in 2019; 84.1% in 2020; 82.2% in 2022) over the years, except in 2018 (76.4%).

Most Do not Verify Authenticity of Information Online

• Current Situation (2022)

When asked about methods used to verified

authenticity of online Information, 22.9% of the respondents said “looking for information from other sites to compare with”, followed by “checking the credibility of sources (17%)” and “asking trusted people if they also trust the site (11.4%)”. However, 29.5% of the surveyed had never verified authenticity of the Information (Figure 2.24).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that respondents in 2017, 2019, and 2020 tended to verify the authenticity of information from the internet by comparing with other websites; while most of the surveyed in 2018 and 2022 said they never verified the information, indicating little difference between the proportion of those who verified the information and those who didn't, and that the predominant means to verify information was comparing with other websites.

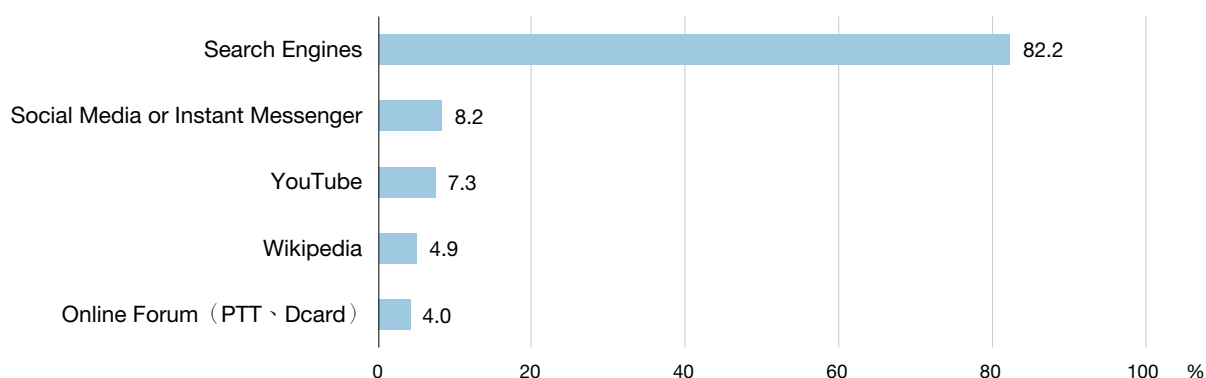


Figure 2.23 Obtaining Information on the Internet (Top 5)

Base: N=1,129, multiple answers allowed (Those who use the internet)

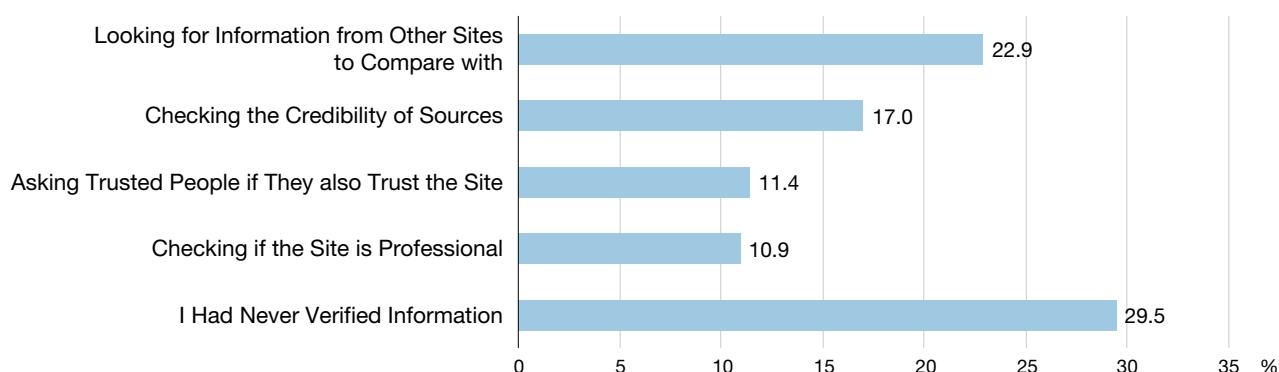


Figure 2.24 Methods of Confirming Authenticity of Information Online (Top 5)

Base: N=1,017, multiple answers allowed (Those who have searched for information on the Internet)



Chapter 3

Development Trends of the Domestic Broadcasting Market

Communications Market Report

Domestic Broadcasting Industry

Taiwan's satellite broadcast radio and television market can be divided into two groups according to service supply: upstream content providers and downstream transmission platform service providers. Some companies run cross-group business. The upstream sector includes broadcast television providers, satellite television program providers, and internet content providers. The downstream sector includes broadcast television system, cable television system, satellite broadcasting businesses, internet protocol television (IPTV), and over-the-top television (OTT TV).

As for the radio and television sector, Taiwan Television (TTV), China Television (CTV), Chinese Television Service (CTS), Formosa Television (FTV), Public Television Service (PTS, Taigitai and Hakka TV included) and Taiwan Indigenous Television (TITV) are the major stations of broadcast television channels. There are also five major cable television broadcasters, as well as multiple-system operators (MSOs): Home+, Kbro, Taiwan Broadband, Taiwan Fixed Network (TFN), and Taiwan Optical Platform. Horizontal mergers and acquisitions have become a phenomenon among cable television providers in recent years. Among the satellite broadcasters, as of the end of 2021, there were 141 domestic and foreign satellite broadcast radio and television enterprises. As of the end of 2021, there were a total of 186 radio stations in the broadcast radio market. For IPTV, MOD of Chunghwa Telecom is the major player. Meanwhile, OTT TV service providers are categorized into foreign and domestic platforms. For foreign platforms, Netflix and Disney+ of the US are the market leaders. Domestic platforms can be grouped by the service offered – television channel operators (such as PTS+ and Vidol), telecom operators (friDay, myVideo, Hami Video), emerging video platforms (LiTV, CATCHPLAY, KKTV),

and OTT video set-top boxes (FainTV, BANDOTT Bento Style 4K Smart TV Box), and so on.

Radio and television broadcasters in Taiwan are regulated in accordance with the “Radio and Television Act”, the “Cable Radio and Television Act”, and the “Satellite Broadcasting Act”. As for regulating OTT TV, in 2020, the NCC put forward the Draft “Regulations Governing Internet Audiovisual Services Act”. Later in May 2022, the NCC put forward a framework of the new draft “Regulating Internet Audiovisual Services Act”, and changed the mechanism from voluntary registration to behavior management. The obligation norm is designed in layers, and it has been announced that there are special obligations to register other than general obligations. Operators that violate the Copyright Act multiple times according to the court's judgement may be required to undertake corrective action prescribed by the competent authority. The draft act remains in the consultation process.

For subsidizing and promoting policies for the film and television industry, the NCC already established the Cable Radio and Television Development Fund back in 2001 to promote the sound development of the cable radio and television business, and to safeguard the audio-visual rights and interests of the public. The major performances in 2021 include the spread of digitized cable television in remote areas, post-disaster reconstruction, as well as the increase in the surveys of status of cable television and the improvement in the quality of services. Meanwhile, the Ministry of Culture has been assisting in areas, such as production of broadcast and television programs, innovation of new media, development of original plays in Taiwan and so on, by both investing and providing subsidies for a long time. In 2021, the major outcomes included: subsidizing the production of high-quality dramas of broadcast television and releasing them on international streaming platforms, forming brands that contain Taiwanese contents with

the concept of a national team and increasing the chance of being seen; improving the quality of film production by developing screenplays and providing funds for feature-length films, and subsidizing the Taiwan Creative Content Agency to assist the operators to participate in international film and television exhibitions; developing the “Development of International Digital Communications Project” and setting up the international streaming platform “Taiwan Plus”; conducting “subsidy for developing international digital communications” to encourage non-governmental and diverse contents to stream on the international streaming platforms and to cultivate communication professionals and talents.

The following are detailed descriptions of the “overall broadcasting market overview,” “broadcast television overview,” “cable television overview,” “satellite broadcast television overview,” “radio broadcast overview,” and “podcasting and OTT TV industry overview” in Taiwan.

Overall Broadcasting Market Overview

Looking at the overview of the revenue of the broadcasting market in Taiwan, the overall revenue peaked at NT\$118.2 billion in 2018, decreased

slightly, and climbed back to NT\$113.2 billion in 2021. Further analysis of the revenue structure shows that during the recent nine years, satellite television has been the main source of revenue, followed by cable television and then broadcast television. Radio accounts for the smallest proportion. The revenue of satellite television and broadcast television slightly increased in 2021, reaching NT\$65.4 billion and NT\$9.4 billion respectively. Cable television revenue has been decreasing since 2016; the number fell to NT\$33.9 billion in 2021, the lowest in recent years. The revenue of broadcast radio had no significant change, reaching NT\$4.5 billion in 2021 (Figure 3.1).

Numbers of radio and television broadcasters and issued licenses: as of the end of 2021, a total of 575 licenses had been issued to the radio and television broadcasters, including 192 licenses for television broadcasters, 64 licenses for cable television, and 319 licenses for satellite television broadcasters (Table 3.1).

Looking into the change of the advertising market's revenue trend in Taiwan, the output value of advertising in Taiwan had been growing and increased from NT\$57.7 billion in 2012 to NT\$80.7 billion in 2021, according to the “2021 Statistical

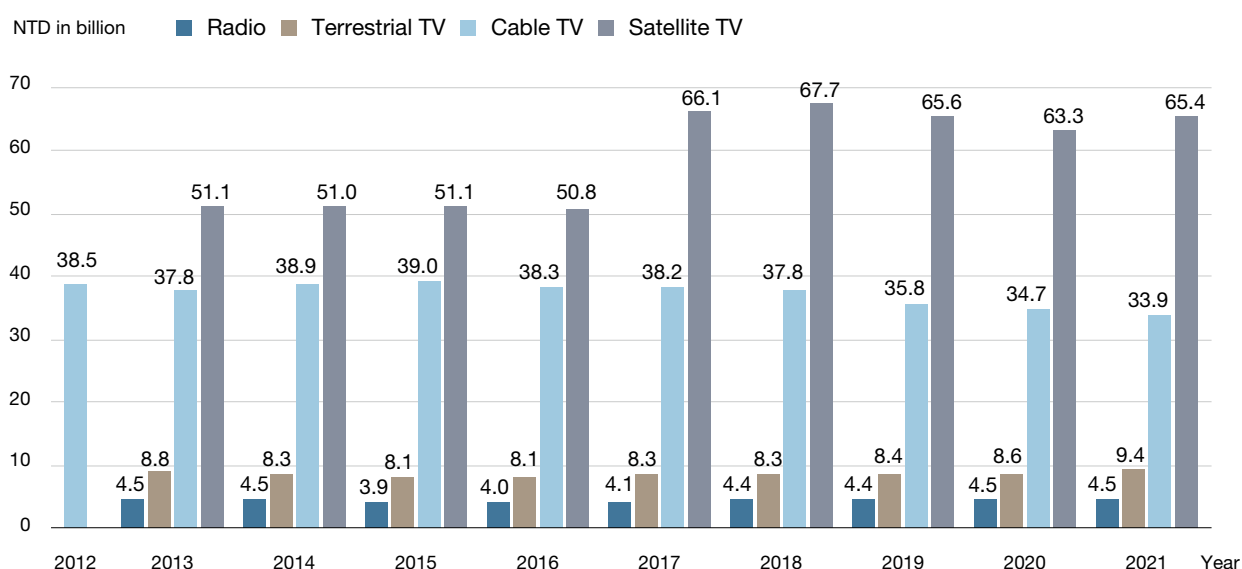


Figure 3.1 Revenue of the Broadcasting Market

Source: NCC.

Report of Digital Advertising in Taiwan” released by the Taiwan Digital Media and Marketing Association (DMA). Due to the rapid development of digital life, people are spending more time on the internet, and consumption is also rising. Thus, the target audience of advertisements has moved online, forcing the advertisement broadcasters to change their targets. As a result, the revenue of traditional advertising released in newspapers, magazines and traditional television has been decreasing, falling from \$NT46.1 billion in 2012 to \$NT26.3 billion in 2021. On the contrary, the revenue of digital advertising (mainly released on online platforms) has been rising, and the revenue growth rate reached 33.7% in 2016. The overall revenue of digital advertising surpassed that of traditional advertising and reached \$NT30 billion in 2017, and peaked at \$NT54.4 billion in 2021 (Figure 3.2).

Further analyzing the structure and ratio of the advertising revenue according to the types, it appears that the revenue of digital advertising has grown notably, and that of outdoor advertising is approximately the same. Other than that, the advertising revenue of broadcast television, cable television, newspapers and magazines, and broadcast radio has been decreasing, especially that of cable television and newspapers. Between 2012 and 2021, the revenue of cable television and the news papers had decreased 16.1% and 15.3% respectively. The advertising revenue is the main income for all segments of the broadcasting industry. Thus, the types of advertising and the change of targets brought forth in the digital era prompt the traditional media to develop diverse profitable items, or collaborate with other industries and find new business modes to cope with the impact that digitalization brought (Figure 3.3).

Table 3.1 Numbers of Radio and Television Broadcasters and Issued Licenses

Classification	Business Type		Number of Licenses	Subtotal of Licenses	Number of Businesses	In the end of 2021 Total Number of Licenses
Broadcast TV	Broadcast TV Station		6	6	5	575
	Radio Station	Comprehensive Radio Station	8	186	186	
		AM Radio Station	19			
		FM Radio Station	158			
		Overseas SW Radio Station	1			
Cable TV	System Operator		64	64	64	
	Broadcast Operator		0		0	
Satellite Broadcast TV	Direct Satellite Broadcasting Television Services		4	319	Total of 4 (1 Domestic and 3 Foreign)	
	Satellite Channel Program Supplier	Domestic Channel	140		Total of 95 (72 Domestic, 27 Foreign and 4 Dual-status Entities)	
		Foreign Channel	97			
		Other Broadcasters	Domestic Channel		78	

Note: Some satellite television broadcasters run other business simultaneously. There are a total of 141 businesses, including 6 dual-status operators that provide domestic satellite channels and other programs, 3 dual-status operators that provide foreign direct satellite broadcast and foreign satellite channels, and 1 dual-status operators that provide foreign satellite and other channels.

Source: NCC.

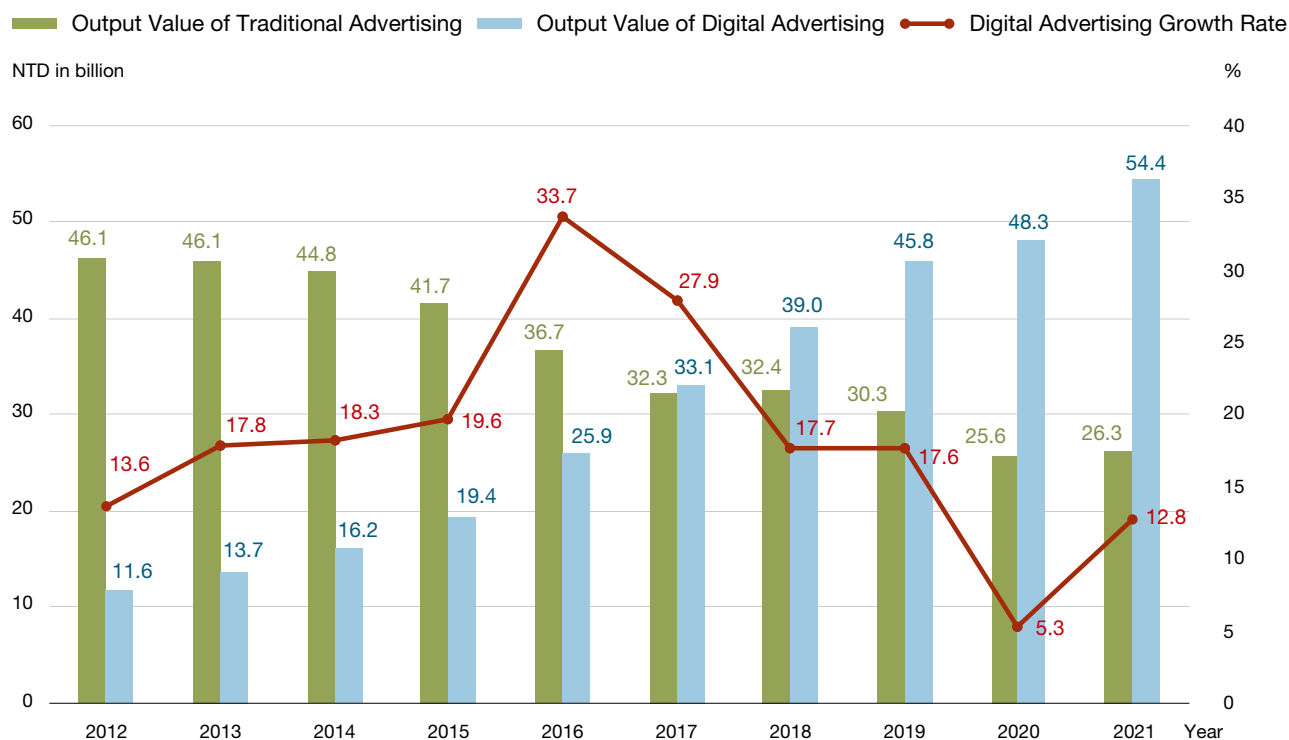


Figure 3.2 Output Value Growth of Traditional and Digital Advertising

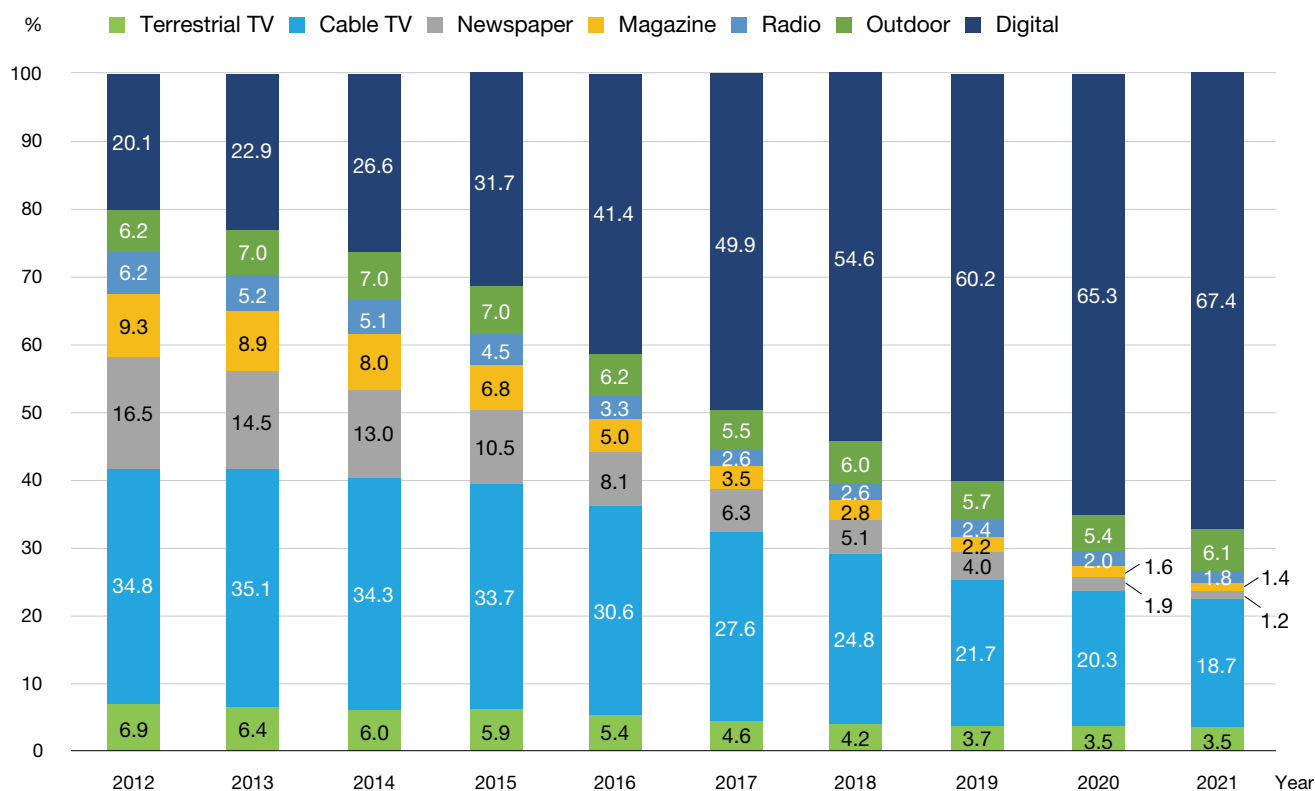
Source: DMA, 2022. 2021 Statistical Report of Digital Advertising in Taiwan <https://drive.google.com/file/d/1AOyRVsJW1zdvxJvPmeSQzkA2o42a5hgQ/view>

Figure 3.3 Ratio of Traditional Advertising to Digital Advertising

Source: DMA, 2022. 2021 Statistical Report of Digital Advertising in Taiwan <https://drive.google.com/file/d/1AOyRVsJW1zdvxJvPmeSQzkA2o42a5hgQ/view>

Terrestrial Television

Between 2013 and 2021, the total revenue for terrestrial television declined and then rose, decreasing from NT\$8.8 billion in 2013 to NT\$8.1 billion in 2016, before growing to NT\$9.4 billion in 2021. Advertising revenue meanwhile decreased year-on-year from NT\$3.6 billion in 2013 to NT\$2.1 billion in 2021. The general analysis of the change in the revenue of terrestrial television over the recent two years shows that the overall revenue slightly increased while the advertising revenue continues to fall. Apparently, the new profit-seeking strategy of using terrestrial television to cope with the digital trend seems effective. Methods such as improving the quality of drama contents, and merged broadcasting with cross-national OTT TV platforms have brought relevant profits (Figure 3.4).

Cable Television

The revenue of cable television in Taiwan decreased from 2012 to 2021. The subscription to basic channels revenue hit a record low of NT\$25.1 billion in 2021, approximately NT\$5.8 billion short than in 2012. The advertising revenue also decreased to

NT\$5.7 billion in 2021 (Figure 3.5). Due to the impact of OTT TV, consumers gradually cancelled their subscription to cable television and moved to online platforms. As a result, subscription to basic channels as the main source of income of cable television began to shrink. However, we can note that television viewing behavior has been changing, and demand for pay-per-view has also risen. Thus, the revenue in 2021 reached NT\$58.4 million, which was nearly four times greater than that in 2012. Moreover, with the government's promotion on circuit rental policies, cable television businesses changed their operations strategy and actively used the circuit rental services to innovate value-added application services, resulting in the growth of circuit rental revenue year by year. In 2021, the revenue exceeded NT\$2.5 billion.

The change in number of cable television subscribers reflects the impact that multimedia brings. In 2017, the number of cable television subscribers peaked at 5.23 million before gradually declining from then on. In 2021, the number was 4.74 million, and penetration had fallen to 52.63%, which was the lowest in recent years (Figure 3.6).

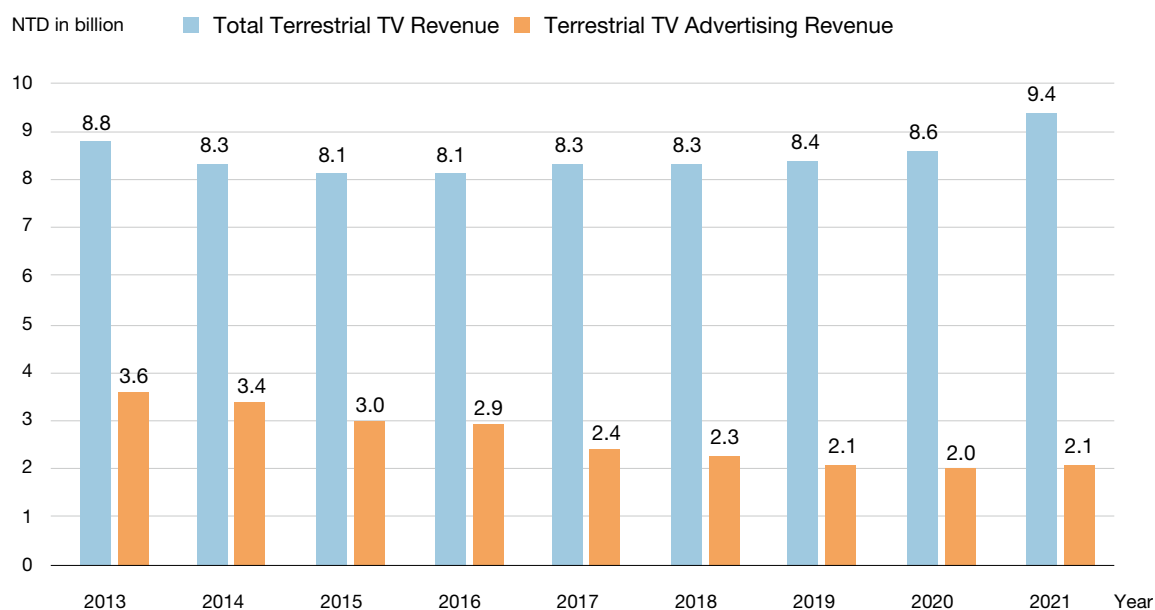


Figure 3.4 Revenue of Television Broadcasting

Source: NCC.

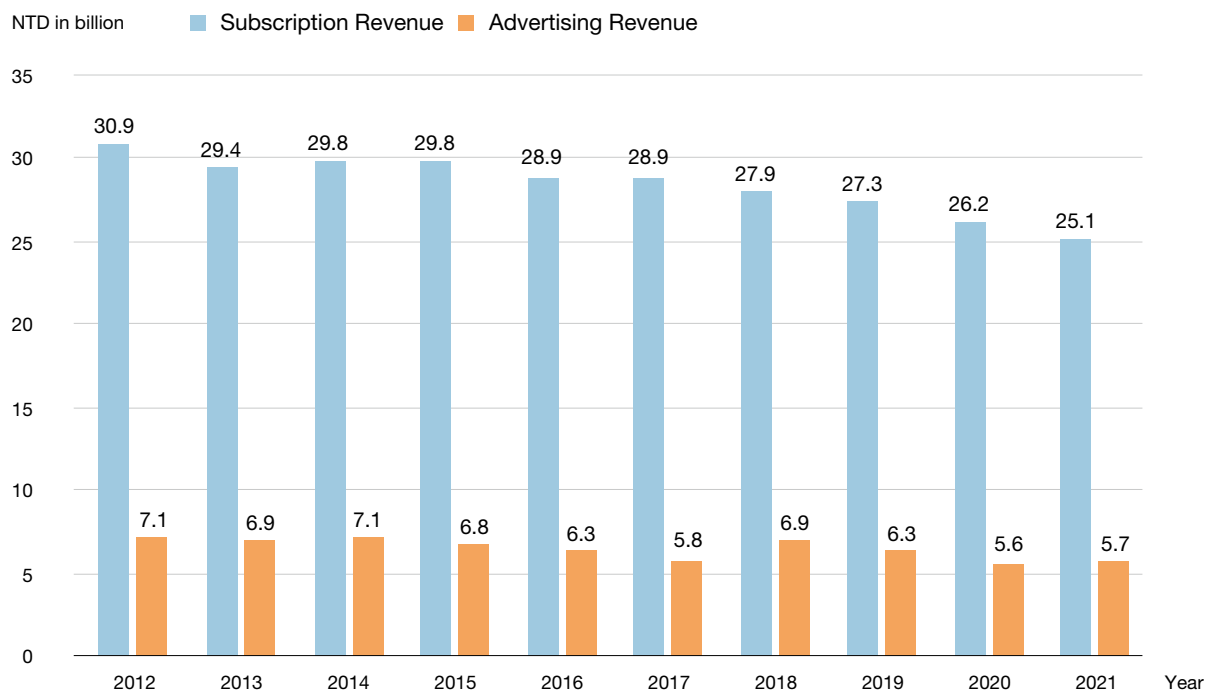


Figure 3.5 Revenue of Cable Television

Source: NCC.

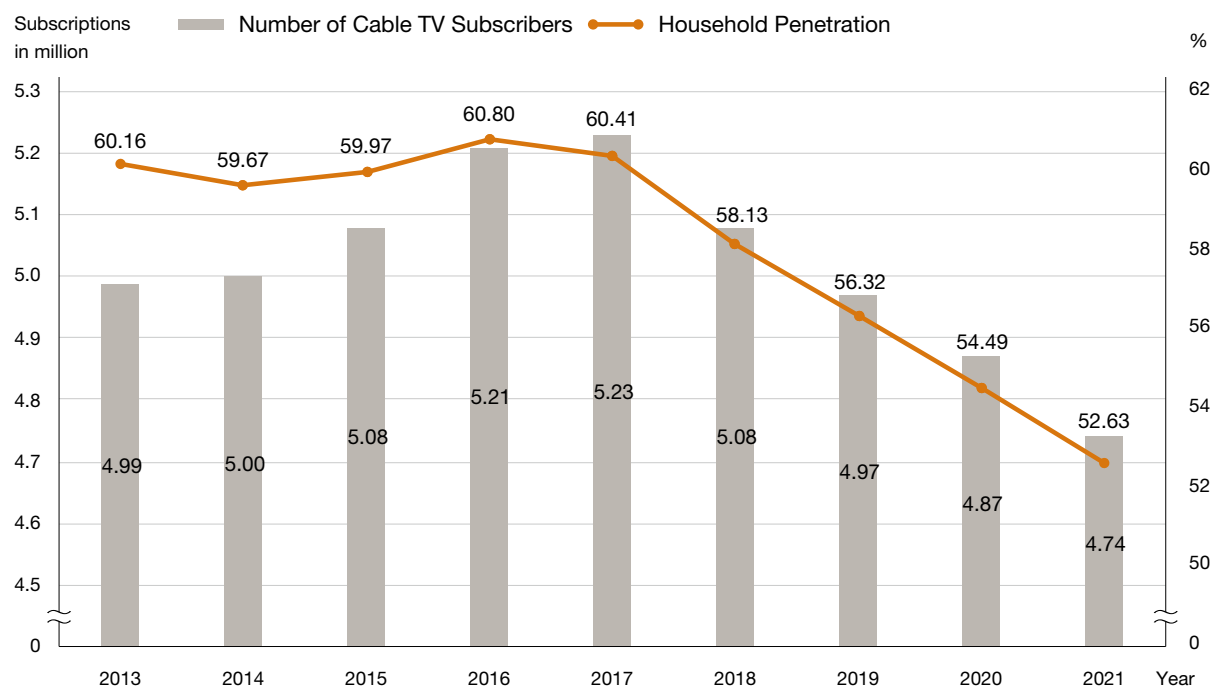


Figure 3.6 Subscribers and Household Penetration of Cable Television

Source: NCC.

Note: The data in 2012 was not available.

Satellite Television

Satellite broadcast television includes domestic and foreign direct satellite broadcast and satellite channel program business. The category of other broadcasters has been added to the amended Satellite Broadcasting Act, which took effect on January 6, 2016. We should also note that some broadcasters run other business simultaneously. Satellite television revenue in Taiwan showed a significant rise since 2017, peaked at NT\$67.7 billion

in 2018, and then fell slightly afterwards. In 2021, the revenue rose again to NT\$65.4 billion. Advertising revenue, on the other hand, has been decreasing, falling from NT\$23.2 billion in 2013 to NT\$19 billion in 2021 (Figure 3.7).

As for the number of satellite broadcast television channels, in 2021, there were 140 domestic satellite channels, 97 foreign satellite channels, and 78 domestic channels of other categories (Figure 3.8).

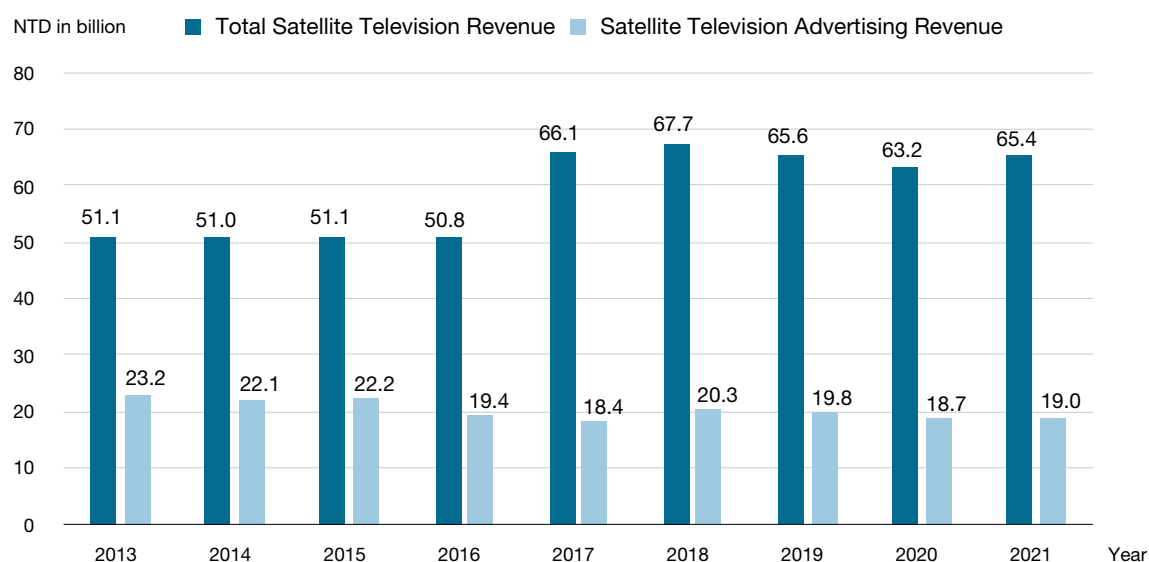


Figure 3.7 Satellite Broadcast Television Revenue

Source: NCC.

Note: The data in 2012 was not available.

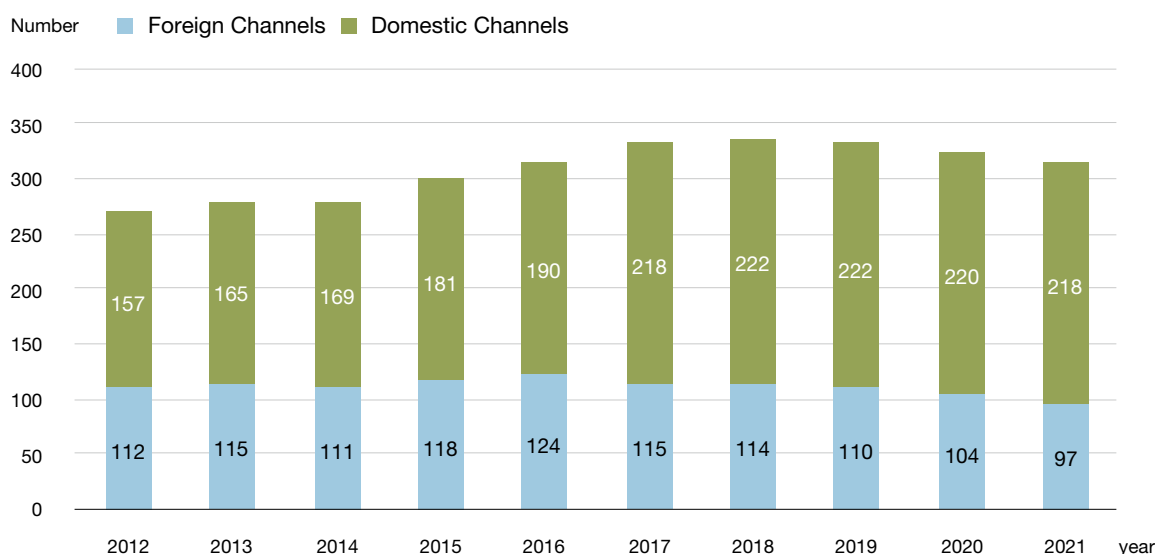


Figure 3.8 Domestic and Foreign Satellite TV Channels

Source: NCC.

Radio Broadcasters

The radio broadcasting revenue in Taiwan seems quite stable. Overall revenue dropped to NT\$3.9 billion in 2015, and rose again starting from the next year, maintaining in the range of NT\$4 billion to NT\$4.5 billion. Advertising revenue rose and fell in gentle undulations, and has maintained within the range of NT\$2.6 billion to NT\$3 billion. In 2021, the overall revenue and advertising revenue were NT\$4.5 billion and NT\$2.6 billion respectively (Figure 3.9).

Podcasting and OTT TV Markets

With increased penetration of the internet and the lowering of the thresholds of access to audio software and hardware, podcasts, with the functions of pausing and downloading to be listened to anytime, have gradually become the audio service that

people choose to use during fragmented time when commuting and exercising. In times when measures such as social distancing and isolating at home are taken after the COVID-19 outbreak, podcasts grew in even more importance, becoming companions when doing indoor activities and spending time alone. Thus, the proportion of listeners has gradually increased. Podcast programs have diverse content and vivid styles, sparking a trend that attracts numerous internet celebrities, media and all industries and brands, resulting in business opportunities related to podcast advertising and marketing, and further making podcasts a new industry in the digital era.

According to the data in the “2021 Annual Market Review in Taiwan” released by the podcast hosting platform Firstory¹¹, there are more female podcast listeners than male listeners, and listeners are mostly

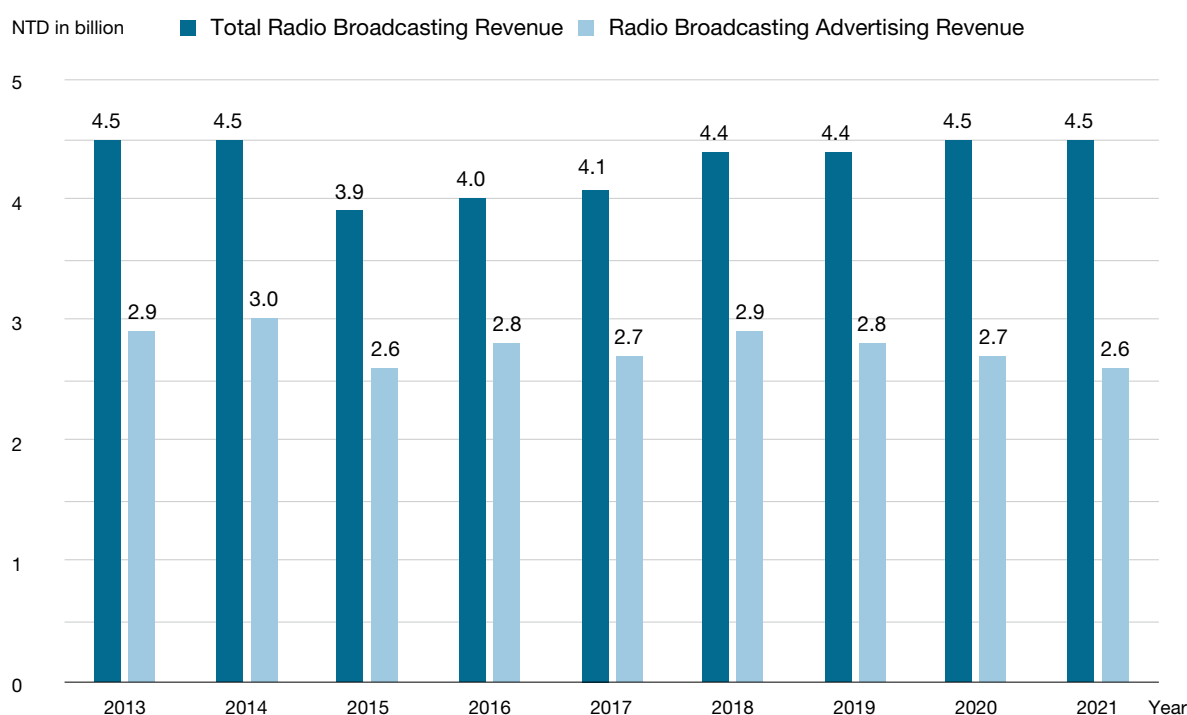


Figure 3.9 Radio Broadcasting Revenue

Source: NCC.

Note: The data in 2012 was not available.

11 Firstory Echo, 2021. 2021 Annual Market Review in Taiwan. <https://firstory.substack.com/p/echo-212021-kkbox->

aged 23 to 44 (Figure 3.10). The “H1 2020 Taiwan Podcast Industry Survey Report”¹² published by the podcast platform SoundOn in 2021 shows that the podcast listeners are mostly young adults; moreover, they are also highly educated and have higher-intermediate wage.

According to the “2021 Sound Economy Report” published by SoundOn in 2022¹³, in 2021, the total streams of podcasts in Taiwan exceeded two times of those in 2020. Looking into a further analysis of the times when the pandemic was most severe, the numbers of programs and their length had increased due to the impact of the stay-at-home lifestyle. However, the unique downloads of a single episode decreased, mainly because that people used to listen to podcasts mostly during commuting time, and at the same time, there were other options for entertainment at home during the period of Level 3 epidemic alert. When the epidemic eased in July, people began to commute again, and so the numbers of streams and downloads rebounded.

The upgrade of technical skills drives audiences to change their film-and-television-related consumption habits from viewing at fixed locations, time and frequency to viewing with multiple screens anywhere, anytime. Thus, OTT TV has become a new industry that stands out from the digital trend. Looking into the overview of the OTT TV industry in Taiwan, according to PwC’s “Taiwan Entertainment & Media Outlook 2022-2026”¹⁴ report, revenue of the OTT TV market in Taiwan grew year-on-year between 2017 and 2021. In 2021, the total revenue hit a new high at US\$1.042 billion (around NT\$29.199 billion). It is expected that the total revenue will grow at a compound annual growth rate of 7.3% and reach US\$1.482 billion (around NT\$41.529 billion) in 2026 (Figure 3.11).

Moreover, the “Taiwan Online Video Consumer Insights & Analytics”¹⁵ report issued by Media Partners Asia, an international market research institution, shows that in 2021, the number of OTT TV subscribers reached 4.1 million. Netflix held a 21% share of the OTT TV market, whereas iQIYI, which

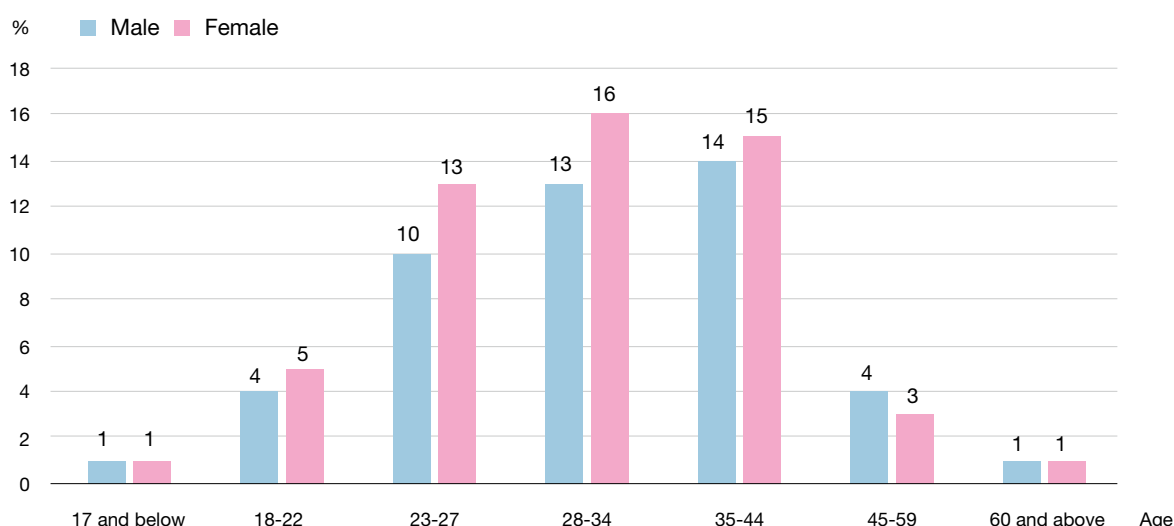


Figure 3.10 Podcast Listener Profile

Source: Firstory Echo, 2021. 2021 Annual Market Review in Taiwan. <https://firstory.substack.com/p/echo-212021-kkbox->

12 SoundOn, 2021. H1 2020 Taiwan Podcast Industry Survey Report <https://docsend.com/view/7cegnvyirpi9j65z>

13 SoundOn, 2021. 2021 Sound Economy Report. https://drive.google.com/file/d/1TBp2So4M6qGgWm6lrKZG-_IzExBtPjv/view

14 PwC, 2022. Taiwan Entertainment & Media Outlook 2022-2026 <https://www.pwc.tw/zh/publications/topic-report/2022-taiwan-enm-outlook.html>

15 Media Partners Asia, 2021. Taiwan Online Video Consumer Insights & Analytics. https://media-partners-asia.com/AMPD/Q4_2021/TAIWAN/PreviewContent.pdf

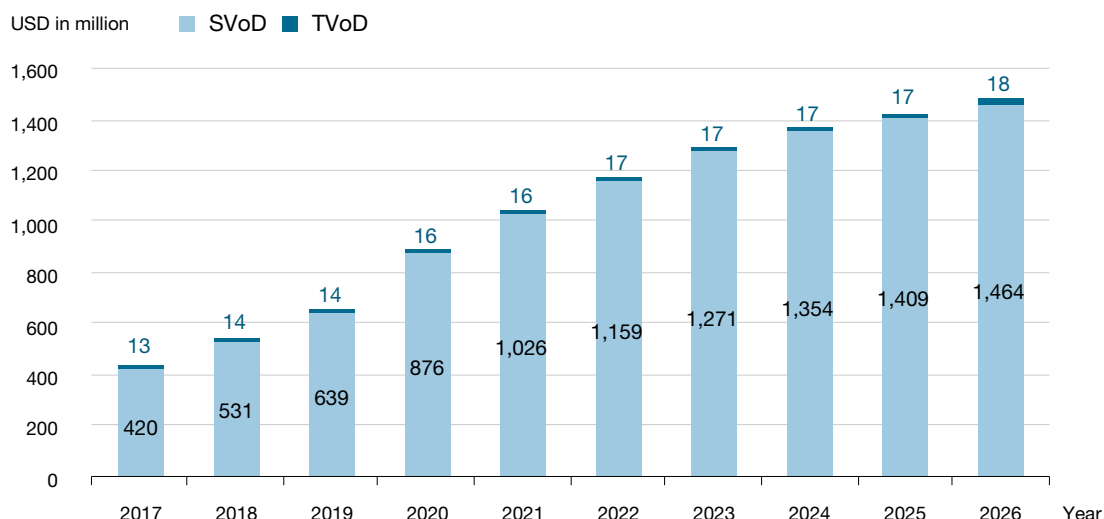


Figure 3.11 Overview and Forecast of Taiwan's OTT TV Market Revenue

Source: PwC, 2022. Taiwan Entertainment & Media Outlook 2022-2026 <https://www.pwc.tw/zh/publications/topic-report/2022-taiwan-enm-outlook.html>

Note: As the numbers of revenue of each item was rounded, it is possible that the sum of the numbers and the total do not equal.

had already withdrawn from Taiwan's market, and the domestic operator friDay held 9% each. Disney+, which was officially launched in November 2021, promptly gained a 7% market share. MyVideo and KKTV held an 8% share and a 7% share respectively. A summary of the analysis of the report shows that the numbers of OTT TV subscribers and revenue in Taiwan has been rising year-on-year, but the leaders in these numbers were still large cross-national business operators. There were many local OTT TV operators, but they could not compete with cross-national operators and remained small and scattered.

Survey of the Domestic Broadcasting Market

Comparison of Trends: 2017-2022

Cable Television Remains the Primary Means for Viewing Television

• Current Situation(2022)

When it comes to the main source of viewing television, cable television topped the list at 57.2%, followed by OTT TV (15.3%), CHT MOD (13.9%), and terrestrial television (13.3%) (Figure 3.12).

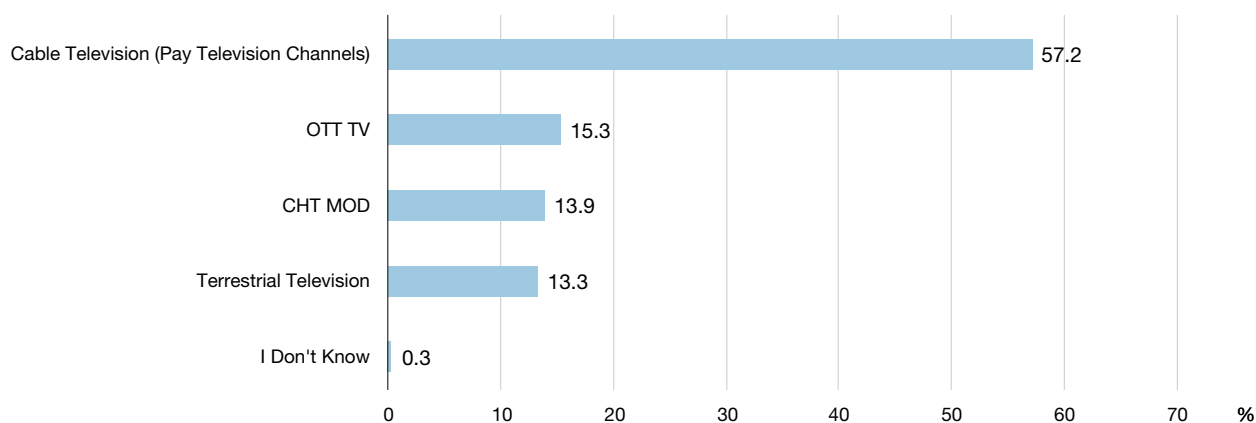


Figure 3.12 Main Sources of Viewing Television

Base: N=1,284, multiple answers allowed

• Year-on-year Comparison

When comparing data between 2017 and 2022¹⁶, it was noted that cable TV was the primary means of viewing television. It was followed by terrestrial television, MOD, and OTT TV between 2017 and 2020. Yet, the ratio of OTT TV exceeded that of MOD and terrestrial television in 2022, indicating a shift in television viewing habits.

Over 70% Never Watches OTT TV

• Current Situation (2022)

When asked whether they had watched OTT TV (including pay and free OTT TV services), 22.8% of the interviewees replied affirmatively (Figure 3.13).

• Year-on-year Comparison

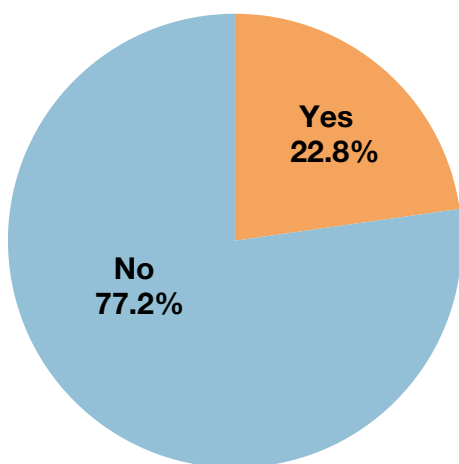


Figure 3.13 OTT TV Viewers

Base: N=1,284, single-choice

When comparing data between 2017 and 2022, it was noted that the ratio of OTT TV viewers rose year by year from 30.8% in 2017 to 45.1% in 2019 and fell a little to 41.5% in 2020. According to the survey results, the ratio of non-OTT TV viewers has surpassed that of OTT TV viewers between 2017 and 2022.

¹⁶ No 2021 survey data is available since the annual communications market survey was cancelled that year due to the COVID-19 pandemic.

Netflix Beats iQiyi in Subscription Ratio to be the Most Preferred OTT TV Service

• Current Situation (2022)

Most of the respondents (47.2%) do not subscribe to OTT TV at home. Among those who do, Netflix (44.8%) was the most subscribed to channel, followed by Disney+ (15.2%)¹⁷ (Figure 3.14).

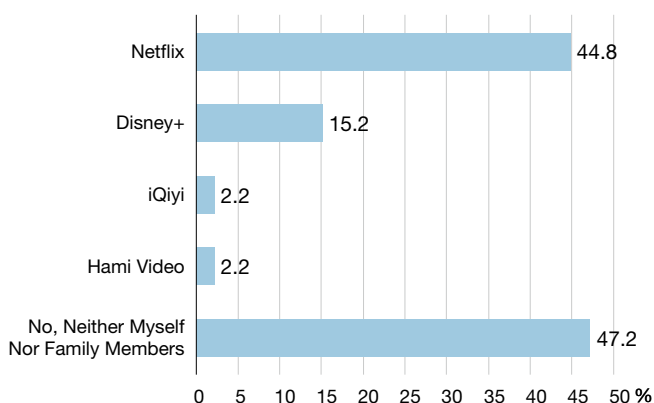


Figure 3.14 OTT TV Subscriptions at Home (Top 5)

Base: N=292, multiple answers allowed (Those who watch OTT TV)

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that the ratio of pay OTT TV subscribers rose from 19.8% to 35.4% between 2017 and 2020; while the ratio of non-subscribers fell from 74.3% to 60.8%. iQiyi (64% in 2017; 47.4% in 2018; 54.8% in 2019) was the most subscribed to OTT TV service between 2017 and 2019; while Netflix (61.9%) beat iQiyi (42.4%) in 2020 to be number one. According to the surveys over the years, non-OTT TV subscribers have outnumbered OTT TV subscribers every year, with Netflix beating iQiyi to be the most subscribed to OTT TV service.

Ratio of those Recognizing Improvement in Quality of Television Shows

• Current Situation (2022)

When asked about the quality of television programs over the past 12 months, 65.2% of the

¹⁷ Iqiyi's agent, Ott Entertainment, has terminated its operations in Taiwan since October 15, 2020.

respondents said the quality remained the same, 16.5% thought the quality had improved, while 6.1% replied it had deteriorated (Figure 3.15).

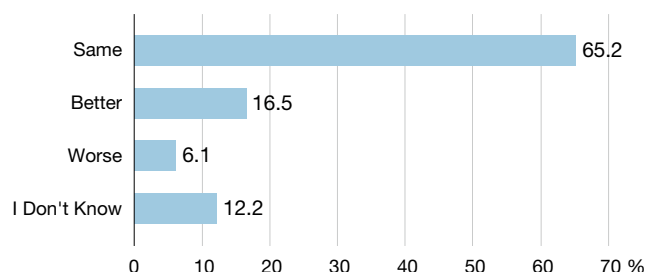


Figure 3.15 Quality of Television Programs over the past 12 Months

Base: N=994, multiple answers allowed (Those who watch terrestrial television, cable TV, or CHT MOD at home)

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that most respondents thought the quality of TV programs had remained the same, with the ratio surpassing 50% every year (57.7% in 2017; 61% in 2018; 61.4% in 2019; 58.4% in 2020). The ratio of those who thought it had improved outnumbered

the ratio of those who thought it had worsened over the years, with the ratio of those who thought it had improved rising from 18.6% in 2017 to 19.1% in 2020 and the ratio of those who thought it had deteriorated falling from 13.5% in 2017 to 11% in 2020.

Majority Recognize Diversity of Television Shows and Dislike Overly Frequent Reruns

• Current Situation (2022)

Those who thought that quality of television programs had improved contributed the improvement to the diversity of television programs (18.8%), followed by high-quality dramas (12.1%), and up-to-date content (10.2%) (Figure 3.16). Those who said the quality of television programs had deteriorated contributed that to overly frequent reruns (54.9%), lack of variety (17.1%), and too many political talk shows (9.1%) (Figure 3.17).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that most respondents contributed

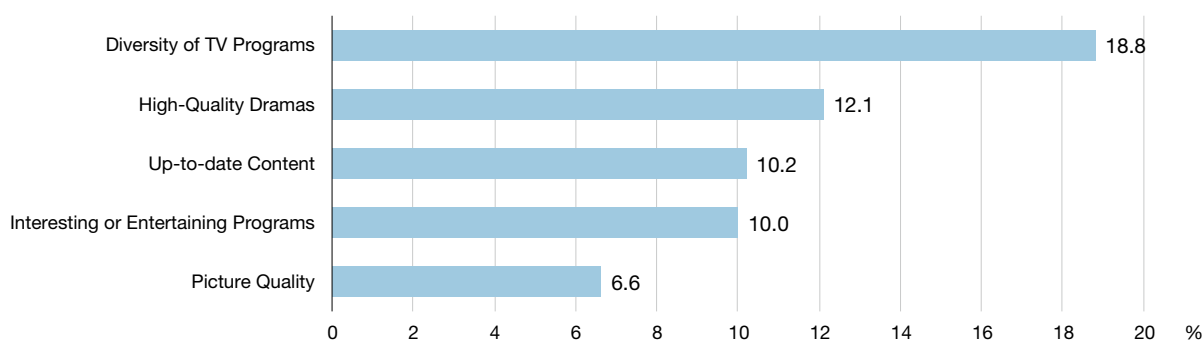


Figure 3.16 Improvement in Quality of TV Programs over the past 12 Months (Top5)

Base: N=164, multiple answers allowed (Those who thought that quality of television programs had improved in the past 12 months)

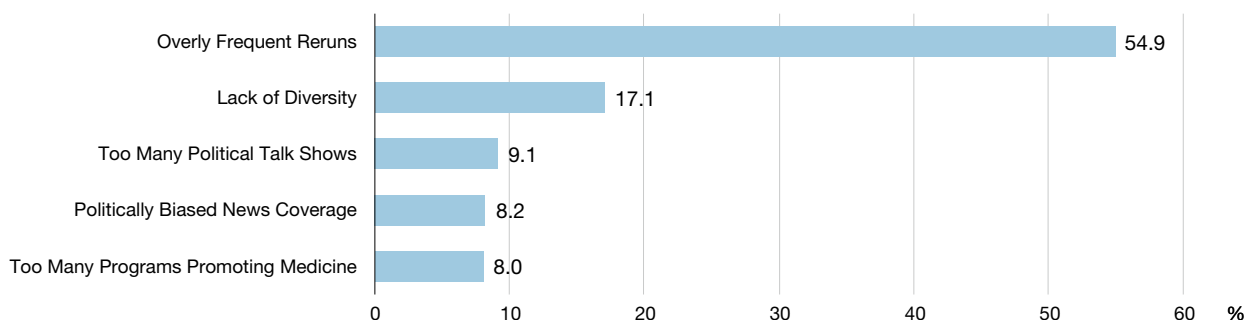


Figure 3.17 Deterioration in Quality of TV Programs over the Past 12 Months (Top5)

Base: N=60, multiple answers allowed (Those who thought that quality of television programs had deteriorated in the past 12 months)

the improvement in television programs to diversity, followed alternately by “more quality dramas” and “up-to-date content”. “Overly frequent reruns” has been the most common complaint for television programs over the years, with the ratio dropping significantly from 73.4% in 2017 to 48.6% in 2018 before rising to 72.8% in 2020. It was followed by “too much product placement marketing” in 2017 and 2019 and “too many political talk shows” in 2018 and 2020.

Over 70% do not Listen to Radio or Podcasts

• Current Situation (2022)

The majority (73.4%) of the respondents do not listen to traditional radio, webcasts or podcasts, with 17.3% listening to traditional radio, 8.9% listening to podcasts, and 5.7% listening to webcasts (Figure 3.18).

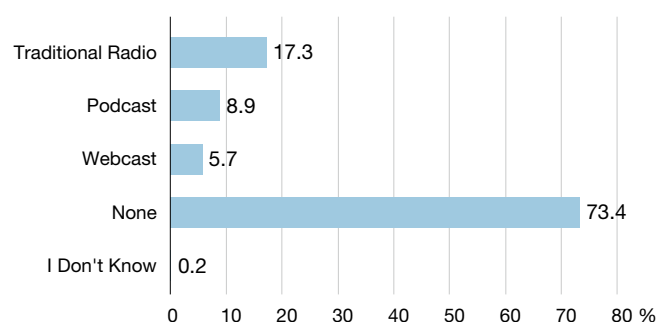


Figure 3.18 Traditional Radio, Webcasts and Podcasts

Base: N=1,284, multiple answers allowed

• Year-on-year Comparison

This item, which was added this year, cannot be compared across years.

Over 60% Accept Product Placements, Sponsorships, and Title Sponsorships; Majority Approve Product Placement in News and Commentary

• Current Situation (2022)

When asked about where they had spotted product placements, sponsorships and title sponsorships in TV programs, the majority of those who were aware said they had been spotted them

in dramas and movies (59.6%), followed by variety entertainment and singing (29.4%), news and commentary (17.5%) (Figure 3.19). When it comes to the acceptance of product placements, sponsorships and title sponsorships, 33.2% of the surveyed said it was barely acceptable, 33.1% said it was acceptable, 14.6% said it was almost unacceptable, and 8.7% said it was unacceptable, indicating that over 60% approved of their inclusion (Figure 3.20). When asked about the impact of product placements included in news and commentary, most (45.3%) the respondents said no impact, followed by misleading information (13.2%), and reduced news credibility (12.9%) (Figure 3.21).

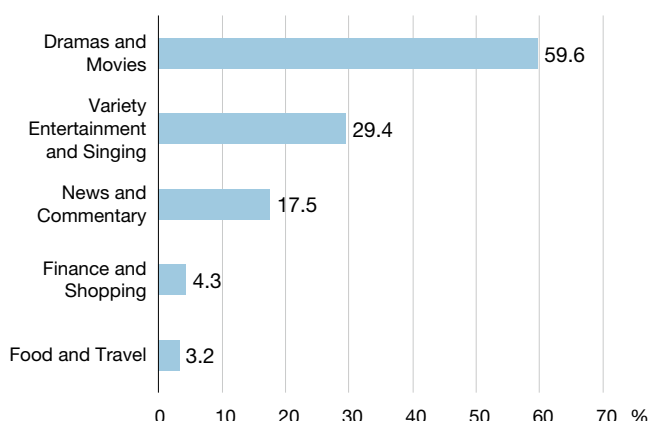


Figure 3.19 TV Programs with Product Placements and Sponsorships (Top 5)

Base: N=594, multiple answers allowed (Those who can identify product placement, sponsorship, and title sponsorship)

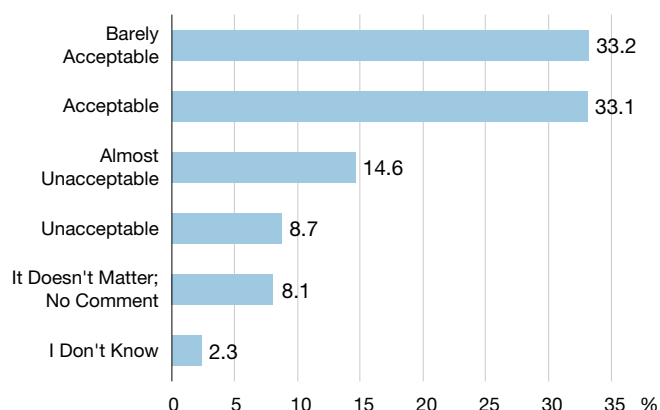


Figure 3.20 Acceptance of Product Placements and Sponsorships

Base: N=702, single-choice (Those who are aware that TV programs may include product placements, sponsorships, and title sponsorships)

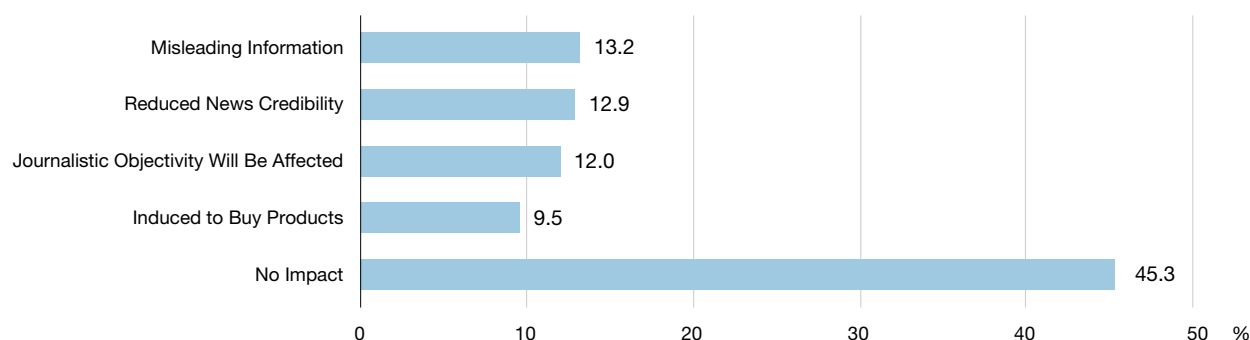


Figure 3.21 Impact of Product Placements on News and Commentary (Top5)

Base: N=702, multiple answers allowed (Those who are aware TV programs may include product placements, sponsorships, and title sponsorships)

• Year-on-year Comparison

This item, which was added this year, cannot be compared across years.

Political Talk Shows Disliked the Most

• Current Situation (2022)

When asked what TV programs they found offensive or inappropriate, most of the surveyed said “political talk shows” (46.2%), followed by “news reports” (32.2%) (Figure 3.22).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that most respondents disliked political talk shows, followed by news reports over the years, except in 2020, where TV series ranked the second.

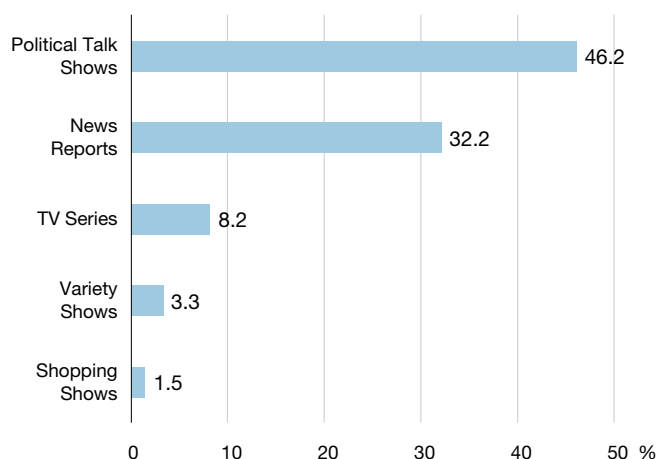


Figure 3.22 Programs Found Offensive or Annoying (Top5)

Base: N=240, multiple answers allowed (Those who watched offensive or inappropriate content over the past 12 months)

Television Remains the Main Source of News with the Ratio Growing each Year

• Current Situation (2022)

When asked about the main source of news, most respondents (55.2%) said television, followed by web portals / apps (e.g. Yahoo, Google, LINE TODAY) (38.7%), and social media / online forum (e.g. Facebook, PTT, Dcard) (17.7%) (Figure 3.23).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that television was the main source of news for most respondents, with the ratio surpassing 50% over the years (63.7% in 2017; 59.1% in 2018; 54.6% in 2019; 56.2% in 2020). It was followed by web portals / Apps, and social media / web forums.

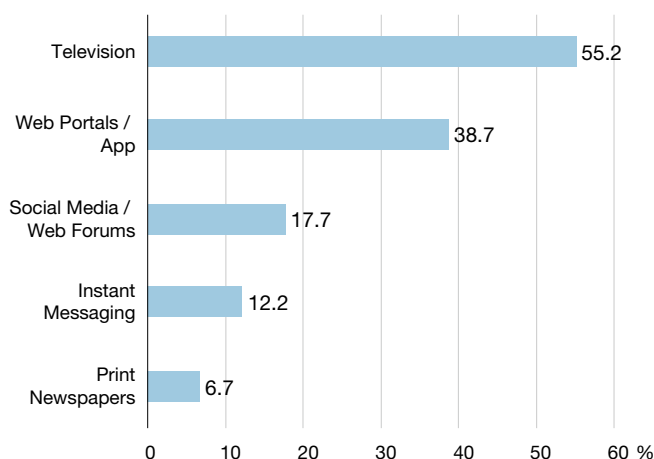


Figure 3.23 Main Sources of News

Base: N=1,284, multiple answers allowed

Although television remains the main source of news, the ratio fell during 2017 and 2020. In contrast, the ratios of web portals and social media have risen, signifying a growing number of people have relied on the internet for news.

Majority Verify Fake News Through own Knowledge and Experience

• Current Situation (2022)

When asked about verifying disinformation, most (23.6%) respondents said “knowledge and experience,” followed by “looking for relevant information” (21.5%). The answer “i don’t verify disinformation” represented 21.4% (Figure 3.24).

• Year-on-year Comparison

This item, which was added this year, cannot be compared across years.

YouTube Most Popular Video Sharing Website

• Current Situation (2022)

When asked about the video sharing platforms where they had viewed videos, most respondents (approximately 70%) said YouTube, followed by TikTok (20.6%), Vimeo (4.1%), with the answer “None” accounting for 24% (Figure 3.25).

• Year-on-year Comparison

When comparing data between 2017 and 2022, it was noted that the ratio of those who had watched videos on video sharing websites had surpassed 70% over the years (70.7% in 2017; 71.9% in 2018; 74.6% in 2019; 76.1% in 2020), with YouTube as the most popular website since 2019, followed by Tik Tok.

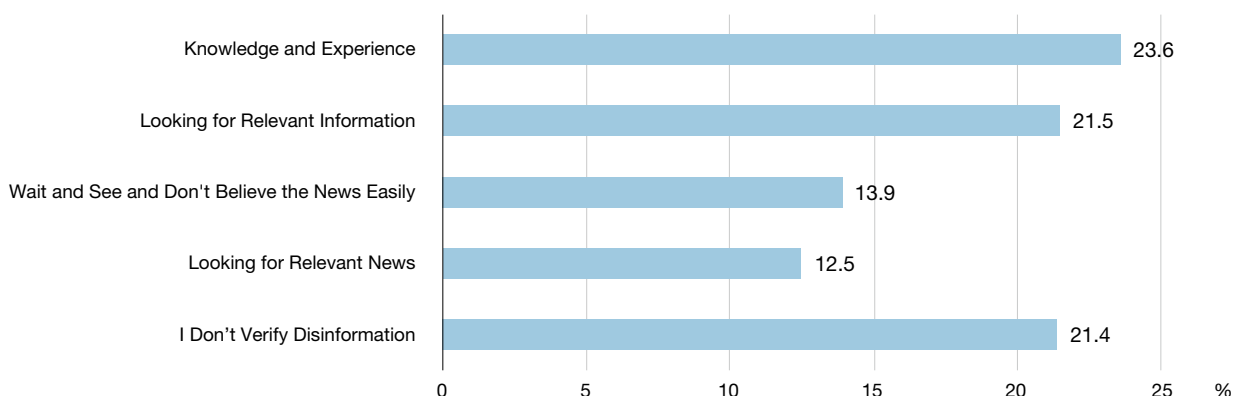


Figure 3.24 Verifying Disinformation (Top5)

Base: N=1,212, multiple answers allowed (Those who read news)

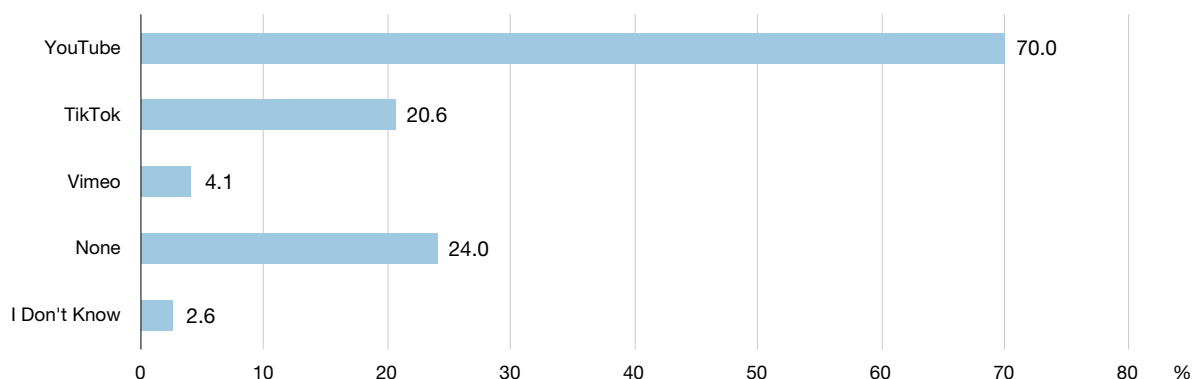


Figure 3.25 Video Sharing Platforms

Base: N=1,284, multiple answers allowed

The background of the page is a night cityscape with various skyscrapers and buildings illuminated. Overlaid on this image are numerous vertical lines of varying heights, each topped with a glowing sphere and a signal icon (three concentric arcs), suggesting a network or communication theme. A large, white, stylized graphic element, resembling a thick, curved line or a bracket, frames the central text area. The overall color palette is dominated by dark blues, purples, and greys, with highlights from the city lights and the white text and graphic.

Chapter 4

Conclusions and Suggestions

Communications Market Report

Through focus group forums with professionals and surveys about the demands for “communications and networking” and “broadcasting and convergence,” this research report has compiled the survey results, comprehensive conclusions and opinions provided during the two forums. The report hereby provides certain suggestions as follows.

Value the issue of network cost-sharing to support operators to continue deploying 5G

As the era of digital convergence continues to evolve, the activity patterns in the past are all undergoing digital conversion. Since the lives online and offline are merging together, the internet is now more than a medium of basic communication services such as making Voice over Internet Protocol (VoIP) calls and sending and receiving emails. People's needs for digital application services have steadily risen, and the soaring demand for network bandwidth has created pressure upon operators that provide network services. Although telecommunication operators have committed considerable investment to satisfy demands for bandwidth, internet applications are reaping the enormous benefits due to the continuous rise of demands for services. If the telecommunication operators are being affected by the heavy burden of deploying network when they make ends meet, they might be less willing to invest in the 5G infrastructure, resulting in impact on deployment efficiency and the network use susceptibility of people.

Looking into the issues of network cost and cost-sharing mentioned above, there are “dumb pipes” in both fixed network and mobile network, which means that network operators only provide network transmission services between users' devices and the internet, leading to their inability to restrict digital application services that developed through network media. Moreover, when people generally believe that

the providers of network content and other application services can freely use networks without bearing corresponding costs, the frequency resource and network infrastructure may be seen as a fundamental utility of large bandwidth applications, resulting in inefficiency and resource waste. In response, leading countries are considering the network cost-sharing issue; the EU is planning to propose the Connectivity Infrastructure Act and require the large digital platforms to offer a certain amount of refund to the telecommunication operators and contribute to the cost of 5G deployment. Similarly, in South Korea the government has proposed the amended Telecommunications Business Act, requiring large content providers to pay telecom operators network use fees in order to relieve additional construction expenses.

In that light, in order to support domestic telecommunication operators to continue expanding 5G deployment, it is recommended that the government directly face the network cost-sharing issue and provide corresponding solutions and mechanisms. That way, the operators' willingness to invest and the incentives to innovate shall be maintained, and positive development of the domestic telecommunication industry shall be promoted, leading to the continuous deployment of an effective 5G network.

Trust market mechanisms and bring out diverse telecommunication plans through healthy competition

Since the launch of 5G services in Taiwan, the ARPU of mobile communications has rebounded slightly, and the telecommunications market has begun to disengage from the negative environment and price war of the 4G services in the past. People can also opt for different telecom contracts according to their needs, proving that diverse telecommunication



plans actually exist. The Taiwan Government needs to continue maintaining fair resource allocation and value public interest and consumer rights. Not only that, the next step should be aiming to build a fairer and more reasonable industrial environment that should fully implement user charge. At the same time, the government should avoid unnecessary intervention in market prices and allow operators to seek suitable development by themselves through a free-market mechanism.

In December 2020, the domestic telecommunication operators Taiwan Mobile and Taiwan Star Telecom agreed a merger, and FarEasTone and Asia Pacific Telecom announced a merger in February 2021. In response to the two possible mergers in the future telecommunications market, NCC held a hearing and focused on five main issues after telecom mergers, such as reasonable resource allocation, development of the industry, user rights, market competition and national safety. The Fair Trade Commission, on the other hand,

focused on the bargaining power and concerted actions between operators. It is recommended that the Taiwanese regulatory body implement additional clauses for telecommunication business mergers, and include items such as telecommunication service quality coverage, 5G deployment schedule, 5G service in remote areas, and protection of the existing customers' rights in the additional clause and commitments. It is to be hoped that the merge of telecommunication operators can create economies of scale, promote overall development of the industry, and avoid ignoring the consumers' rights.

Censoring Placement Marketing in News; Enhancing Media Literacy of Specific Groups

The results of the communications market demand survey conducted this year show that besides those in dramas, movies and entertainment shows, people have also noticed placement marketing contents in news programs; most, though,

believe that such contents shown during news programs have no effect. In accordance with current laws and regulations, however, placement marketing is strictly prohibited in news programs. In terms of the awareness of placement marketing contents, the results also show that the audiences in Yilan, Hualien and Taitung areas and those with a lower level of education and average monthly income have a lower level of awareness, and the proportion of understanding the related information also reduces as the age of the audience increases. In conclusion, the aforementioned indicates that media literacy is indispensable to regions, age groups and information and education accessibility opportunities.

In light of the fact that television is still the primary means of accessing news contents, when news becomes an advertising medium through placement marketing, the boundary between news and adverts becomes blurred and thus difficult for people to distinguish marketing from news content. Additionally, profit-based marketing may influence the independence of the newsroom, harming the credibility of news as reports may become biased. Hence, it has generally become a consensus around the world that placement marketing in the news should be censored.

In order to encourage news media to become a medium reflecting the truth and ensuring news is imparted from an environment which is dignified and pure, the public sector should lead and demonstrate its determination by implementing law-enforcement mechanisms. Consequently, news media can be guided to maintain self-discipline principles of journalism, and avoid presenting news in the form of advertorials so that news can be clearly distinguished from marketing content.

Additionally, the public sector may enhance awareness of placement marketing contents to specific groups so as to enhance media literacy of

audiences. Through the active promotion of media literacy by the government and schools, younger generations can be enabled to gain greater awareness and acceptance of placement marketing than other age groups. However, the elderly, who often stay home watching television for extended periods, or those living in remote areas may lack educational resources to identify placement marketing. One solution is for the relevant supervisory agencies to organize media literacy workshops through co-learning between young and elderly people in collaboration with local governments, schools, and third-party organizations. For such events, young students can share their knowledge of identifying placement marketing to specific groups so as to help them understand the potential harm of placement marketing.

Establish reasonable and clear regulations, and integrate resources to expand the scale of local OTT TV industry

The issues of regulating OTT TV have been discussed both domestically and internationally for many years, and the existing regulatory measures of international countries seem to be implementing control through multiple different laws. The NCC put forward an amended framework of the new draft act regulating internet audiovisual services in May 2022, changed the mechanism from voluntary registration to behavior management, and designed obligation norm in layers. When dividing the operators into the groups of general obligation and special obligation, it is recommended to refer to regulations of advanced nations prior to setting standards. For instance, in the Digital Services Act proposed by the EU, the definition of digital platform operators is clearly stated, and the detailed minimum obligations that operators

of each level have are also listed in tables. Taiwan could adopt some of the regulations and make adjustments according to national conditions and the industry status. The assessment standard of the operators' scale, whether it is the market share, number of users or other data from a third party, should be acceptable to all sectors. In addition, after changing the mechanism from voluntary registration to behavior management, the compliance with the requirements of the administrative laws should be put into consideration, that is, whether the operators who receive punishments are aware of the control of the act regulating Internet audiovisual services, and whether the punishment process is in line with the procedure.

As for the communications service rejection for those who frequently violate the regulations and do not improve within a prescribed time limit, it should be cautiously assessed according to the principle of proportionality to avoid operators being over-punished. If over-punishment occurs, people might raise doubts about the regulatory body's enforcement of the law, leading to further mistrust in the law. In general, the main goal of establishing laws should be protecting consumer rights and maximizing the benefits of the industry in a fair and legal environment, instead of using strict laws to restrict the development of the industry, which could force the industry to leave Taiwan, or prevent foreign enterprises to join the competition. Only by regulating with the balance between autonomy, heteronomy and the laws can everyone's rights be effectively protected.

In the aspect of the development of the OTT TV industry in Taiwan, there are many domestic OTT TV operators in Taiwan, and they are small in terms of scale. Just like scattered, isolated small islands, they have developed independent business operation modes, which is why they are unable to confront large cross-national corporations with abundant funds. If

local corporations in Taiwan are to truly compete with oversea competitors, they must implement vertical integration in resources and horizontal cooperation. They must also gather funds and expand the scale of local business, and use the strategy of creating vertical and horizontal alliances to withstand the encroachment of cross-national operators in the market. For content development, the strategy of pyramiding could be used in investment. That is, movie and television scripts can be divided into three levels: low, intermediate and high according to their innovativeness, intellectual property (IP) or costs for and scale of shooting. Highly experimental scripts and scripts with less demand in funds can be invested by individual platforms. The profit of the types of drama and program contents that are more popular can be allocated within local platforms. Scripts with high costs in IP royalties and new production technologies, as well as scripts with high potential to be promoted around the world, can be invested by collaborating with cross-national corporations. Using the pyramid to classify different types of drama and program, and placing proper funds and resources can avoid corporate losses caused by inefficient or over-investment in contents. The dependence on the funds of foreign platforms can also be reduced, ensuring the independence of Taiwan's content production chain.

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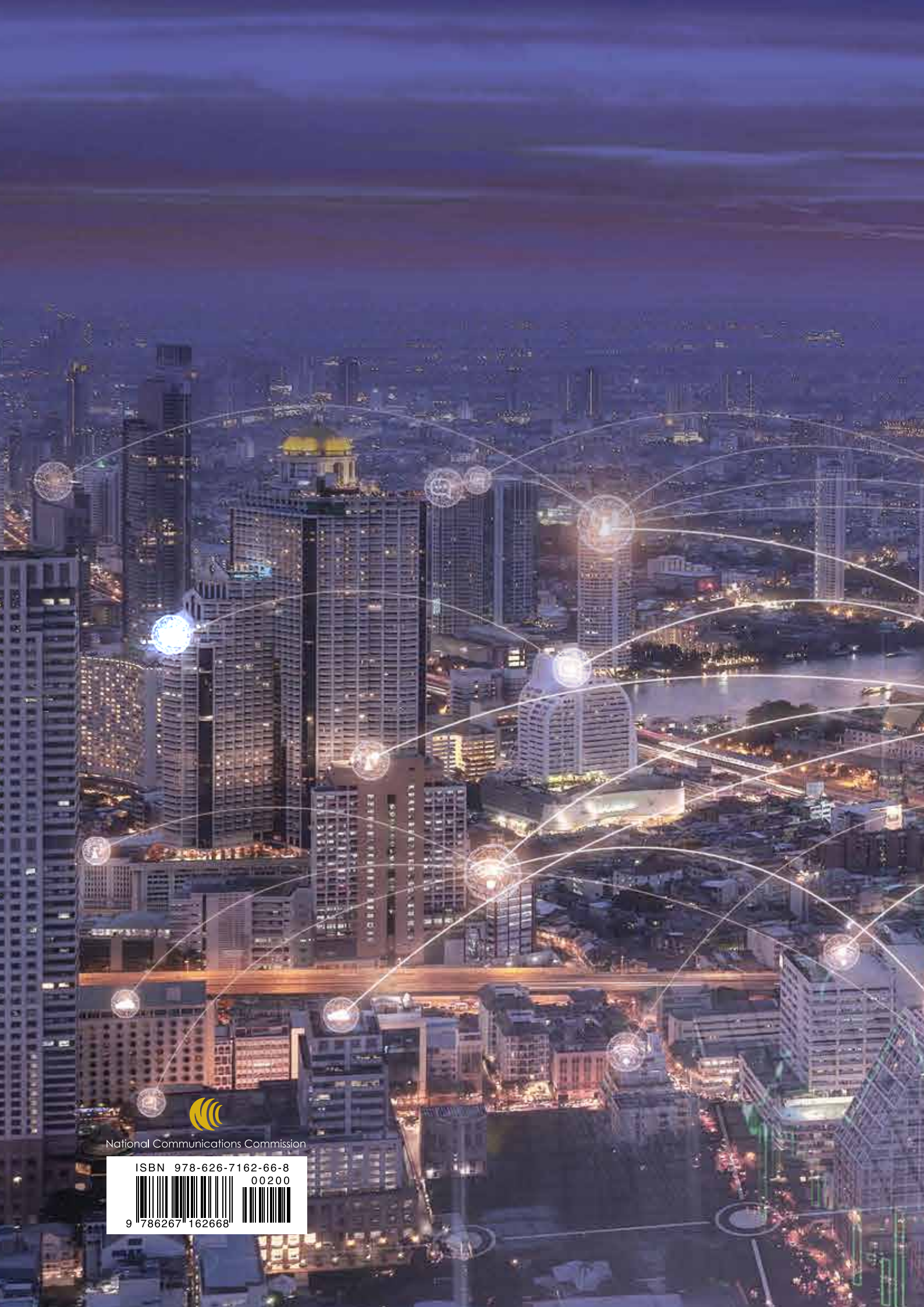
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