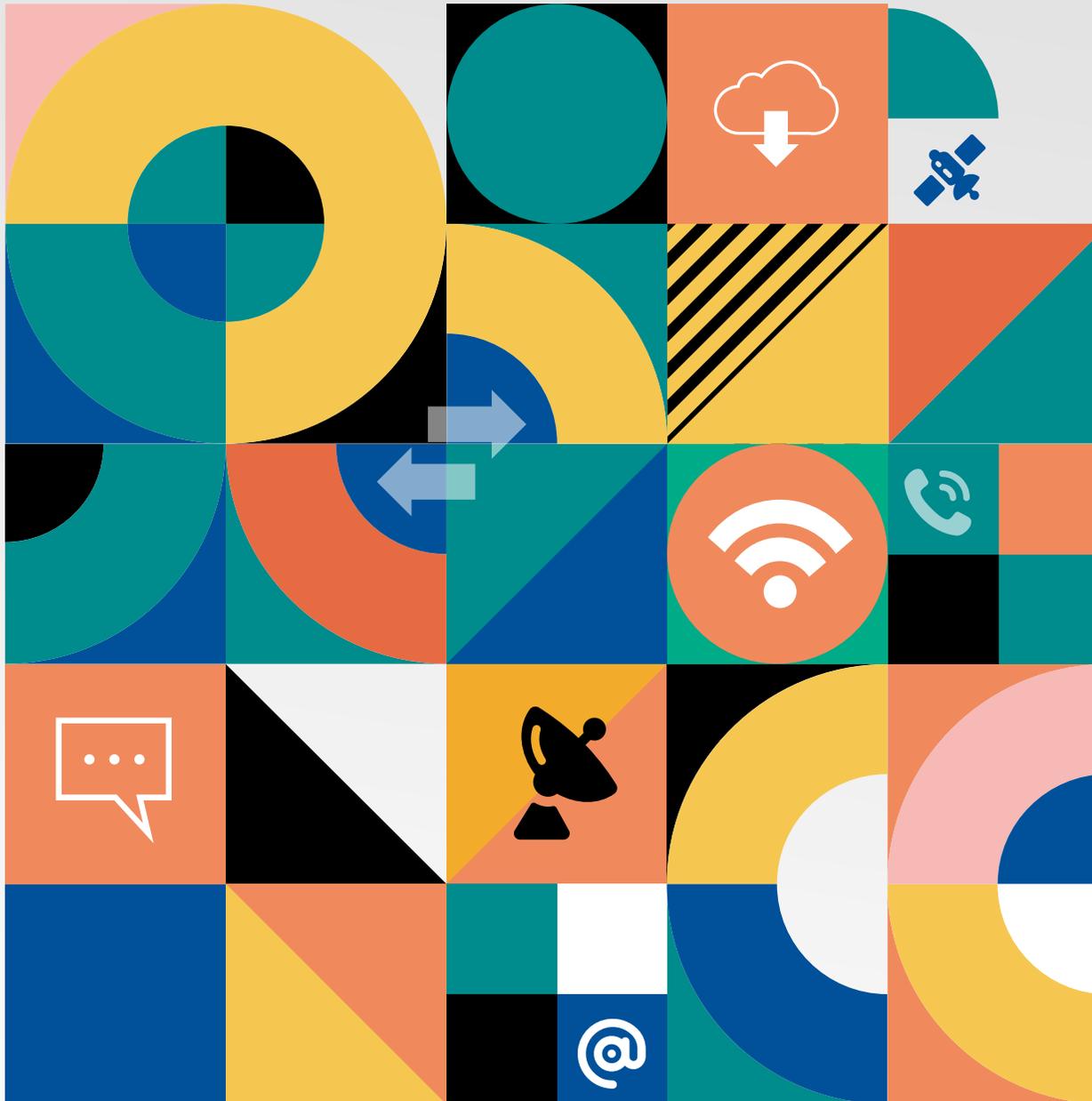


2021 NCC NATIONAL COMMUNICATIONS COMMISSION

Performance Report



NCC
Performance
Report
2021

National
Communications
Commission



TABLE OF CONTENTS

Preface	5
Introduction of NCC	7
Performance and Accomplishments of Communications Policy in Our Country	11
Overview of Communications Market	12
Reinforced Communications Infrastructures	14
Promotion of Fair Competition and Industrial Development	14
Enhanced Quality of Communications and Protection of Consumer Rights	16
Reinforced Protection of Information and Communications security	21
Build Diversified and Universal Communications	24
Utilize Mobile Communications to Warn of Evacuation and Prevent Fighting the Pandemic with Technology	27
New Trends in Global Communications	29
Prospects and Visions	33
Facilitating an Environment for the Communications Industry	34
Perfecting Governance of Communications	35
Enforcing Digital Equity	36
Promoting Internet Governance	37



LIST OF FIGURES

Figure 1	Organizational Structure	9
Figure 2	Types of broadband users (2021)	12
Figure 3	Number of telecom users	12
Figure 4	2021 Ratios of total revenue by telecom services	13
Figure 5	Revenue of radio and television market (2021)	13
Figure 6	Telecommunications service market defining open advisory meeting held by NCC	15
Figure 7	Ratios of specific figures being covered in respective months of 2021 to the total by the entry	15
Figure 8	Ratios of specific figures being covered in respective months of 2021 to the total by the second	15
Figure 9	Objectives of the “Telecommunications Service Quality Items and Format”	16
Figure 10	Complaints against communications 2020-2021	17
Figure 11	Complaints against cable TV 2020-2021	17
Figure 12	Basic High-definition channels of cable TV operators	18
Figure 13	Chairperson Yaw-Shyang Chen speaks remotely during the radio and TV media professionalism training	19
Figure 14	iWIN event promoting cyber security for children and teenagers in Calligraphy Greenway, Taichung	20
Figure 15	Improving knowledge of the safety of electromagnetic waves - Taoyuan Elementary School, Yanping Township, Taitung County	20
Figure 16	Videos of internet celebrities Zhiqi and Qiqi imparting facts of electromagnetic wave safety	20
Figure 17	Safety protection educational training for key telecommunications and broadcasting infrastructures held by the Telecom Technology Center as authorized (a total of 77 businesses and a headcount of 153 people in total)	21
Figure 18	NCC colleagues and the telecommunications inspectors conduct remote inspection of TFN MEDIA CO., LTD.	22
Figure 19	Key infrastructure drills of Chunghwa Telecom	22
Figure 20	Former Commissioner Ya-Li Sun and the delegation took part in the seminar on world trends in information security held by the Telecom Technology Center	23
Figure 21	Chairperson Yaw-Shyang Chen and the delegation visit the 5G substation in West District, Tainan City	24
Figure 22	5G substation in Fanlu Township, Chiayi County	24



Figure 23	Former commissioner Chi-Hung Hsiao (fourth from left) and the delegation hold the 5G medicine experiential event in Dawu Township, Taitung County	25
Figure 24	Substation shaped like a tree at the Loying Lodge	25
Figure 25	Consortium Cerebral Palsy Foundation perform the play and workshop entitled “Judicial Human Rights Protect Me ‘I Wear Glass Shoes but I Do Not Have a Glass Heart” at Taoyuan Elementary School, Taoyuan County.	26
Figure 26	Cheng Sheng Broadcasting Corp. hold the workshop entitled “Village of New Civilians - Media Literacy Incubation Program” for Toucheng Junior High School, Yilan County	26
Figure 27	Opening remarks during the refreshing program on disability testing in Taipei on April 14, 2021	27
Figure 28	2021 joint drills for disaster prevention and rescue mobile communications platforms - dynamic disaster prevention and rescue mobile communications platforms	28
Figure 29	Statistics of text messages transmitted through the SMS name registration system	29
Figure 30	Chairperson Yaw-Shyang Chen and Former FCC Chairperson Ajit Pai converse online	30
Figure 31	TEL 62 online meeting	31
Figure 32	TEL 63 online meeting	31
Figure 33	Former Commissioner Wei-Chung Teng and delegation attend the AVIA policy roundtable	31
Figure 34	Former Commissioner Wei-Chung Teng speaks at the ICANN APAC-TWNIC Engagement Forum	32



Preface

A noticeable effect brought on by the COVID-19 pandemic and the consequent isolations and inconvenience was the unprecedented demand for communications. As technologies have continued to evolve, applications have become even more diverse and innovative, which in turn has led to a rise in emerging forms of communication, as well as entertainment. Meanwhile, around the world, governments have accelerated their deployment and upgrading of communications network infrastructures with the aim of effectively facilitating the larger bandwidths required for 5G, multiple links, and ultra-low latency, not only providing fertile soil for digitization but also expediting progress in digital economies.

As communications technology continues to evolve, certain issues arise; for instance, the flourishing development of social media video sharing platforms and cross-border and cross-industry over-the-top TV (OTT TV) are posing challenges to the broadcasting industry. Meanwhile, technological advancements in augmented reality (AR) and virtual

reality (VR) are turning the metaverse into one of the most eye-catching contemporary topics, too.

Faced with this rapidly changing communications environment, the NCC remains committed to perfecting the communications infrastructure in Taiwan, while at the same time protecting the rights of consumers, boosting accessibility to communications, and harmonizing the convergence legal system so as to normalize developments of the media industry, realize digital equity, and to become a comprehensively digital and intellectual society in the future.

The 2021 National Communications Performance Report includes two chapters on the performance and accomplishments and the prospects and visions of communications in Taiwan.

In Chapter 1 “Performance and Accomplishments of Communications Policy”, the results achieved by the NCC and all of its staff throughout 2021 given their hard work are reviewed. The NCC is proactively promoting network and digital





infrastructures, perfecting the digital settings for economic developments, and applying the digital technology while assisting in the prevention against disasters and the rescue operation, as well as anti-pandemic measures. The commission is also devoted to raising awareness of the public on electromagnetic waves so that people can be correctly informed. Following the promulgation of the Telecommunications Management Act, respective departments and offices under the NCC are preparing multiple subordinate regulations that help towards facilitating applicable regulatory requirements.

In terms of the broadcasting sector, after years of efforts, up to 99.8% of the basic channels of cable TV operators had been improved to be high-definition to provide viewers with a better-quality public audiovisual setting and programs. Taking advantage of the opportunity to broadcast Tokyo Olympic Games in 2021, NCC started to promote 4K video service, which not only features improved definition and overall production quality thanks to the broadcasting professional trainings that have been made available, but also diversified channels to help media attainments take root.

In other areas, the importance of information and communications security, as a foundation for the accelerated development of the digital economy, is increasing each day. Following the Cyber Security Management Act and the Telecommunications Management Act and in line with the aim of continuing to promote management of information and communications security of non-official authorities in broadcasting and telecommunication fields, the software security laboratory for national communications was created. Meanwhile, NCC is undertaking regular inspections of security of telecommunications machine rooms and also organizing various types of trainings and drills on the protection of information security to perfect the communications information security readiness.

Another area the commission remains focused on is the protection of consumer rights and ensuring communications are accessible to all. Following the Telecommunications Management Act in information disclosure and addressing consumption controversies, meetings are held periodically with service providers in order to determine measures that help improve complaint-filing process for consumers. We are also protecting the security of children and teenagers while online through the iWIN network content protection window and in a variety of other ways such as advisory meetings and education provided to the general public.

In order to boost development of the communications and media industry, NCC not only conducts surveys of the domestic communications and media market, but also monitors international trends. The commission proactively takes part in international meetings, gaining insight to regulatory experience of other nations while at the same time sharing ours.

Chapter 2 is entitled “Prospects and Visions”. Faced with governmental restructuring in light of digital development, the NCC has moved part of business under digital infrastructures and information security to the Ministry of Digital Affairs (MODA) . After the National Communications Commission Organization Act was revised and approved, the internet communication policy has been included. As the regulatory authority for communications, NCC still has a daunting task on its hands. For the future, the commission aims to facilitate the most effective industrial environment for communications, promote internet governance so as to protect consumer rights, perfect supervision by harmonizing regulatory requirements, consolidate digital equity, reduce the digital divide, ultimately creating a diversified, free, and safe communications environment.

Introduction of NCC





In response to the development of global communications convergence and the subsequent changes of regulatory supervision, existing affairs of communications in Taiwan were integrated, and the Fundamental Communications Act and The National Communications Commission Organization Act (the NCC Organization Act) were announced in 2004 and 2005 respectively. Consequently, the NCC was officially founded on February 22nd, 2006.

The NCC is an independent body established in accordance with the Basic Code Governing Central Administrative Agencies Organizations. With reference to communications management experiences in advanced economies, the NCC integrated authorities from Directorate General of Telecommunications, Ministry of Transportation and Communications, and Government Information Office, of the Executive Yuan and specified the management and supervisory roles in telecommunications and broadcasting industries, so that communications supervision can become coordinated under one agency.

In response to the challenges by the wave of digitalization, Taiwan established the Ministry of Digital Affairs(modu) on August 27, 2022. The NCC cooperated with the Executive Yuan to restructure the organization. Businesses of digital infrastructure, information and communications security, spectrum management, digital inclusion, and international exchange on digital development are now transferred to the Ministry of Digital Affairs. The NCC is committed to policy planning, system and equipment supervision, market competition, and consumer rights. It is a professional, diverse, and efficient agency for improving the communications industry and environment, as well as enhancing the digital capabilities of Taiwan.

Duties and Responsibilities

According to Article 1 of the NCC Organization Act, the purpose of the NCC is to ensure people's freedom of speech, end political control of the media in order to protect its neutrality, enhance broadcasting standards, ensure fair and effective competition, protect the rights and interests of consumers, respect the rights of minorities and underprivileged groups, promote the development of cultural diversity, and enhance the competitiveness of the nation. In accordance with Article 3 of the same act, the duties and responsibilities of NCC include the following:

- Formulating communications supervisory and internet communications policy, and formulating, drafting, amending, abolishing and implementing laws and regulations pertaining to communications.
- Managing the supervision of operations of communications enterprises and approving and issuing licenses.
- Supervising and managing the establishment of communications networks.
- Reviewing and inspecting communications systems and equipment.
- Regulating the rating system for the content of communications and the internet, and other legally designated matters.
- Maintaining the order of communications competition.
- Presiding over major disputes between communications operators and matters of consumer protection.
- Supervising and handling offshore affairs and international exchanges and cooperation pertaining to communications.
- Supervising and managing communications and internet communication enterprise-related funds.



- Monitoring, investigating, and rulings on communications operations.
- Penalizing and disciplining violations of communications-related laws and regulations.
- Overseeing other matters pertaining to communications.

Organizational Structure of NCC

In response to the transformation of the communications technology and industry, the NCC adjusted its internal organization based on a hierarchical management model, in line with the trend in amendments to the convergence laws with reference to the governance structures of the communications industry in other countries. The new organizational framework took effect on January 1, 2015, consisting of the Department of Planning, Department of

Network Infrastructure, Department of Platforms and Businesses, Department of Frequency and Resources, Department of Broadcasting and Content, Department of Legal Affairs, Department of Northern Regional Affairs, Department of Central Regional Affairs, Department of Southern Regional Affairs, Secretariat, Personnel Office, Civil Service Ethics Office, and the Budget, Accounting and Statistics Office .

In order to enhance the commission's information network and application security protection, the unit responsible for communications business and the unit responsible for information and communications security business management were merged to become the Department of Infrastructure and Cyber Security. The merger was enacted by the commission on February 26, 2020 after being approved by the Executive Yuan in January 2020 (Figure 1).

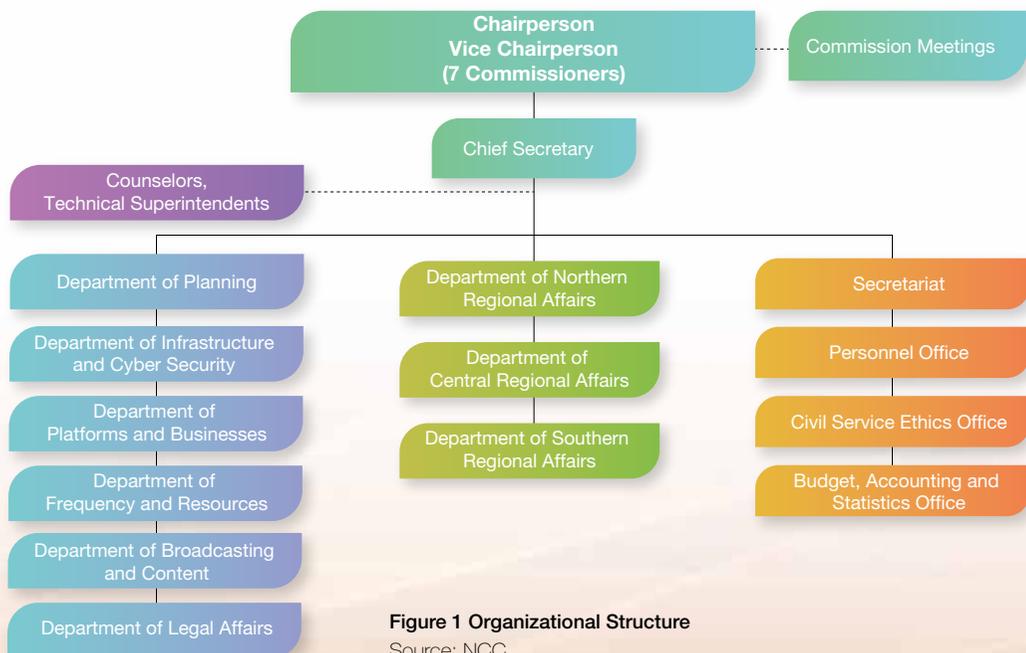


Figure 1 Organizational Structure

Source: NCC



Commissioners

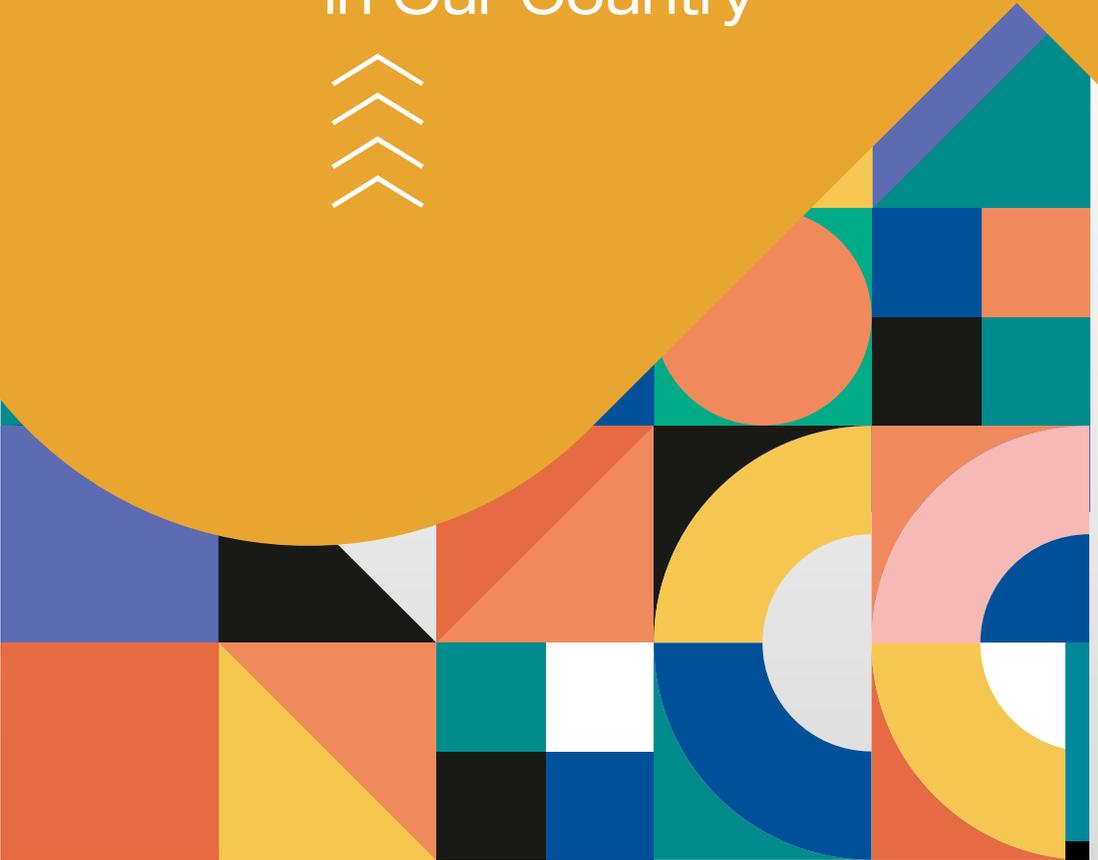
According to Article 4 of the National Communications Commission Organization Act, the commission consists of seven commissioners, all of whom are full-time members that serve a term of four years and may serve multiple terms when re-elected. The Premier shall nominate the candidates and appoint them after being approved by the legislature. For the nomination, the Premier shall require one to serve as the Chairperson and another one as the Vice Chairperson. The Chairperson of the commission, specially appointed, represents the NCC externally. The Vice Chairperson is charged with a duty equivalent to that of the 14th level of the senior specialist while the other members have a duty comparable to that of a 13th level of the senior specialist.

As of December 31, 2021, the commission consisted of the following seven incumbent commissioners; Chairperson Yaw-Shyang Chen, Vice Chairperson Po-Tsung Wong, and members Wei-Ching Wang, Lih-Yun Lin, Ya-Li Sun, Wei-Chung Teng, and Chi-Hung Hsiao. Due to the fact that members serve alternating terms with one another, existing members Ya-Li Sun, Wei-Chung Teng, and Chi-Hung Hsiao completed their term on July 31, 2022. The Premier nominated Members Jiang-Jia Wang, Yi-Hui Wang, and Chung-Shu Chen on April 28, 2022 and they were approved by the Legislature and appointed on May 24, 2022 to serve a term that began on August 1, 2022 and would expire on July 31, 2026. Members of the commission specialize in respective fields and supervise the promotion of communications policies from regulatory, technical, industrial, and economic perspectives to help perfect the environment for the communications industry in our country.

Overview of Administratives Operations Operations of the Commission Meetings

The NCC is a collegiate independent body that meets primarily to execute its decisions and promote commission-related affairs. As is required by Article 10 of the National Communications Commission Organization Act, commissioners meet once a week and an ad-hoc meeting may be held if deemed necessary. The meetings are chaired by the Chairperson and decisions made during a meeting shall be enforced upon approval by a majority of all commissioners. For a specific decision, each commissioner may express concurring opinions or dissenting opinions, which are to be released together with resolutions. In addition, , scholars and experts may be invited to take part and related authorities, businesses, or groups may be asked to send representatives to be seated during the meeting, to state facts or provide feedback. During 2021, the NCC met a total of 52 times and reviewed a total of 243 proposals .

Performance and Accomplishments of Communications Policy in Our Country





Overview of Communications Market

As of December 2021, there were 3.4 million users of various types of broadband businesses in Taiwan; among them, mobile broadband (4G and 5G) accounted for 81.21%, optic fiber (FTTx) 11.7%, cable modem 5.8%, ADSL 0.77%, and PWLAN and land-line 0.51% and 0.01%, respectively, indicating that the use of mobile broadband is very common (Figure 2).

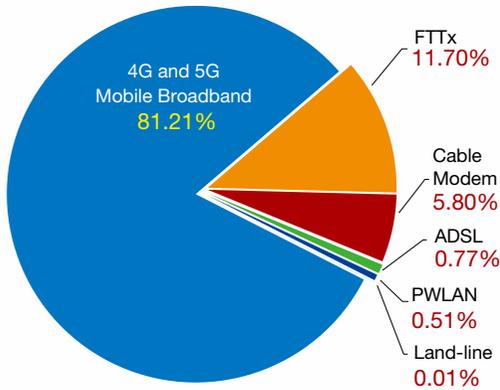


Figure 2 Types of broadband users (2021)

Source: NCC

As for telecommunications, mobile telecommunications remains the most popular means for people in Taiwan and the number of users has continued to climb slightly. In contrast, the number of land-line phone users continues to fall. As of December 2021, there were 29.58 million mobile telecommunications users throughout the country and among them, 27.89 million had a mobile broadband account. The number of land-line phone users was 10.52 million and among them, 6.42 million had a land-line broadband account (Figure 3).

The Top 5 telecommunications operators, namely, Chunghwa Telecom, Taiwan Mobile, Far Eastone, Taiwan Star, and Asia Pacific Telecom accounted for a combined revenue from telecommunication services of NTD 276.5 billion during 2021, a decrease of NTD 6.2 billion from 2020. With the popularization of network-based communication software and the increased convenience and stability with the use of various types of communications software,

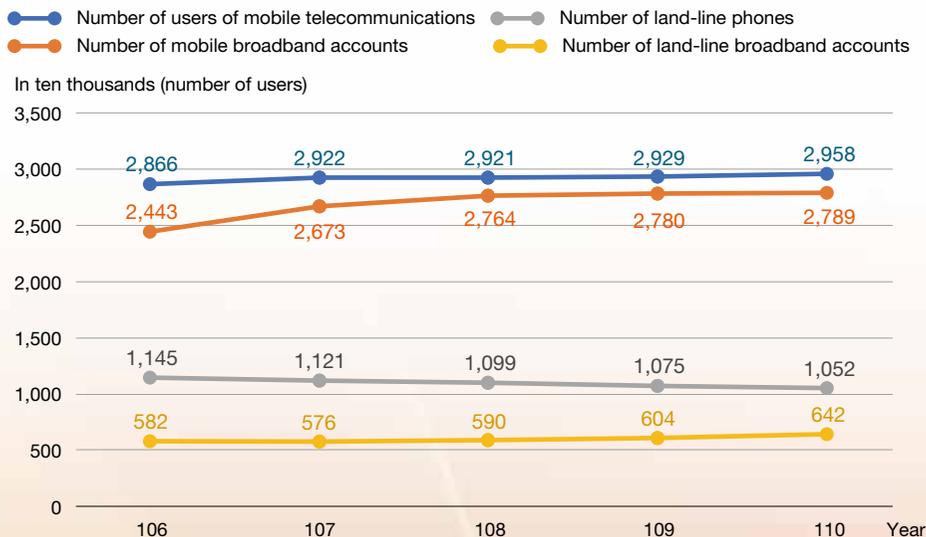


Figure 3 Number of telecom users

Source: NCC



and after Taiwan released 4G services in 2014, people slowly cut down the use of land-line phones, mobile voice mails, and land-line broadband, which contributed to the decrease in revenue.

Further analysis of the overall revenue from telecommunications service reveals that mobile broadband service accounted for 56.1% and was a main source of the revenue; it also showed a slight increase from last year. Land-line internet and value-added service accounted for 17.2%, circuit leasing 10%, land-line phone 10.2%, telecommunications and TV (Chunghwa MOD) 2.3%, and international calls and long-distance calls 1.2% and 1.1% (Figure 4), respectively.

As for the broadcasting market, an overview of the overall revenue on the radio and TV market of 2021 shows that satellite TV was the main source of revenue, followed by cable TV. Satellite TV and terrestrial TV appeared to be climbing in the revenue of 2021. The revenue of cable TV, on the other hand, showed a declining trend from 2020. The overall revenue of Radio Broadcasting, however, did not experience obvious changes and remained

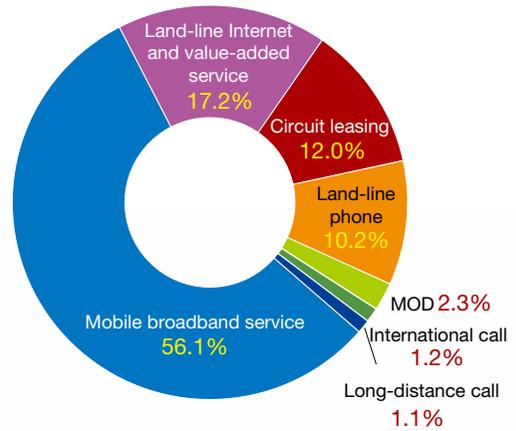


Figure 4 2021 Ratios of total revenue by telecom services

Source: NCC

approximately NTD 4.5 billion (Figure 5). As of the fourth quarter of 2021, there were 4.74 million subscribers of cable TV, a year-on-year decline of about 180,000. As far as IPTV is concerned, it was mainly Chunghwa Telecom multimedia on demand (MOD); there were 197 channels in total as of December 2021, which was the second time

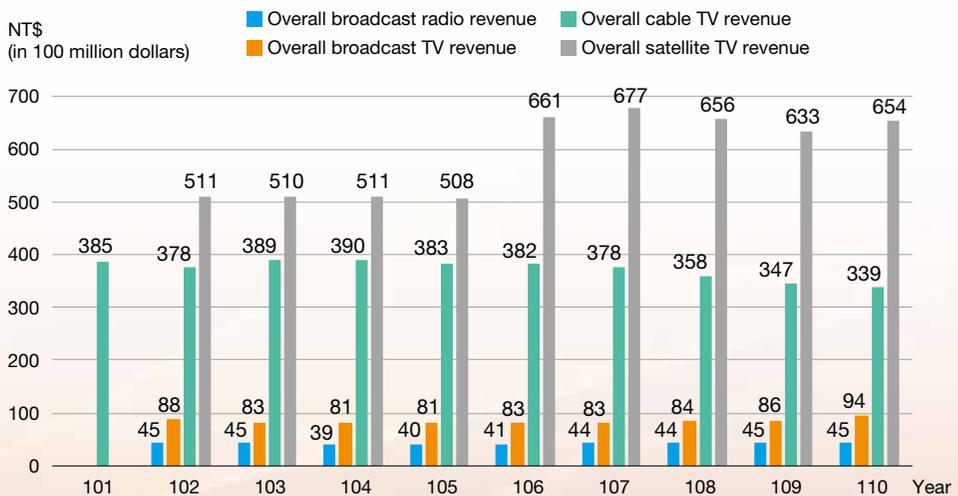


Figure 5 Revenue of radio and television market (2021)

Source: NCC



in history (after 2016) that the number of channels was below 200. There were 2.06 million subscribers, which, however, remained unchanged from the year previous.

Reinforced Communications Infrastructures

Perfect Communications Infrastructures to Promote Nationwide Digital Foundation

Aligning with the “Forward-looking Infrastructure Project” approved in April 2017 and the DIGI Plus (2017-2025) approved in October of the same year by the Executive Yuan and the “Smart Taiwan Solution” (2021-2025) embarked on in 2021, NCC is spearheading digital foundation division by working collaboratively with the Ministry of Transportation and Communications (MOTC), the Ministry of Economic Affairs, and the National Science and Technology Council (former Ministry of Science and Technology) to build high-speed, high-performing, and highly reliable broadband network infrastructures that are accessible by the whole nation.

Fruitful results were obtained in the promotion of digital foundation division throughout 2021. Deployment of the 5G network was expedited to achieve a coverage rate of 90.65%. Operators received subsidies for the 146 5G high-speed substations set up in outlying areas and on offshore islands. Residents in 49 outlying areas throughout the 16 counties and cities were able to gain access to a high-speed mobile broadband network. In terms of communications convergence policies and legal systems, the 5G exclusive network policy and vertical regulatory requirement adaptation were embarked on to perfect the mechanism for the management of information security of 5G networks. Meanwhile,

in response to the tendency of the development of B5G/6G communications technology, Stage 1 planning of the spectrum to be used for synchronized/non-synchronized satellite fixed communications was completed.

Reflective of governmental restructuring, the above duties were transferred to the Ministry of Digital Affairs (MODA) that was formed on August 27, 2022 for centralized planning. In the future, the commission will proactively work with the MODA from the supervisory perspective while promoting digital transformation-related policies in order to perfect the environment conducive to the development of digital economy.

Promotion of Fair Competition and Industrial Development

Define Specific Telecommunications Market to Protect Fair Competition

The Telecommunications Management Act passed after the third reading at the Legislature on May 31, 2019 and was officially promulgated on July 1, 2020 in order for the telecommunications industry to transition from the Telecommunications Act to the Telecommunications Management Act and to protect fair competition.

Telecommunications service is part of the fundamental needs of the general public. By defining significant market power (SMP) and applying ex-ante asymmetrical control, other non-SMP operators on the market are given greater operational flexibility to help them compete reasonably with SMP operators. By defining a specific telecommunications service market, it helps the competent authority further recognize an SMP and adopt corresponding special control measures, such as necessary information, conditions, procedures, and costs for public interconnection, network access elements, or utilizing



related telecommunications infrastructures, adopt charge control measures, and create an accounting separation system, among others, to avoid abuse of their position, ensure fair competition, and to boost market development.

The Commission held an open advisory meeting on August 17, 2021 to solicit opinions from the general public (Figure 6) and then planned and defined “land-line voice-mail retail service”, “land-line circuit retail service”, “land-line wholesale service”, “land-line voice-mail continuing service”, and “mobile network voice-mail continuing service” as specific telecommunications service markets. The “Definition of Specific Telecommunications Service Markets” were announced in advance on December 20, 2021.



Figure 6 Telecommunications service market defining open advisory meeting held by NCC

Source: NCC

Announce TV and News Coverage Monitoring Findings to Drive Heteronomy and Boost Media Autonomy

News coverage on television has a significant influence on society. In order to gain understanding of what is being covered by specific news channels, to remind operators of prioritizing public interest,

and to emphasize the authenticity, accuracy, and fairness of the coverage, the NCC, in March 2019, began to publish monitoring reports, which are also being made available on the commission’s official website.

Further analysis shows that impacted by the COVID-19 pandemic during 2021, the top 3 months in terms of the total number of specific figures covered throughout the year were May (392%), June (330%), and July (301%) while March was at the bottom (17.80%) (Figures 7 and 8).

Number of seconds and ratio

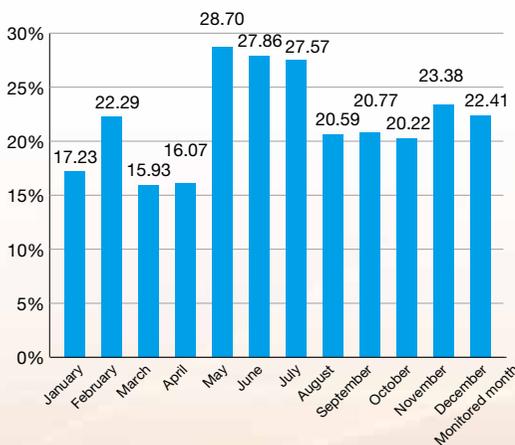


Figure 7 Ratios of specific figures being covered in respective months of 2021 to the total by the entry

Source: NCC

Number of seconds and ratio

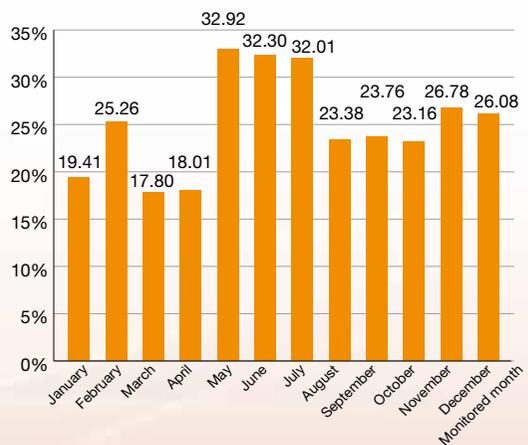


Figure 8 Ratios of specific figures being covered in respective months of 2021 to the total by the second

Source: NCC



NCC aims to continue monitoring news coverage and broadcasting through objective and scientific statistical analyses and to encourage heteronomy, to urge channel autonomy, and facilitate a strong foundation for the broadcasting environment.

Relax Restrictions on Technical Experiments and Commercial Authentication to Encourage 5G Innovation

The commission provides experimental spectrum and encourages practitioners to set up experiment venues for diversified 5G applications, so as to promote 5G experimental innovation and applied services, and to connect 5G channel and network-only vertical applications and developments. According to the Administrative Regulations Governing the Establishment and Use of Dedicated Telecommunications Network for Research and Development Purposes, NCC issues and assigns 5G spectrum to facilitate the setup of 5G experimental networks for those with a demand for tests and trials and the commencement of vertical innovation and application experiments

that cover the technology through service. As of the end of June 2022, the commission had approved 65 experimental networks focused on 5G technology and 2 on commercial authentication.

Enhanced Quality of Communications and Protection of Consumer Rights

Reinforce 4G and 5G Service Quality Measurement to Protect Consumer Rights

In light of the fact that 4G remains the most common mobile telecommunications service available to the general public, besides promoting 5G infrastructures, NCC continues to enhance the overall 4G network service quality and to ascertain the coverage and efficacy of the 4G networks available at telecommunications operators, including fixed-point and migratory measurements. The commission undertakes measurements periodically, which not only helps consumers choose the mobile

Set the “telecommunications service quality items and format” to ensure information disclosure and to boost the rights of consumers



Telecommunications operators determined by the commission shall release their self-evaluation findings from the previous year by January 31 of the current year

- Consolidate disclosure of information about the fees proposal and enhance accuracy of bills
- Disclosure graded download rate and coverage of service
- Encourage operators to provide diversified and toll-free customer service
- Govern customer complaints and deadlines to respond and address them
- Periodically investigate customer satisfaction each year
- Ensure protection over customer profiles and privacy, among others

Figure 9 Objectives of the “Telecommunications Service Quality Items and Format”

Source: NCC



telecommunications service that suits their needs but also boost competition while they build mobile broadband networks and boost service quality.

Consolidate Information Disclosure and Address Consumer Disputes

As required by Article 18 of the Telecommunications Management Act, telecommunications operators as determined by the commission shall periodically evaluate themselves against respective indicators and release findings of their evaluation according to the items and format announced by the commission. In this regard, NCC established the “Telecommunications Service Quality Items and Format”, which took effect after they were released in the Executive Yuan Communiqué on

April 8, 2021, aiming to encourage urge providers to proactively improve the quality of service they provide (Figure 9).

NCC holds meetings to discuss how customer complaints are addressed by providers and periodically releases reports on telecommunications and cable television consumer complaints. The statistics and analysis results serve as reference while administrative policies are being made to hopefully effectively prevent disputes and to protect the rights of consumers (Figures 10 and 11). Cable TV consumer complaints throughout 2021, in particular, fell in number each quarter between 2018 and 2021, the number of cable TV consumer complaints dropped each year from 1,096 to 448.

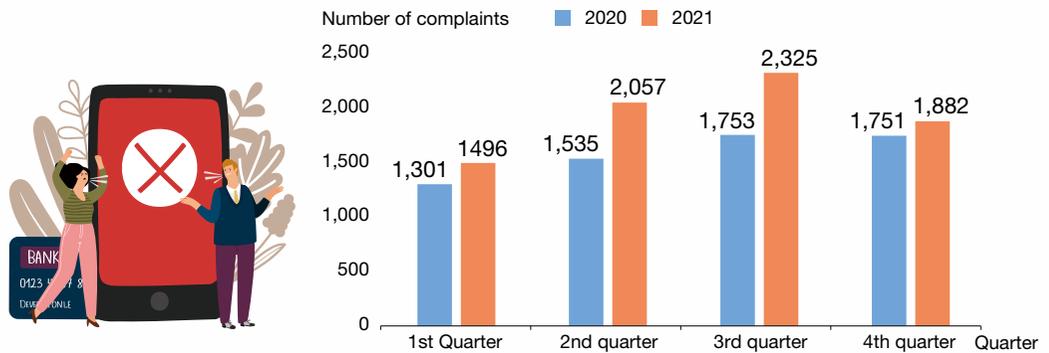


Figure 10 Complaints against communications 2020-2021
Source: NCC

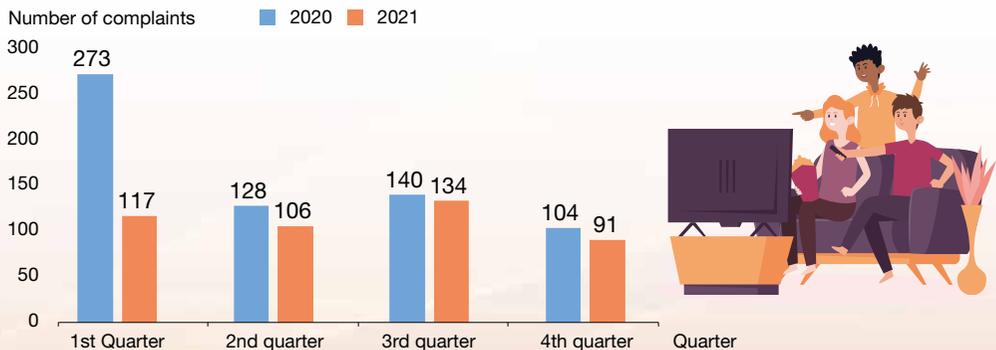


Figure 11 Complaints against cable TV 2020-2021
Source: NCC



Strengthen Telecommunications Consumer Disputes Handling Center to Boost Quality of Communications among Consumers

As is required by Article 17 through 20 of the Telecommunications Management Act, telecommunications operators, as determined by the commission, shall be responsible for defining the service contract, periodic self-evaluations, submitting for approval of protective measures for consumers upon suspension or termination of business operations, and jointly setting up dispute mechanisms.

Taking into consideration an annual gross revenue of at least NTD 100 million, at least 600 telecommunications or three-fourths of all consumer disputes, with or without using telecommunications resources or setting up public telecommunications networks for the preceding year (2020) of each operator, NCC completed determining telecommunications operators charged with particular obligations on June 9, 2021.

Upgrade Cable TV Channels to High Definition to Provide Quality Audio-visual Experience

In order to effectively take advantage of the benefits of the digitization of cable television and to boost production and preparation of high-definition programs, at the end of 2018, NCC promoted the “Cable TV Industry Channel High Definition Policy” and transformed cable television to high-definition platforms. As of the fourth quarter of 2021, up to 99.8% of the channels were high-definition (Figure 12).

Organize Radio and TV Professional Attainment Trainings to Boost Professionalism Through Joint Efforts between Public and Private Sectors

NCC conducts training sessions of radio and television media professionals to improve standards of broadcasting and to alleviate concerns and biases people may have about mass media. Throughout

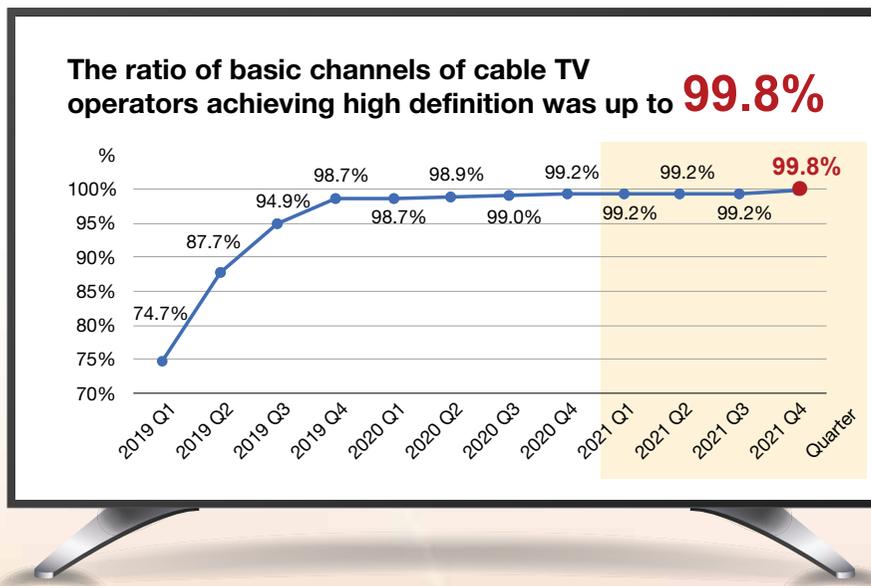


Figure 12 Basic High-definition channels of cable TV operators

Source: NCC



Figure 13 Chairperson Yaw-Shyang Chen speaks remotely during the radio and TV media professionalism training

Source: NCC

2021, the commission held 7 rounds of professional attainment trainings for radio and television operators (Figure 13); the topics covered were business operations and development, gender equality, health communication, privacy protection, judicial human rights, protection of minors, rights of the disabled, risk communication, among others, and facilitated production and broadcasting of quality programs by radio and television for the disadvantage.

In addition, for news channels and news producers and broadcasters, three rounds of the workshop on “Facts Validation and Principle of Impartiality” were held. The workshop covered ideas pertaining to approaches to verification of facts, the principle of impartial coverage, as well as hands-on inspections, among others. Besides assisting broadcasters to gain newer information, a platform a communication platform with the government, academia, and industry has been established to facilitate exchanges of insights and experience.

Coordinate with Public and Private Sectors to Protect Internet Surfing Security for Children and Teenagers

In accordance with Article 46 of the Protection of Children and Youths Welfare and Rights Act,

NCC, jointly with the Ministry of Health and Welfare, the Ministry of the Interior, the Ministry of Education, the Ministry of Culture, and the Ministry of Economic Affairs, authorized an NGO to form the “iWIN Network Content Protection Institute” (iWIN) that is responsible for promoting media autonomy and adopting defined feasible and necessary protective measures to ensure security of children and teenagers online. The main accomplishments of iWIN during 2021 include:

- (1) Periodically provide multiple free domestic and international and paid filtering and protective software on the website and promote their use in order to strengthen filtering and protective measures that help ensure online safety of minors.
- (2) A total of 3,912 complaints filed by the general public were addressed; among them were 2,208 involving violation of applicable laws and regulations for children and teenagers, mainly pertaining to pornography, followed by objects harmful for children and teenagers, pictures of private parts of children and teenagers, and violence, among others. Based on the nature of each case, each one



Figure 14 iWIN event promoting cyber security for children and teenagers in Calligraphy Greenway, Taichung

Source: NCC

is forwarded to relevant domestic or international authority or group to be handled further and the network platform operator is asked to help remove the content in question. On average, complainants receives a response within four to five days.

- (3) Four “multi-lateral stakeholders advisory meetings” were called throughout 2021 to discuss how special cases were handled and other issues such as autonomy of network platforms.
- (4) Network attainment events were held at schools throughout Taiwan and on offshore islands, 25 in total, to help with communication; four major communication events took place in northern, central, southern, and eastern parts of Taiwan to promote cyber security to the general public (Figure 14).

Promote Electromagnetic Wave Safety and Expedite 5G Infrastructures

As the 5G service entered commercialization, NCC promoted the 5G forward-looking project throughout 2021 to help expedite 5G construction, which can facilitate digital transformation of the industry and development of diversified applications. In order to successfully promote the deployment of

5G infrastructures and to clarify the concerns people have about electromagnetic wave safety, besides continuing with communication about electromagnetic wave safety, the commission introduced its visions about a 5G life and the framework of the Internet of Things while trying to seek support from the general public for 5G infrastructures and building a mobile broadband friendly setting.

NCC held nine rounds of public and local communications about knowledge of electromagnetic waves in 2021 (Figure 15) and authorized the Police Radio Station to impart quality mobile communications about electromagnetic wave safety and 5G TV programs. Internet celebrities were invited to film clips on electromagnetic wave safety (Figure 16) and produce six episodes of “Formosa Mambo 5G Go”, a TV program, that helps increase awareness of facts concerning electromagnetic waves .



Figure 15 Improving knowledge of the safety of electromagnetic waves - Taoyuan Elementary School, Yanping Township, Taitung County

Source: NCC



Figure 16 Videos of internet celebrities Zhiqi and Qiqi imparting facts of electromagnetic wave safety

Source: NCC



Reinforced Protection of Information and Communications security

Enhance infrastructures to reinforce information and communications security

As the digital economy drives industries towards cross-border and cross-disciplinary developments, in addition to the rapid developments of the Internet of Things (IoT) and artificial intelligence (AI), NCC, in accordance with the Cyber Security Management Act and the Telecommunications Management Act, continues to promote the management of information and communication security in non-public authorities specializing in communications to boost the sector in the protection of information and communications security, so as to ensure that providers enforce information security protection, and to protect the right of users to telecommunications.

Throughout 2021, two rounds of information security protection educational trainings, one rehearsal on preventing information security attacks,

and four joint protection of information security exchange meetings were held for the communications and media sectors (Figure 17) in order to reinforce the awareness of providers and organizations and to enhance the mechanism protecting information security and reacting to threats, if any.

NCC also continues to expand the scope of service available through the network operating platform (C-NOC) of the National Communications and Cyber Security Center (NCCSC) in order to effectively reinforce protection of communication and broadcasting facilities and stay operative, to perfect the information security monitoring analysis and reporting platforms of the NCCSC (C-SOC, C-ISAC, and C-CERT), and to advance in the monitoring, analysis, reporting, and management of information security intelligence and events. Until present, up to 209 businesses have been accommodated through the network operating platforms. There are already up to 112 businesses covered in the information security monitoring, analysis, and reporting platforms. A total of 1,168,415 information security events were addressed, with intelligence shared, throughout 2021.



Figure 17 Safety protection educational training for key telecommunications and broadcasting infrastructures held by the Telecom Technology Center as authorized (a total of 77 businesses and a headcount of 153 people in total)

Source: NCC



To supervise telecommunications businesses in consolidating machine room security management and to minimize possibilities of information security events, the commission defined the implementation plan for administrative inspections. To go with the anti-pandemic measures in 2021, inspections were done through document review and self-assessments of providers in addition to video conferencing that helped confirm applicable measures available in the field. For 2021, telecommunications machine rooms of internet access service and international voice-mail-only resale service providers were inspected. A total of 16 telecommunications machine rooms went through administrative inspections for the whole year according to the implementation plan and all of them were deemed qualified (Figure 18).

In order to reinforce the toughness of key infrastructures and to remain operative, NCC held designated drills at one business and rehearsed an on-site evaluation at one business as required by the Homeland Security Office under the Executive Yuan in 2021 and spontaneously supervised businesses by holding safeguard practices at three of them (Figure 19).

Form State-grade Laboratory and Improve Information Security Protection of Software

The commission formed the state-grade communications software safety laboratory in 2021 aiming to provide the 5G network, third-party service, and IoT developer with software information security analysis and testing services by creating a safe environment for software testing. As of the end of 2021, NCC had cooperated with three domestic service providers (including Quanta Cloud Technology, GEOSAT Aerospace & Technology, and First International Computer) on the safe development of software .

In addition, NCC held two seminars in 2021 in which experts in domestic, academic, and industrial software development and software security were invited to talk on 5G Network, information and communications security management practices; these events were also streamed online in real-time (Figure 20).

With the aim of assuring consumers and enterprises that domestic manufacturers have been certified for information security, and exploring more business opportunities, seminars were held on software security and its supply chain in the era of innovative applications with the 5G IoT, including



Figure 18 NCC colleagues and the telecommunications inspectors conduct remote inspection of TFN MEDIA CO., LTD.

Source: NCC



Figure 19 Key infrastructure drills of Chunghwa Telecom

Source: NCC



Figure 20 Former Commissioner Ya-Li Sun and the delegation took part in the seminar on world trends in information security held by the Telecom Technology Center

Source: NCC

information security element in the product software development life cycle through software security labs.

Promote Built-in Software Information and Communications Security for Mobile Phones and Value Protection over Privacy of Personal Data in Mobile Phones

The Cyber Security Center under the Ministry of National Defense of Lithuania disclosed in September 2021 that Mi 10T 5G sold by Xiaomi Corporation in Europe is capable of text review. In October of the same year, the NCC authorized the Telecom Technology Center to test mobile phones of the same model sold in Taiwan and found that seven of its built-in Apps could download files involving political terminologies for comparison and contrast purposes through the server globalapi.ad.xiaomi.com, which may give rise to concerns about blocking networking or sending back related browsing behaviors. Mobile phones of other brands

from other countries provides an option to start or cease sharing information involving the privacy of users, but this option is not available for the said model. Despite the fact that terminology-filtered files on the server are cleared, the developer can place in the latest filtering terminologies remotely at any time and activate the inspection or filtration feature.

In order to protect consumers' right to "know", NCC released the current test results. People have been reminded of the importance of mobile users being aware of related risks and attention will continue to be paid to whether similar personal data and privacy protection issues exist with mobile phones sold in Taiwan or not and efforts will also continue to be made in the promotion of emphasis among manufacturers over built-in software information and communications security of mobile phones so that basic information security is consolidated and introduced while a mobile phone is in the design and manufacture stage.



Build Diversified and Universal Communications

No Blind Spots for Communications Networks; Reaching out to Outlying Areas with Forward-looking Constructions

In order to satisfy the demand for various network-based high-speed broadband applications, the commission promotes the forward-looking infrastructure project where operators are subsidized to establish mobile broadband substations in outlying areas in order to optimize the network coverage rate in these areas and to balance the urban-rural divide. During 2021, NCC approved subsidies for four telecommunications operators that set up a total of 148 mobile broadband substations combined. Besides the 146 5G substations (Figures 21 and 22), one 4G and one 5G substations were set up in Liang Island of Beigan Township, Lienchiang County and the substations were reinforced on Guishan Island in Toucheng Township, Yilan County.

In addition, 5G applications in distance education and telemedicine have been promoted. The commission held a total of four rounds of 5G experiential events in Taiwu Township of Pingtung County, Yuchi Township of Nantou County, Wulai

District of New Taipei City, and Dawu Township of Taitung County, respectively, in 2021 (Figure 23).

In compliance with the “Operating Guidelines for Sponsorship of Infrastructure Projects Aiming to Universalize Broadband Accessibility in Outlying Areas”, NCC announced acceptance of applications for subsidies for “Infrastructure Projects Aiming to Universalize Broadband Accessibility in Outlying Areas”. With the public and private sectors working together, a total of 26 applications were completed during 2021, including the construction of Gbps land-line broadband networks in 22 township points and the construction and expansion of 100 Mbps land-line broadband networks to four outlying township, village, and neighborhood points .

In addition, NCC continued to improve quality of mobile telecommunications in mountainous areas for enhanced telecommunications capability in case of rescue operations. In 2021, as advised by the Forestry Bureau, coverage for 15 mountainous areas, expansion of 7 substations, and optimized coverage for one area were completed. In addition, in other mountainous areas, such as Kayoufeng Waterfall, Dahan Forest Road, and the section from Tianchi to Wulu of Taiwan Southern Cross-Island Highway, 13 substations were built to improve coverage (Figure 24).



Figure 21 Chairperson Yaw-Shyang Chen and the delegation visit the 5G substation in West District, Tainan City
Source: NCC



Figure 22 5G substation in Fanlu Township, Chiayi County
Source: NCC



Figure 23 Former commissioner Chi-Hung Hsiao (fourth from left) and the delegation hold the 5G medicine experiential event in Dawu Township, Taitung County

Source: NCC



Figure 24 Substation shaped like a tree at the Loying Lodge

Source: NCC

Coordinate with Communication Businesses or Groups to Boost Media Accessibility and Literacy

In order to increase awareness of radio and television media and to encourage producers of communications businesses to apply existing resources, the commission and communications businesses or groups are jointly organize media literacy empowerment events that help reinforce media attainments of the general public; related educational materials are published on NCC's website to maximize efficacy of media literacy promotion.

During 2021, a total of twelve communications businesses or groups coordinated with NCC, including the Graduate Institute of Mass Communication of the National Taiwan Normal University, HSIN TAIPEI CATV CO., LTD., Cheng Sheng Broadcasting Corp., Consortium Cerebral Palsy Foundation, Tainan Gender Equity Promotion Association, Association of Taiwan Journalists, and Lanyang Innovative Development Association. In total, the



Figure 25 Consortium Cerebral Palsy Foundation perform the play and workshop entitled “Judicial Human Rights Protect Me ‘I Wear Glass Shoes but I Do Not Have a Glass Heart’” at Taoyuan Elementary School, Taoyuan County.

Source: NCC

number of people taking part in media literacy empowerment came to 2,511; those demonstrating correct ideas about communications accessibility or media literacy was 2,356. Among them, 2,345 were qualified through testing; the qualification rate was up to 99.53% (Figures 25 and 26).

The commission continued to promote the “Radio and TV Media Civil Empowerment Program” in 2021 in which radio and television media and communication departments and graduate institutes in colleges and universities were encouraged to join hands in promoting media attainments of the people and boost knowledge of students, senior people, new immigrants, or people with disabilities in outlying areas about the media and their ability to tell false information. In a series of events that took place in 2021, media practitioners were invited by the Association of Taiwan Journalists to serve as the lecturers. The “Developing Quality Civil Power - Workshop on Media Literacy among New Immigrants” and workshops jointly with the Taoyuan New Immigrants Culture Hall, the Changhua New Immigrant Association, and the Pingtung Community Organization for the Development of Women’s Rights on line through video-conferencing were held.



Figure 26 Cheng Sheng Broadcasting Corp. hold the workshop entitled “Village of New Civilians - Media Literacy Incubation Program” for Toucheng Junior High School, Yilan County

Source: NCC

Promote Website Barrier-free Certification Symbol Testing to Protect the Right of People with Disabilities to Access Information

The internet is not only a primary means of accessing information, but has also become a fundamental human right in the digital age. The commission promotes website barrier-free certification symbol testing service to provide friendly and accessible website settings for those with disabilities. In order to know the status of website barrier-free certification symbol testing service provided, the commission undertook an inventory check of the websites of government agencies and schools, 10,736 entries in total. As of December 31, 2021, as total of 4,152 websites had been issued with the barrier-free certification symbol.

NCC continues to boost the momentum in providing “barrier-free website symbol certifying test service and outsource information technology service for software upgrades, adjustment, and calibration”. People with disabilities are involved and related testing is embarked on to prove the efficacy in the use of assisting tools and website services and to consolidate the right of people with disabilities to receive information fairly (Figure 27).



Figure 27 Opening remarks during the refreshing program on disability testing in Taipei on April 14, 2021
Source: NCC

Utilize Mobile Communications to Warn of Evacuation and Prevent Fighting the Pandemic with Technology

Promote Disaster Prevention Broadcasting Service Transmitting Real-time Messages to Warn of Disasters

Taiwan often can be affected by natural disasters such as typhoons, heavy rains, and earthquakes. In order to protect the lives and properties of people, NCC promotes the cell broadcast service (CBS) together with the Disaster Prevention and Rescue Office under the Executive Yuan, the competent authorities for respective disaster prevention and rescue operations, the National Science and Technology Center for Disaster Reduction, and mobile broadband operators. The public receive disaster-related information within the shortest period of time through real-time warning messages to help them deal with impending disasters or evacuate quickly.

Coordinating with mobile broadband operators, the commission takes advantage of the CBS by sending respective disaster prevention warnings to people's mobile phones in order to take countermeasures in cases of emergency disasters. It is currently

made available to 30 disaster prevention authorities and can send 24 types of warnings, such as quick earthquake reports, tsunami alarms, real-time messages of heavy thunderstorms, among others. As of March 28, 2022, a total of 37,861 messages about disaster prevention had been issued.

In order to minimize the risk of abnormal transmission with the CBS, the commission supervises mobile broadband operators to periodically perform testing of warning messaging. Mobile broadband operators also cooperate by upgrading their systems reflective of the disaster prevention policy. Text expansion was activated on August 2, 2021, in which the number of characters in a warning message was expanded from 90 to 180.

In addition, to help people read disaster prevention warnings, the NCC held a total of 419 events in respective counties and cities and created an exclusive section for disaster prevention warning service on its website, as well as published related hands-on films to the online audiovisual platforms (such as YouTube).

Reinforce Disaster Prevention and Rescue Mobile Communications to Build a Safety Net for Disaster Prevention and Rescue

In order to improve telecommunications service in areas affected by disasters and to enhance network stability and reliability in potential or outlying areas prone to disasters, the commission promoted the "Forward-looking Infrastructure Project" - Establishment of Infrastructures to strengthen mobile communications for the sake of disaster prevention or rescue. As of May 4, 2022, telecommunications operators were subsidized to establish a total of 110 fixed-point disaster prevention and rescue mobile communications platforms and 47 dynamic disaster prevention and rescue mobile communications platforms, as well as optimizing 7 existing mobile communications platforms.



In order to qualify disaster prevention and rescue mobile communications platforms and examine the troubleshooting procedure and after-math recovery operation, NCC held joint drills for disaster prevention and rescue mobile communications platforms in Xinyi Township, Nantou County in 2021; they have helped boost disaster responsiveness (Figure 28).

Promote SMS Name Registration and Consolidate Communications Resources to Combat the Pandemic

In response to the serious COVID-19 pandemic, the Executive Yuan introduced the “SMS Name Registration” countermeasure for May 2021 through April 2022. To go with the Central Epidemic Command Center (CECC) the commission coordinated with Chunghwa Telecom, Taiwan Mobile, Far Eastone, Taiwan Star, and Asia Pacific Telecom by enforcing the SMS name registration system to help with pandemic prevention. After having scanned the QR Code with a mobile phone, a text message containing only the site code was sent to

1922 free of charge to meet the pandemic survey demand. Related data was then retained by the 5 telecommunications operators and deleted after 28 days. The SMS name registration system reduces people’s risk to contract virus from writing down their information on a piece of paper; it was also easy to operate was well-received by the public. In fact, it helped mobilize the whole nation and made Taiwan a role model around the world in its fight against the pandemic. As of April 27, 2022, when the SMS name registration system was terminated, a total of 4.7 billion text messages had been sent (Figure 29).

As part of prevention measures against the pandemic, NCC subsidized radio and TV operators that helped broadcast pandemic prevention information. Starting on January 22, 2020, broadcasting enterprises were requested to broadcast correct health knowledge and pandemic prevention information through captions, videos, and other broadcasting contents to prevent people from mistaking false information yet to be validated. Meanwhile, to



Figure 28 2021 joint drills for disaster prevention and rescue mobile communications platforms - dynamic disaster prevention and rescue mobile communications platforms

Source: NCC

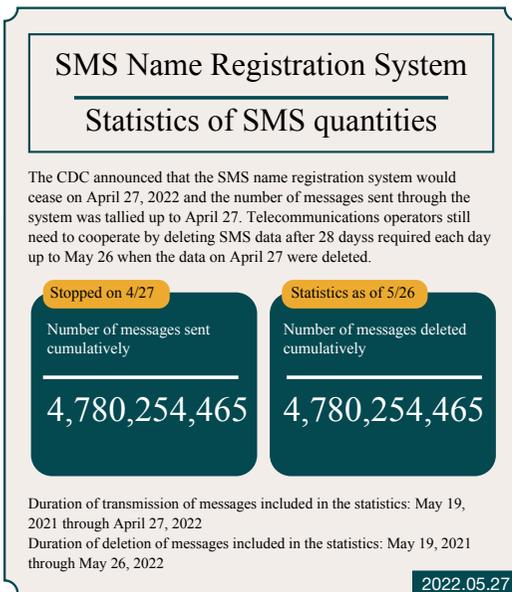


Figure 29 Statistics of text messages transmitted through the SMS name registration system

Source: NCC

ease the impact of costs of these broadcasters, the commission set aside a budget to subsidize them on the increased manpower cost and performed rolling evaluations and adjusting corresponding measures accordingly.

New Trends in Global Communications

Monitor Domestic and International Communications Market Dynamics to Keep Track of Important Developmental Trends

In order to keep track of development of the general communications market, NCC has been conducting the communications market survey and trend analysis plan since 2017 and demand survey findings in the four major domains, namely, communications, radio and television, broadband use, and convergence are provided periodically. The communications market reports for 2017 through

2021 have been completed show important indicators and cross-year trends comparison and analysis.

In order to provide people with user-friendly and timely data inquiries, the commission also updates and uploads annual survey findings and analyses to the “Communications Market Survey” website¹ where historical statistics are displayed and trends are compared through interactive charts.

The commission also monitors international communications over the long term. The International Communications Industry Dynamics Monitoring Program began in 2019. In the form of single pieces of information, monthly reports, presentations, and abstracts/keynote topics, important developmental issues on the international policy, technology, and market sides are analyzed so as to keep track of the latest trends and dynamics of the communications markets in advanced countries and of international organizations from broader perspectives. All information is uploaded to the international communications industry dynamics monitoring website² for reference and utilization by all parties.

Reinforce Global Exchange and Collaboration and Connect with International Society in Policies and Views

(1) Continue with Bilateral Dialog Between Taiwan and the USA to Consolidate Robust Alliance Relationship

Before the end of his term, Former Chairperson Ajit Pai of the Federal Communications Commission (FCC) held talks with Chairperson Yaw-Shyang Chen through video-conferencing on January 14, 2021. Chairperson Chen explained that Taiwan had completed 5G licensing in early 2020 and also closely

1 Communications Market Survey Website: <https://commsurvey.ncc.gov.tw>.

2 International communications industry dynamics monitoring website: <https://intifocus.ncc.gov.tw>.



Figure 30 Chairperson Yaw-Shyang Chen and Former FCC Chairperson Ajit Pai converse online

Source: NCC

monitors 5G bids in the US. Both of them reiterated that Taiwan and the USA are robust allies of each other and hopefully there will be an opportunity to schedule actual exchanges once the pandemic stabilizes so that they can share supervisory experiences and ideas to help create a safe and prosperous market environment for the communications industry in both countries (Figure 30).

(2) Proactively Participate in International Meetings to Boost Visibility of Taiwan

NCC proactively takes part in international meetings to keep track of the latest international communications issues and regulatory policies and to facilitate developments of innovative services in the communications industry in our country. On February 2 and 3, 2021, Former Commissioner Wei-Chung Teng was invited by the International Institute of Communications (IIC) to speak at the online Region Regulators Forum (RRF) on the topic “Case Study-5G Regulatory Challenges in Taiwan”.

During the form, configuration of communications equipment infrastructures, digital transformation trends, and privacy in the post-pandemic age, liabilities over online audiovisual contents, and application of artificial intelligence (AI) and machine learning were discussed.

The APEC Telecommunications and Information Working Group (TELWG) met online for the 62nd (TEL 62) and the 63rd (TEL 63) on February 23 through March 4, 2021 and August 10 through September 1, 2021, respectively. Senior Technical Specialist Wen-Fang Tseng of NCC and other colleagues, as well as representatives from the Department of Information and Communication Security and the National Center for Cyber Security Technology under the Executive Yuan, the Department Of Posta and Telecommunications under the Ministry of Transportation and Communications, the Telecom Technology Center, the Taiwan Accreditation Foundation, and the Taiwan Computer Emergency Response Team/ Coordination Center attended the meeting.

During the TEL 63 meeting held jointly with the Digital Economy Steering Group (DESG), Ms. Hsiu-Ling Cheng, Head of the Division of Comprehensive Planning of the Commission spoke on the communications policy and planning in our country, including the governance over telecommunications, information, and communications and the exclusive-frequency exclusive-network promotion plan, among others. The commission will continue to proactively take part in related meetings held by APEC to not only keep track of the latest international dynamics but also share the regulatory and developmental experiences in our country in order to boost the visibility of Taiwan on the global stage (Figures 31 and 32).

The International Institute of Communications (IIC) held the International Regulators’ Forum (IRF) and the Annual Conference (AC) on October



Figure 31 TEL 62 online meeting

Source: NCC

4 through 7, 2021. Former commissioner Ya-Li Sun was invited and served as the moderator for the session on “Evolution of Mobile Information Security” where she shared the 5G vertical applications and the history of information security protection and promotion in Taiwan.

(3) Keep Track of International Video Industry Dynamics While Strengthening Developmental Strategies for the Future

In order to help the domestic video industry with innovative developments and to build a friendly competitive environment, Former Commissioner Wei-Chung Teng and delegation attended the online Policy Roundtable and Annual Conference held by the Asia Video Industry Association (AVIA) on November 11 through 12, 2021 and November 16 through 18, 2021, respectively. The meetings were focused on digital transformation, content production, and new regulatory issues brought about digital magnate in the video industry. Communications regulatory authorities from respective countries along with industrial representatives, discussed issues conducive to keeping track of



Figure 32 TEL 63 online meeting

Source: NCC



Figure 33 Former Commissioner Wei-Chung Teng and delegation attend the AVIA policy roundtable

Source: NCC

policy trends adopted for the video industry in Asian countries and further strengthening the strategies for the developments in terms of domestic industrial demand, consumer rights, and regulatory measures (Figure 33).

Help TWNIC Promote Domain Name and Registration Management to Proactively Take Part in International Network Safety Meeting

The management over domain names, its analysis, and assignment of the IP addresses is the responsibility of the Taiwan Network Information Center (TWNIC). To cope with the high domestic



demand for the internet and to meet the dynamic tendency in international network domains, the TWNIC is proactively advancing its requirements for registration of domain names and has introduced the service to help register domain names in multiple countries and initiated the IPv6 deployment and use throughout the nation. Taiwan's IPv6 utilization rate reached 45.47% in 2021 and ranked 11th around the world.

In addition, TWNIC is promoting the “Taiwan School on Internet Governance” where representatives of social media enterprises discuss different topics on internet governance such as network technology, economy, society, and safety, among others. In order to strengthen the information security protection momentum, TWNIC has accumulatively shared 920,000 pieces of domestic and international information security intelligence, released 167 common vulnerabilities and exposures (CVEs), resolved 436 phishing reports, and is promoting the “” to provide related expert and organizational exchange channels with the Computer Emergency Response Team (CERT) and the Computer Security Incident Response Team (CSIRT) to demonstrate the effective utilization of intelligence and to reinforce the information security defense system.

On April 15 and 16, 2021, the TWNIC and the ICANN jointly held the ICANN APAC-TWNIC Engagement Forum where stakeholders and representatives of international online social media enterprises gathered to discuss issues such depth. Former Commissioner Wei-Chung Teng of the Commission was invited to speak a few words (Figure 34).

Nurture Network Governance Talent and Broaden International Digital Governance Horizons

In order to boost insight of internet governance knowledge, to nurture diversified professional internet governance talent, and to reinforce the



Figure 34 Former Commissioner Wei-Chung Teng speaks at the ICANN APAC-TWNIC Engagement Forum

Source: NCC

exchange and collaboration with international counterparts, the NCC held three rounds of college and university on-campus workshops over the internet throughout 2021 at National Cheng Kung University, National Yang Ming Chiao Tung University, and National Dong Hwa University, respectively; source of internet governance, disputes over digital sovereignty, and global internet governance trends were explored. In addition, the professional training course on internet governance entitled “2021 Internet Governance Seminar” was held to help talent broaden their horizons about internet governance and outstanding students were selected to attend international meetings as an incentive for the students to absorb opinions from multiple stakeholders, to explore solutions, and increase understanding of internet governance.

Prospects and Visions





The ubiquity of the internet along with rapid advancements in communications technology have led to the emergence of social media and cross-international network platforms and have driven both development and reforms of global communications. As 5G mobile communications technology standards and equipment gradually become mainstream, various types of vertical applications transform from a trial phase to commercialization. Likewise, non-landline networks such as international low-track satellite-based networks also continue to emerge and global internet applications are expected to give rise to even a greater range of potential, complicating governance. With the aim of facilitation, high-speed broadband network access lays a foundation for the rapid developments of digital platforms. It's worth noting that global revenue of digital audiovisual advertising surpassed that of traditional radio and television for the first time in 2020³. We can also expect that as we reach into the future digital contents will become even more instantaneous and immersive. Facebook, one of the largest social media platforms, changing its name to Meta is an early benchmark of this change, indicating that the parallel worlds or virtual reality and reality will no longer be resigned to science fiction. The development of communications technology are not only associated with economic and sociological impacts but also pertinent to the people's daily lives. From the national perspective, such developments can lay an enhanced foundation for the capabilities of the nation as a whole.

In August 2022, the Ministry of Digital Affairs, which had been under preparations for two years, was officially established, integrating the five major fields of communications, information, information and communication security, network, and broadcasting; this new ministry overseas

digital governance and digital infrastructures with a mission of most effectively facilitating the coming digital transformation for both the public and private sectors.

The NCC will continue to monitor the communications sector with the aim of protecting quality of communications service and maintaining healthy industrial development. With view to facing the challenges arising from the various issues arising of digital networks, in accordance with Article 3 of the National Communications Commission Organization Act, functions such as preparation, revision, and implementation of internet communications policies have been included establishing a mechanism that involves multiple stakeholders and one that features operational accountabilities undertaken in goodwill and cross-departmental management with the objective of protecting digital human rights and promoting positive developments of the internet.

Facilitating an Environment for the Communications Industry

In order to stay abreast of developmental trends in domestic and international communications industries, the commission continues to optimize the communications industry database and periodically investigates and analyzes changes in consumer behaviors. Statistical data concerning market dynamics of both domestic and international communications industries are compiled to facilitate objective assessments and to serve as reference for policy planning, regulatory harmonization, and operational governance.

In terms of the telecommunications industry, the commission compiles the latest technological and service market developmental trends while at the

3 Reference: PwC, 2021. "PwC Global Entertainment & Media Outlook 2021-2025".



same time reflecting upon the cost-based network structure, network elements, and estimating and analyzing demands in order to ensure a forward-looking fixed communications network cost model that answers to the industrial setting; it also aims to stipulate and propose corresponding regulatory measures, as well as consolidate and facilitate fair competition in the telecommunications market.

Turning to the broadcasting industry, despite the comprehensively digitization of cable television that has significantly increased the number of channels available for broadcasting, the two-digit channel block planning from the analog age continues to be adopted, resulting in the overcrowding of specific channel attribute blocks. In light of this, the NCC is currently stipulating a mechanism to segment and encode frequency shifts to digital cable TV. As part of the preliminary plan, in the future, channels will be comprehensively encoded with three digits and will be placed in respective blocks and broadcast accordingly. The transition will take place gradually and will not change the existing viewing habits of users. The commission held six workshops and one public hearing between January and June 2022 as part of its continuous commitment to gain feedback from all parties.

Perfecting Governance of Communications

Regulatory policies regarding telecommunications in the EU and advanced countries reveal that they have shifted from more restrictive control to emphasizing market competition instead. The minimum required general obligatory management has been generally adopted for telecommunications operators serving the general public. For SMPs, however, asymmetrical control is more the norm. The market presence of market leaders was adopted

as a determination criterion in the former Telecommunications Act while for SMPs. An even more objective, comprehensive, and systematic market evaluation mechanism was adopted in order to define specific telecommunications service markets where valid competition is yet to appear in order to identify SMPs. The special control measures helped boost competition, investment, and innovation of the communications market.

For communications governance, radio and television media plays a key role in imparting information and influencing public opinion, as well questioning government, protecting public interests, and safeguarding the environment, among others. When managing radio and television media, the NCC takes into consideration freedom of speech, social values, or moral criteria in order to ensure a diversified perspective; operator autonomy is prioritized. For example, courses such as educational training for radio and television operators are held to boost their professionalism. What's more, evaluations upon license renewals reinforces the autonomy mechanism of the media and enhances the operational performance. Second, it is the "heteronomy" that is made possible by means of public opinion and supervision. Regular reports on broadcasting supervision are published to deepen understanding of radio and television contents and performance that facilitates public involvement in supervision of radio and television media. Finally, it is the "law" that exercises regulatory power. The contents continue to be monitored as required by law. With this three-way mechanism, freedom of speech and the audiovisual rights of the general public can be maintained.



television programs, diversified culture in radio and television programs: disabilities, autonomy, and regulatory requirements, policies, and directives, and encourages radio and television operators to organize their own educational trainings on gender equity for their employees in order to boost media autonomy, enhance program quality, and impart accurate information.

Promoting Internet Governance

The National Communications Commission Organization Act was amended and announced in May 2022 and enforced on August 27 including the new Article 3 on functions concerning internet communications policies. In light of the cross-national and instantaneous nature of the internet, major democracies in the world consistently agree on the restrictions of the top-down control model of traditional governments and the fact that multiple stakeholders should be included in communications and coordination efforts. Meanwhile, multi-party collaborative governance and joint control over and shaping of conventions, as well as reinforced accountability, helps protect a free, safe, and trustworthy environment.

In response to the development of digital services and to address the needs in an age where everything is online, the commission drafted the Digital Intermediary Service Act with reference to applicable international regulatory requirements such as the EU Digital Services Act (DSA, draft) and having taken into consideration the domestic situation. It emphasizes “operator autonomy” and multi-party collaboration and involvement in internet governance in order to protect basic digital human rights, promote free circulation of information, and to form a free, safe, and trustworthy digital environment. Three rounds of differential public (explanatory) meetings were

held in August 2022; related intermediary service providers, non-governmental organizations, and scholars and experts were invited to express their opinions. The commission will carefully evaluate, take into consideration, clarify and investigate the feedback and analyze network-related issues, and continue to coordinate with respective parties to promote autonomy and governance of platforms in honor of the principle transparency and the essence of freedom, democracy, law and order.

In addition, in order to manage the regulatory challenges brought about by the cross-border, cross-industry, and diversified business models of OTT TV service providers, the commission approved and announced the draft framework of the “Internet Audiovisual Services Act” on May 25, 2022. Hierarchical management is planned to avoid increasing the burden for small businesses. The NCC may take into consideration the number of users and the significant essence of public interest and then announce the list of businesses that shall be registered and bore special obligations, such as setting up a section exclusively for contents or devotion to the production of domestic contents, or joining or establishing an autonomous organization, among others. In addition, to address the concern pertaining to the prevention and control of piracy and infringement of rights after the 2020 version of the draft was released, articles shall be added on related dispositions that may be imposed on violators of the Copyright Act.

As an independent regulatory authority for communications, the NCC remains steadfast and committed to new challenges and will take on new endeavors. It plans to stay innovative and communicative with all parties on future regulatory policies and control in order to protect the diversified, free, and safe nature of communications and the internet and to ensure that the rights of consumers remain free of concerns.

NCC Performance Report 2021

PUBLISHER : Yaw-Shyang Chen (Acting Chairperson of NCC)

PUBLISHED BY :  National Communications Commission

ADDRESS : No.50, Sec. 1, Ren'ai Rd., Zhongzheng Dist, Taipei City 100, Taiwan (R.O.C.)

WEBSITE : <http://www.ncc.gov.tw/>

TEL : +886-800-177177

RESEARCH CONDUCTED JOINTLY WITH : Taiwan Institute of Economic Research, Research Division IV

ADDRESS : 7F., No.16-8, Dehuei St., Zhongshan Dist., Taipei City 104, Taiwan (R.O.C.)

TEL : +886-2-2586-5000

DESIGN & EDITING : goworker@ms22.hinet.net

PRINTER : Qiwei Color Arts Company

SALES :

1. Government Publications Bookstore-1F, No.209, Songjiang Rd., Zhongshan Dist., Taipei City 104, Taiwan (R.O.C.)
2. Wunan Book Co., Ltd. No.600, Junfu 7th Rd., Beitun Dist., Taichung City 406, Taiwan (R.O.C.)

DATE OF PUBLICATION : December 2022

PRICE : NTD 200

GPN : 1011102162

ISBN : 978-626-7162-63-7

ALL COPYRIGHTS RESERVED BY PUBLISHER



National Communications Commission

ISBN 978-626-7162-63-7

00200



9 786267 162637