2018 NCC PERFORMANCE REPORT

NATIONAL COMMUNICATIONS COMMISSION

2018 NATIONAL COMMUNICATIONS COMMISSION PERFORMANCE REPORT

NCC

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Foreword

In light of the cross-industry convergence of communications being facilitated by the digital transformation, interconnectivity, and the development of technologies such as the cloud, big data, Internet of Things (IoT) and 5G on broadband networks, the competition among industries has steadily been shifting focus to one of providing innovative application services; consequently, a new industrial ecological environment has been emerging.

In order to apprehend changes in the communications industry and respond to regulatory trends and the needs of all individuals, civil groups, industries and academic entities to access information regarding development in the communications industry, and in accordance with Article 13 of the Fundamental Communications Act, NCC publishes annual performance reports along with specific recommendations for improvements concerning its core duties: the sound development of communications; protection of citizens' rights and consumer interests; promotion of diversified cultures; protection of the minority' rights and interests; and the provision of universal services.

This report consists of three main sections. *Chapter I Who We Are and What We Do* explains the role played by NCC in the communications industry in terms of NCC's organizational framework and operating model.

Chapter II Overview of General Performance highlights how in 2018, NCC, through various policies, amendments of laws and regulations, and application of the DIGI+ and progressive infrastructure development programs along with various ministries/departments, promoted the development of communications and the protection of the public's rights, boosting the digital economy and thereby bringing benefits of digital convergence to all.

With regards to specific communications policies, various changes have taken place. NCC has reduced both wholesale and retail telecommunication fees, strengthened power backup systems of mobile communications base stations, encouraged 3G subscribers to adopt 4G, completed the basic and operational management regulations for development of IoT, and also encouraged the innovative development of related application services supported by the high-speed and rapid broadband services at a fair price. Meanwhile, the commission continued to process the radio station licensing and promoted the complete digitization of cable TV. It has also encouraged operators to increase the broadcasting of locally-produced programs, engaged in cross-ministerial discussions about the development of new media services, enhanced the self-regulation mechanisms of media enterprises and continued to determine how to best improve the quality of audio-visual contents and protect the interest and right of consumers in Taiwan.

Turning to the areas of international participation and digital inclusion, NCC continues to actively participate in key international conferences and strengthen bilateral coordination with the aim of mutually benefiting from the strengths of digital convergence and the digital economy at both home and abroad. One of the main highlights was organizing APEC TEL 58, in which nineteen economies and eleven

international organizations, a total of 340 domestic/foreign representatives, were invited to attend, promoting the visibility of Taiwan on a global stage and strengthening ties with peers and experts across the region. Turning next to digital inclusion, by increasing access to broadband and accessibility of websites for the disabled and disadvantaged in remote areas, NCC, along with various ministries/departments, has strived to ensure access to telemedicine services and distance learning so that local communities can also benefit from digital convergence.

Turning to the update of legal framework for digital convergence, NCC has promoted the draft bills of the Telecommunications Management Act and Digital Communications Act, and added (amended) related radio and television rules in order to ensure laws and regulations remain updated. On May 31, 2019, the Telecommunications Management Act was passed by Legislative Yuan after the third reading. Accordingly, the broadband network environment and innovative communications services have become more well-founded, thereby resulting in increased development and growth of the digital economy.

With view to security systems, NCC continued to maintain the National Communications and Cyber Security Center, and supervised operators to fulfill and enhance their responsibilities and abilities in this area. Meanwhile, by virtue of the annual security system plan, NCC assessed the telecommunications business's disaster prevention and security management readiness with the objective of weakening the possibility of security incidents.

Chapter III Outlook and Vision describes that as Taiwan moves forward into the age of a digital economy, NCC is committed to strengthening communications infrastructures, which was demonstrated when the commission assisted the Executive Yuan in promoting comprehensive development of Gbps fixed network broadband, the acceleration of 5G development, smarter links, and innovative application services. In order to prevent emerging services from conflicting with existing laws and regulations and policies, NCC shall continue to urge the draft of the Digital Communications Act to be passed by the Legislative Yuan after the third reading, and amend radio and television regulations to encourage willingness of operators to invest in such areas as the construction of high-speed broadband network in remote areas, the proportion of locally-made programs, or provision of the 4K or 8K fine-quality contents.

With a strong foundation of information communications and comprehensive digitization, the ICT industry in Taiwan will be equipped for competitiveness and progress. Asides from encouraging the application of cloud, big data, AI and 5G across numerous industries and services, a key concern is improving quality of content and cross-disciplinary cooperation of the communications industry. In response to the transformation of existing business models and market structures brought by emerging technologies and services, and in order to improve policies and regulations and to promote an innovative infrastructure in Taiwan, NCC plans to continue to remain informed of the most recent developments in communications markets of other countries especially in regards to supervision and reform with the expectation that innovative digital services will be a key factor in boosting growth of the economy in Taiwan.

Who We Are and What We Do

Profile

Who We Are and What We Do

In response to the development of communications convergence and global regulatory reforms, the Fundamental Communications Act and The National Communications Commission Organization Act were promulgated in 2004 and 2005 respectively. Consequently, the responsibility for overseeing telecommunications and broadcasting was combined, which led to NCC being officially established on Feb. 22, 2006.

NCC is an independent agency established under the Basic Code Governing Central Administrative Agencies Organizations, dedicated to exercising its functions and responsibilities pursuant to laws independently. By referring to the experience of the management of communications in advanced countries, the Executive Yuan integrated the responsibilities of the Directorate General of Telecommunications and Government Information Office to oversee telecommunications and broadcasting and ensure that an independent regulatory agency could govern the communications sector. Consequently, NCC is responsible for the formulation of policies, regulatory oversight, market competition, management of resources and consumers' rights, adhering to values such as professionalism, diversity and efficiency, as well as for establishing a sound environment for the communications sector and upgrading digitization.

Functions and Responsibilities

According to Article 1 of the National Communications Commission Organization Act, the purpose of the NCC is to ensure people's freedom of speech, end state control of the media in order to protect its neutrality, enhance broadcasting standards, ensure fair and effective competition, protect the interests of consumers, respect the rights of minorities and disadvantaged, promote cultural diversity, and enhance national competitiveness. Meanwhile, according to Article 3 of the same Act, NCC is charged with the purview of the following duties:

- Formulate communications supervisory policy, and formulate, draft, amend, abolish and implement communications laws and regulations;
- Manage the supervision of operations of communications enterprises and approve and issue licenses;
- Review and inspect communications systems and equipment;
- Formulate technical standards of communications engineering;
- Regulate the rating system on communications contents and other legally designated matters;
- Manage communications resources;
- Maintain the order of competitive practices in communications;
- Standardize and manage communications security technology;
- Preside over major disputes between communications operators and consumer protection matters;
- Spearhead international affairs and international exchange and cooperation;

- Manage communications enterprise-related funds;
- Monitor, investigate, and establish rulings on communications operations;
- Penalize and discipline those that violate communications-related laws and regulations;
- Oversee other communications-related matters.

NCC Organizational Framework

In response to the transformation of the communications technology and industry, NCC adjusted its internal organization based on the hierarchical management model, in line with the amendments to the convergence laws and by referring to governance structure of the communications industry in other countries. The new organizational framework became effective on January 1, 2015 and includes 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 Budget, Accounting and Statistics Office (Figure 1).

Commissioners

According to Article 4 of the National Communications Commission Organization Act, seven commissioners are appointed, all of which shall be full-time positions and be nominated by the Head of the Executive Yuan (Premier) and appointed at the consent of the Legislative Yuan. Commissioners serve a four-year term and may be re-appointed to serve a consecutive term. The Head of the

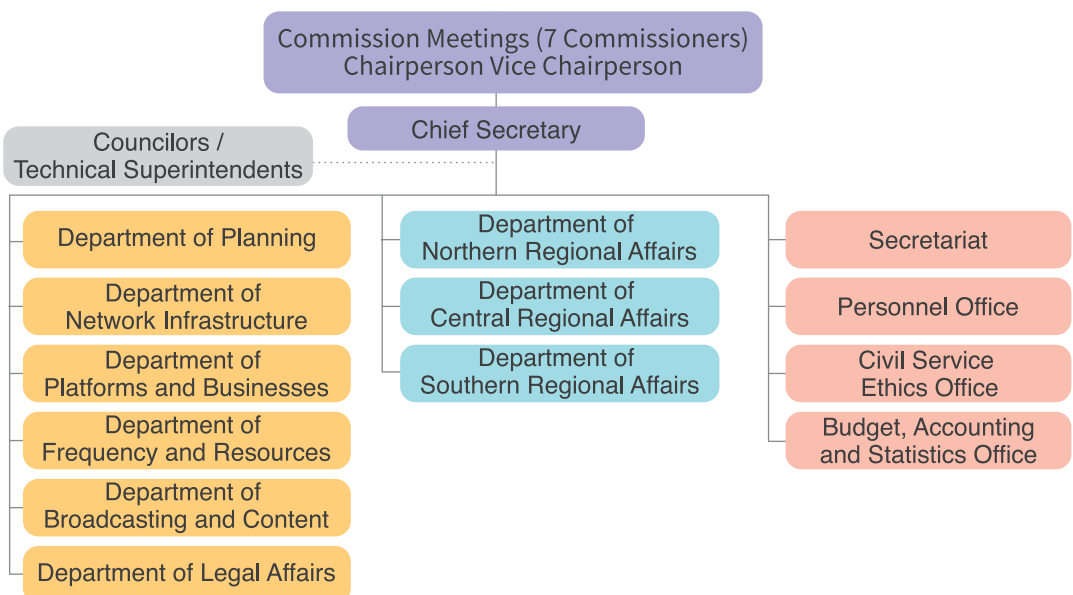

Figure 1 Organizational chart

Source: NCC

Executive Yuan (Premier) shall appoint one commissioner as Chairperson, and another as Vice Chairperson. The NCC Chairperson is of a special appointment and shall represent the NCC on all external affairs; the Vice Chairperson's position shall commensurate to abridged appointment of position rank fourteen; the remaining Commissioners' positions shall commensurate to abridged appointment of position rank thirteen. However, following the first amendment to the Act in 2008, three of the commissioners appointed for the first time shall serve a two-year term.

As of December 31, 2018, seven active commissioners had been appointed, namely Chairperson Chan, Ting-I, Vice Chairperson Po-Tsong Wong, and the other five commissioners: Chen-Ling Hung, Yeali S. Sun, Wen-Chung Guo, Yaw-Shyang Chen, and Wei-Chung Teng (in order of the number of strokes in their surnames). The commissioners are equipped with expertise and professional knowledge in the areas pursuant to laws and regulations, technology and the development of communications.

Overview of Operations

Operations of Commission Meeting

NCC is an independent agency adopting the collegial system. The Commission Meeting is convened primarily in order to execute the policies made by NCC and its affairs. According to Article 10 of the National Communications Commission Organization Act, the NCC shall convene a Commission Meeting on a weekly basis, and may convene interim meetings when deemed necessary.

NCC convened a total of 55 Commission Meetings in 2018, during which a total of 275 motions were resolved (Figure 2).

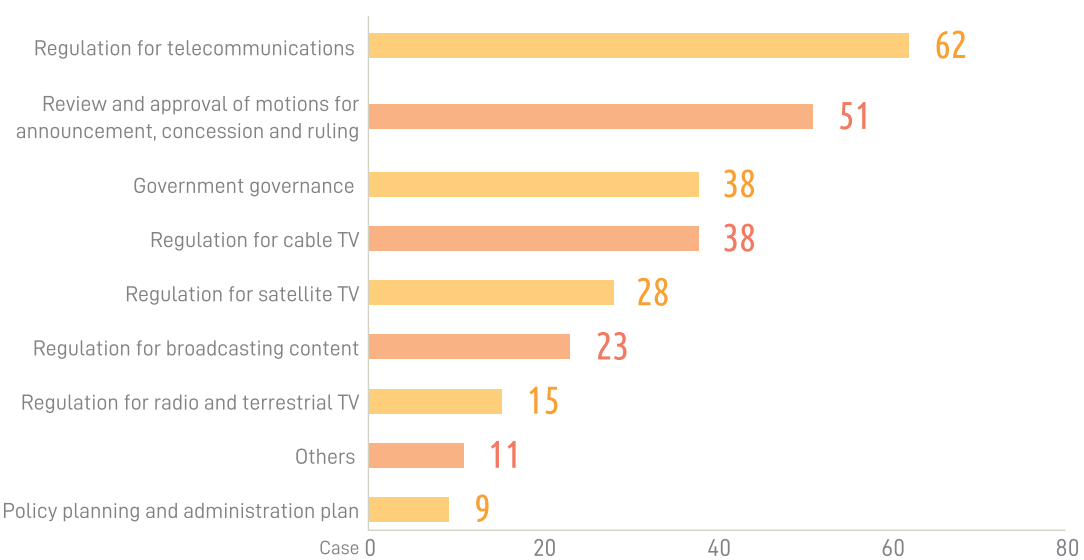

Figure 2 Motions resolved during NCC Meetings (782nd-836th, a total of 275 cases)

Source: NCC

Overview of General Performance

Overview of Communications Market

In terms of the growth of telecommunications users, as of December 2018, there were 29,220,000 mobile communications subscribers, 26,730,000 mobile broadband subscribers, 5,720,000 fixed network broadband subscribers, and 11,210,000 local phone subscribers. Although, the number of mobile communications subscribers and local phone subscribers has declined slightly since 2017, the number of mobile broadband subscribers increased by 2,300,000 indicating that mobile broadband usage has been adopted by the public as the mainstay service (Figure 3).

In terms of the number of fixed network and mobile broadband users, according to NCC statistics of December 2018, the number of fixed network and mobile broadband subscribers totaled 32,496,901, in which 4G subscribers accounted for 80.66%, much higher than the total of FTTX (11.31%), Cable Modem (4.36%), ADSL (1.94%), 3G (1.61%), PWLAN (0.11%) and leased line (0.01%) subscribers (Figure 4). This reflects the ubiquity of mobile broadband in Taiwan and indicates that Taiwan has the potential to boost innovative application services.

In terms of the radio and television development, cable TV and multimedia contents transmission platforms (such as CHT MOD) are growing fast. As of Q4 of 2018, the penetration rate of cable TV penetration rate had reached 99.95% (Figure 5). It is worth noting that comprehensive digitization of the cable TV services is virtually complete.

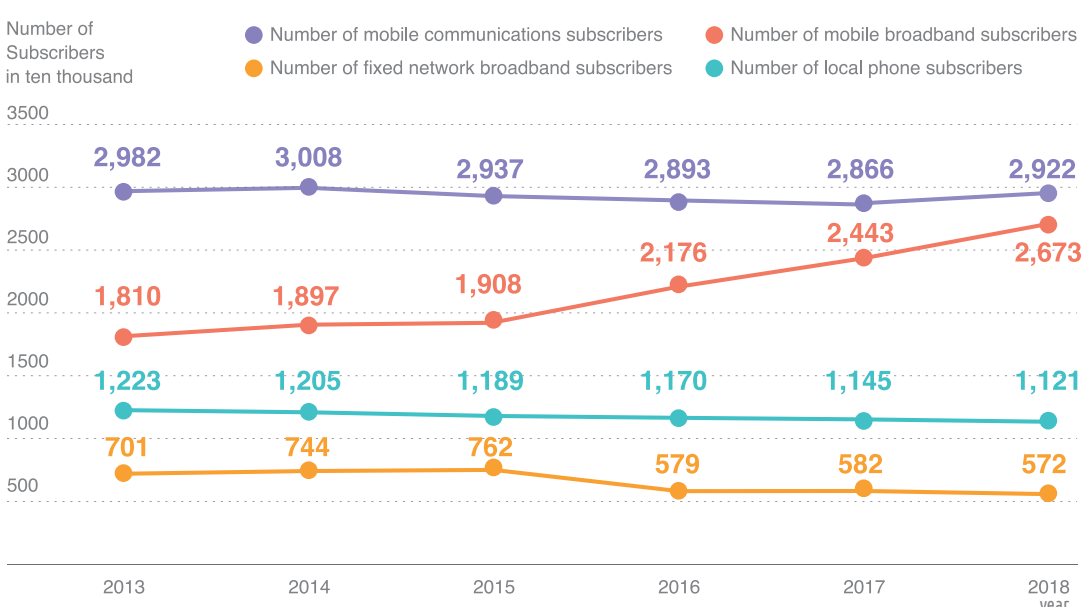

Figure 3 Growth of telecommunications users

Source: NCC

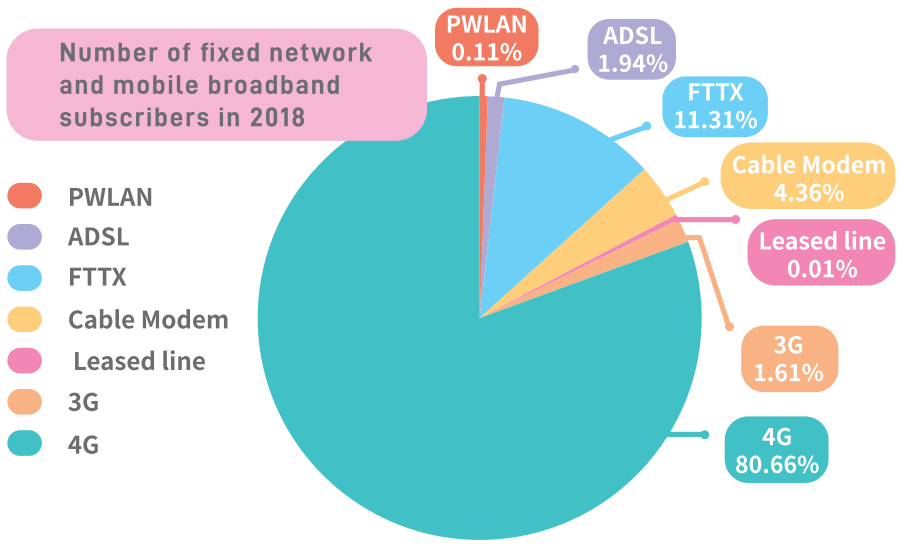

Figure 4 Number of fixed network and mobile broadband subscribers (2018)

Source: NCC

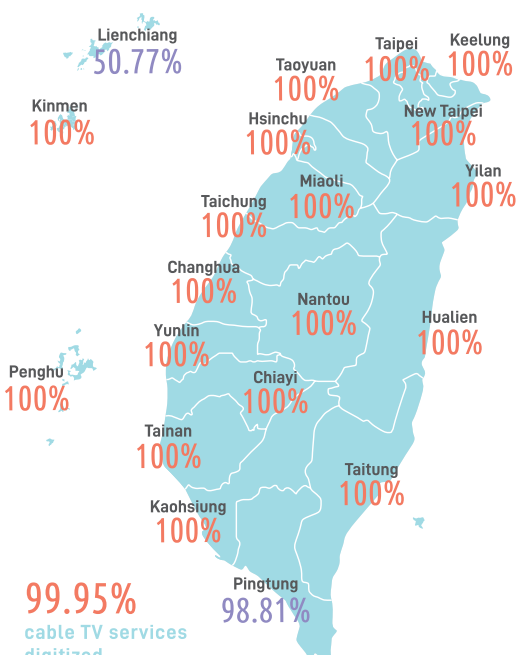

Figure 5 Digitization of cable TV services

Source: NCC

In terms of the development of multimedia content transmission platforms, in Q1 of 2015, there were only 178 multimedia platform channels and 1,286,077 subscribers throughout Taiwan. In contrast, by the end of Q4 of 2018, the number of channels had increased to 206 with the number of subscribers also showing steady growth by reaching 2,009,964 (Figure 6).

Establish a broadband society to facilitate the digital economy

Farewell to the 3G age

Upon expiration of the 3G service on December 31, 2018, existing 3G frequency band (2100MHz) was converted to 4G. At that point, Taiwan officially launched the 4G age. In order to protect rights of consumers, NCC announced the Action Plan for Protection of Users' Interest and Right Upon Termination of 3G Service, in which operators were urged to promote relevant measures and related alternate plans to achieve

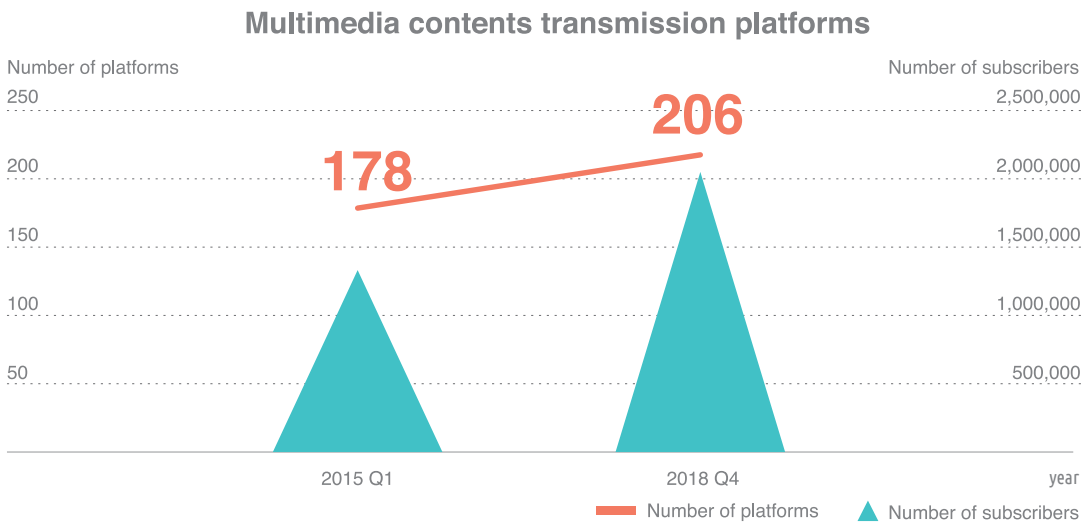

Figure 6 Development of multimedia contents transmission platforms

Source: NCC

successful conversion with "zero impact and no dispute" (Figure 7).

Furthermore, on April 18, 2017, the Executive Yuan announced amendments to the "List of Operating Items and Scope, Timetable for Deregulation, and Number of Operators to be Allowed for Type I Telecommunications Enterprises" so that the 1800MHZ frequency band could be included into mobile broadband services of mobile communications network services. NCC successively issued mobile broadband service licenses, and reviewed the first-phase mobile broadband business project proposal and the application for changes of the second-phase mobile broadband business project, respectively. Meanwhile, during the 796th meeting (Apr. 11, 2018), 809th (Jun. 29), 824th (Oct. 3), and 836th meeting (Dec. 26), NCC resolved to issue special licenses in the 2.1GHz and 1.8GHz frequency bands which were awarded to CHT, Taiwan Mobile, FETnet and T STAR during the third mobile broadband business tender.

Update 5G spectrum and increase IPv6 utilization

As part of the digital economy, smart connection provides intelligent services, such as smart transportation, smart medical care or Industry 4.0 by combining such technologies as 5G, IoT and AI. Consequently, business models of various industries have changed significantly. NCC has therefore been striving to promote 5G technology and popularize IPv6 with the objective of updating the smart connection infrastructure in Taiwan. As part of its promotion of 5G, NCC plans to launch the first 5G spectrum, complete 5G spectrum inventory, issue licensing, promote plans to adapt the innovative application laws and regulations, including the 5G medium frequency band (3.3-3.7GHz) empirical measurement results, and clearly explain the design of measurement experiments and results (Figure 8).

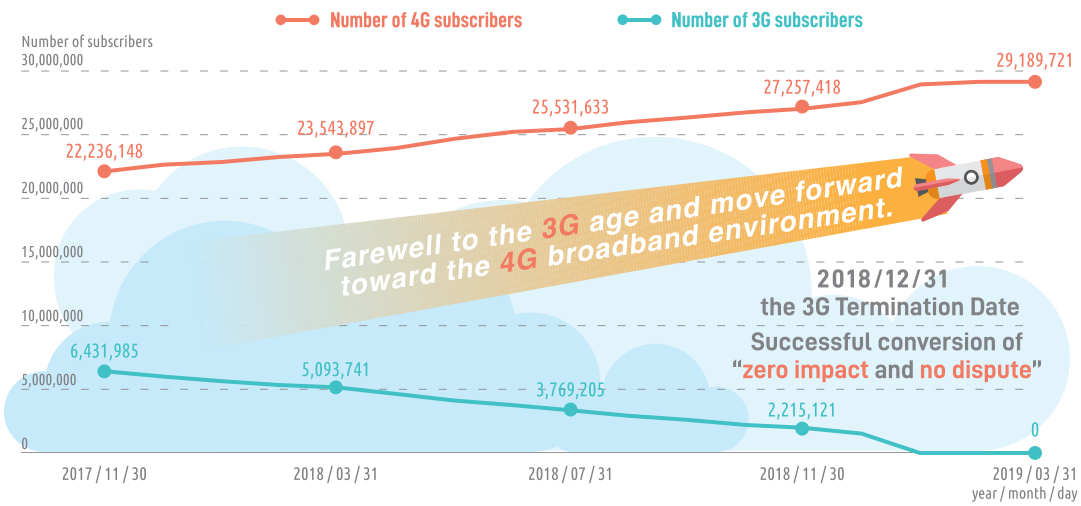

Figure 7 Number of 3G and 4G subscribers

Source: NCC

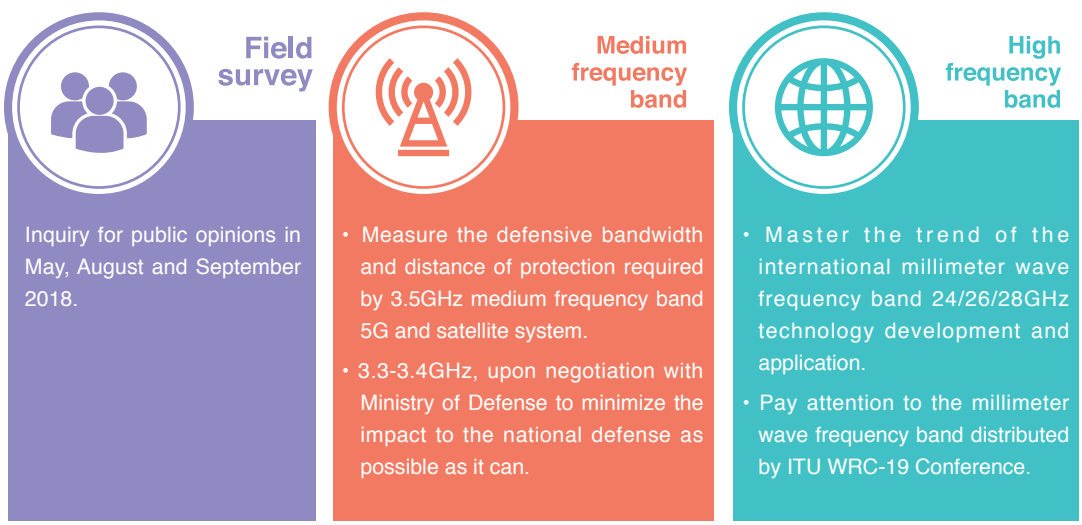

Figure 8 Descriptions of spectrum inventory

Source: NCC

In view of industrial innovation and development, as well as the ubiquity of internet applications, the network infrastructure environment in Taiwan shall be promptly transformed from IPv4 to IPv4/v6 to ensure supply of IP addresses and the future development in the communications industry and technology. NCC has been promoting commercial IPv4/v6, in line with the strategy of establishing a precise IPv6 environment in Taiwan so as to enable network subscribers to convert and upgrade services conveniently. Prior to launching commercially, measures focused on consulting and assisting telecommunication

enterprises in solving issues as part of the pilot field trial (including use by customers on a trial basis). In order to achieve the ultimate goal, NCC has endeavored to access various sections or interfaces on the full path via end user, access service, core network, and application services to ensure IPv6 readiness.

With combined efforts from NCC and the other sectors, the IPv6 utilization rate has increased from 0.46% on January 1, 2018 reaching 29.64% at the end of December 2018, demonstrating the highest growth rate of IPv6 in the world (Figure 9).

Upgrade telecommunications service quality

NCC has made the results of fixed network access services and network access services provided by various operators available to the public on its website; the commission imported data regarding fixed network access and mobile network access, recorded measurements on major roads, counties, transportation systems and national highways. These activities urge operators to continue to improve wireless access network bandwidth and increase the number of base stations, and increase mobile broadband speeds year by year, ultimately providing consumers with a more efficient mobile broadband experience (Table 1).

Facilitate the disaster prevention and relief communications platform

In order to boost the Enhanced Mobile Communications Base Station Disaster Prevention Power Backup Subsidy Plan, NCC selected existing stations nearby to the areas prone to disaster or remote areas, based on the key evacuation and shelter locations, emergency response centers, or other important

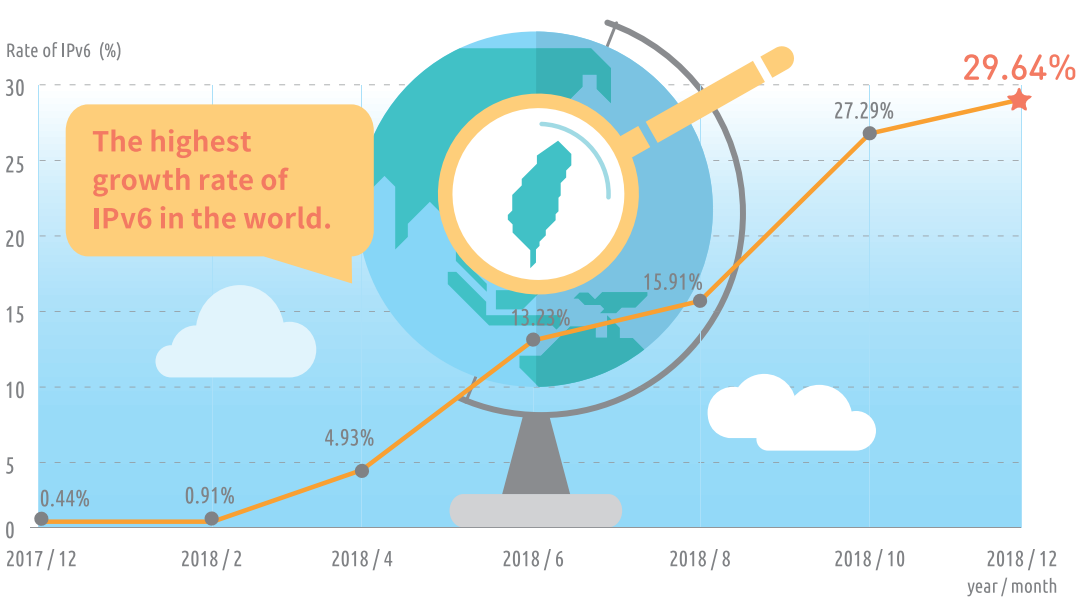

Figure 9 IPv6 utilization in Taiwan

Source: APNIC

Table 1 Fixed network measurement results from June to October 2018

	Average throughout the nation (Mbps)	Speed rate (decile) (Mbps)	Speed rate (5 decile) (Mbps)	Speed rate (9 decile) (Mbps)
4G download speed rate	95.42	44.82	92.22	150.16
4G upload speed rate	26.43	12.78	27.00	38.89
Cloud download speed rate	82.93	39.07	79.74	131.5
Notes to speed rate (decile)		The speed rate (decile) means that 90% of the measurement data statistic results are higher than the speed rates referred to herein.	The speed rate (5 decile) means that 50% of the measurement data statistic results are higher than the speed rates referred to herein.	The speed rate (9 decile) means that 10% of the measurement data statistic results are higher than the speed rates referred to herein.

Source: NCC

locations listed in the local governments' disaster prevention and relief plans. As a result, a total of 79 mobile communications base stations with disaster prevention backup power have been constructed, an increase of 132%. Up until the end of 2018, under the "Enhanced Disaster Prevention and Relief Mobile Communications Infrastructure Construction Plan", a total of 56 fixed disaster prevention and relief mobile communications platforms and 26 mobile ones had been constructed in the areas prone to disaster or remote areas; the survival rate of base stations also jumped to 99.49% and the mobile emergency communications service support capacity increased by 1.3 times (Figure 10).

Figure 10 Disaster prevention and relief mobile communications cars

Source: NCC

Improve mobile signals on trains

Considering that broadband signals can be frequently interrupted in tunnels, NCC has completed the installation of telecommunications equipment such as 'leaky cables' in 21 tunnel sections on the North Link Line to provide more effective signal coverage and mobile broadband access in the North Link Line. The test results show that mobile signals may be received without interruption in tunnel sections of the North Link Line. NCC plans to continue to periodically convene the "Coordinating Meeting for Promotion of Mobile Broadband Signals to Cover Taiwan Railways' Eastern Line" to discuss with operators how communications quality in tunnel sections of North Link Line and Hualien-Taitung Line can still be improved. NCC is continuously engaged in improving the signals alongside the railways of Taiwan, in hopes of enabling passengers to enjoy the benefits of broadband services while taking railways (Figure 11).

Promote development of radio & television and protect the rights of audience

Promote digitization of cable TV

In order to complete the comprehensive digitization of cable TV, NCC announced the "Cable TV Operational Area Division and Adjustment and Acceptance of Application for Operation of Cable TV Services" in 2013, accepting applications from new operators to launch services and permiting existing operators to change the cross-region operations. In 2016, NCC implemented the Regulations Governing Implementation of Cable TV Digital Switchover Experiment Area Plan, which established a prerequisite that new operators in the market should be comprehensively digitized, and that existing

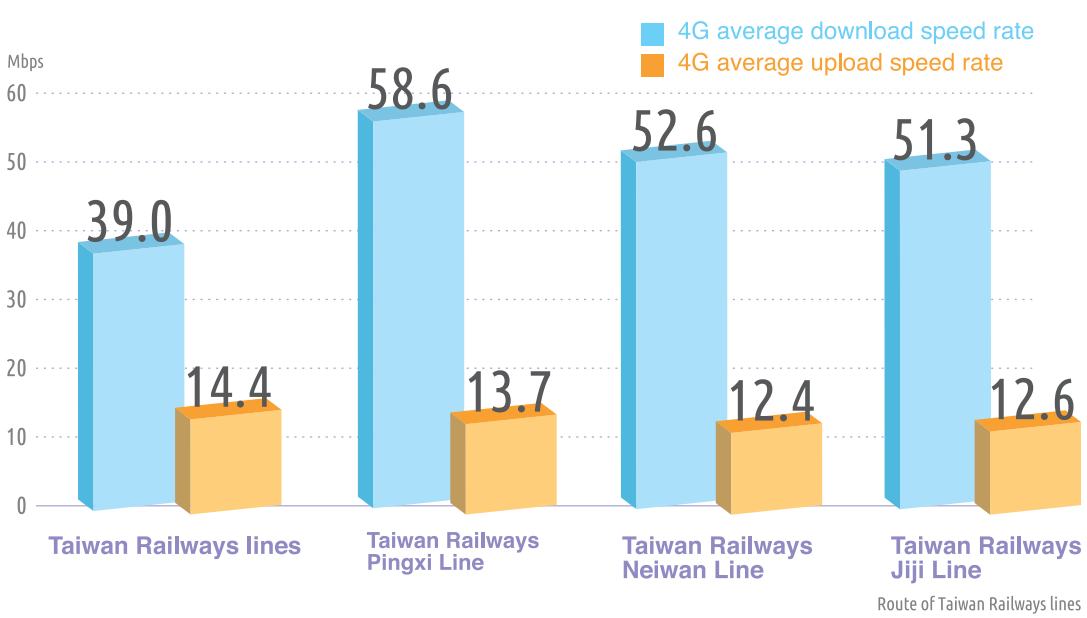

Figure 11 Mobile broadband speeds on Taiwan railways

Source: NCC

operators should complete digitization by formulating policies, enabling cable TV development to become more diversified.

Up until the end of 2018, 57 cable TV operators had achieved full digitization. The penetration rate of cable TV digital service reached 99.95% accordingly (Figure 12). By virtue of the digital switchover, NCC hopes that consumers can be provided with more diversified high-definition audio-visual programs, broadband internet speeds can be raised, and the foundation for digital innovative services like smart life and smart medical care can be enhanced.

Promote multiple payment mechanisms for cable TV

In order to build the upstream and downstream development of radio and television media, on January 16, 2019, NCC proposed the draft of amendments to the Cable TV Operators' Charge Rate, requiring that the operators provide at least two high-definition or ultra-definition basic channel packages. According to the draft amendments, NCC conditionally permitted a monthly charge of no more than NTD600 to enable the channel operators to earn more license fees and upgrade the quality of content production, and also encouraged the operators to provide innovative services. Upon passage of the draft, NCC shall send a regulatory notice and convene a press conference for its promotion (Figure 13).

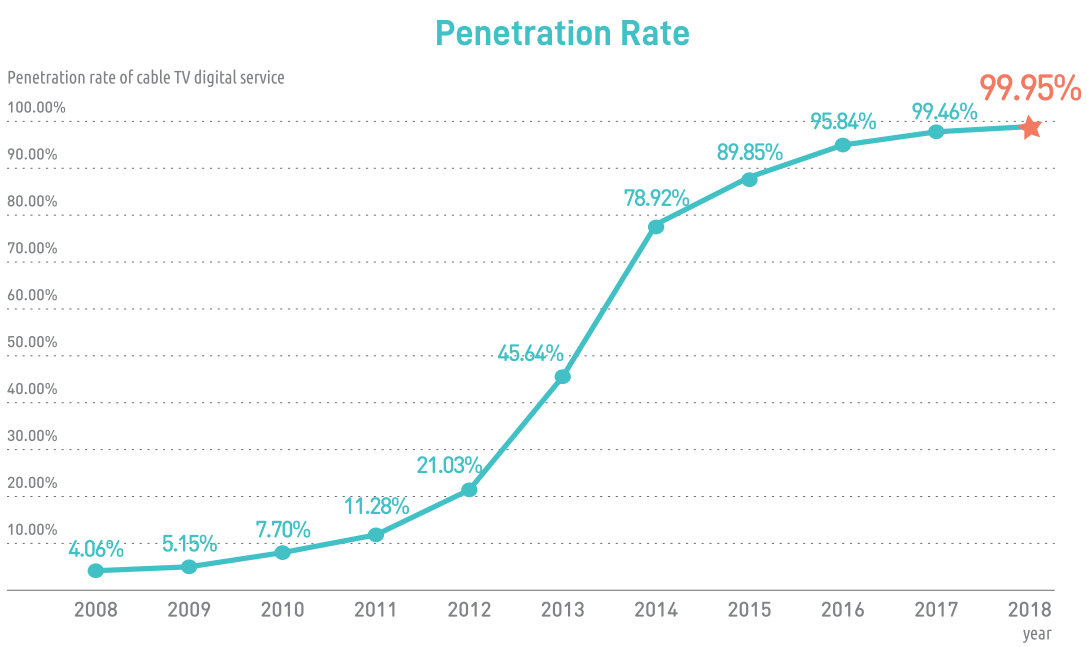

Figure 12 Digitization of cable TV since 2008

Source: NCC

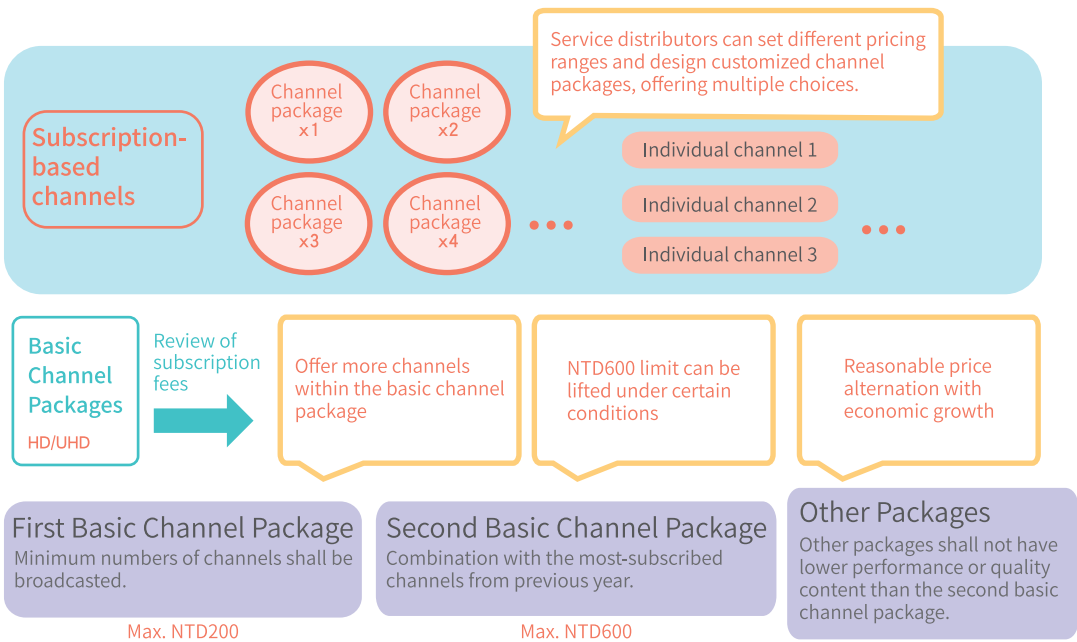

Figure 13 Planning of cable TV multiple payment mechanism

Source: NCC

Boost domestically-produced programs

In order to promote the value of diversity and protect Taiwan's cultures and to upgrade the quantity and quality of domestically-produced programs, NCC promulgated "Regulations on Terrestrial Television Business Broadcasting Domestically-Produced Programs" and "Regulations on Satellite Broadcasting Program Supplier Broadcasting Domestically-Produced Programs" on December 27, 2016, requiring that NCC conduct inspections on the quantity and new broadcast ratio of domestically produced programs broadcast by terrestrial TV and satellite channels per six months pursuant to laws. In the second half of 2018, the broadcasting by terrestrial TV was considered satisfactory. Although two satellite TV channels were found failing to meet the requirements, the situation improved compared with the first half of 2018.

Since regulations governing domestically produced programs were implemented, the channels for broadcasting of domestically produced programs have increased thereby enabling audiences of different viewing platforms to watch high-quality domestically-produced programs; both terrestrial TV and satellite channels plan to continue to release different types of domestically produced programs and also produce a variety of diversified dramas. During 2018, the five terrestrial TV operators in Taiwan broadcasted domestically produced dramas during peak viewing times (20:00~22:00) for a total of 2,055 hours, including the new broadcast of dramas for a total of 1,300 hours. Further, the

broadcast of domestically-produced programs in the designated time interval for dramas, movies, variety shows and children's programs on the satellite channels reached a total of 37,090 hours, including the new broadcast of programs for a total of 23,532 hours (Table 2).

Ensure verification of facts and promote media literacy education

With view to urging radio and television media to verify factual information of news broadcasts, protecting key values of public trust and professionalism, NCC convened a conference entitled, Fact verification of news when quoting network information, as well as a second conference entitled, Fact verification of news and internal control mechanism to maintain public trust in June and October 2018, respectively.

During the first conference, NCC restated that operators should comply with Article 27 of the Satellite Broadcasting Act, and should undertake verification procedures and self-regulation under the principles of fairness when producing news and opinions. By periodic evaluation and re-issuance of license mechanism, NCC also urged the news channels to review the internal control over production of news, fulfill the standard operating procedures, and strengthen the workers' professional education and training. Meanwhile, during the second conference, NCC discussed recent disputes to verify the relevant self-regulation and execution methods adopted in the process of TV news production (Figure 14).

Table 2 Domestically produced TV programs and new broadcasts

5 Terrestrial TV Operators	Total in 2017	Total in 2018
Total hours for domestically produced dramas	2076.3	2054.9
Total hours for domestically produced and new broadcast dramas	1474.8	1299.4
Satellite channels	**Total in 2017**	**Total in 2018**
Total hours for domestically produced programs	35,566	37,090
Total hours for domestically produced and new broadcast programs	21,701	23,532

Source: NCC

Figure 14 Conference of "Fact verification of news and internal control mechanism to maintain the public trust"

Source: NCC

Ensure prompt international coordination and enhance internet governance

Host the APEC TEL58 International Conference

The Asia-Pacific Economic Cooperation (APEC) is an important economic cooperation and development organization for the Asia-Pacific region. Taiwan has consistently participated in APEC activities with view to exchanging information and strengthening ties with various countries across the region. APEC conferences also provide Taiwan with an opportunity to gain understanding of international trends, share recent developments of communications in Taiwan and enhance cooperation with government-industry-university-institute alliances in international communications. The TEL 58 Conference was hosted by NCC at the Taipei International Convention Center from September 30 to October 5, 2018. NCC, along with various participating economies, organized seven seminars to discuss relevant issues, such as enhancement of citizen's digital literacy, disaster prevention and relief application of IoT, social network governance, broadband services, smart cities, digital economic strategies, and emerging technologies for e-Government.

During the week-long discussions, NCC hosted three round-table conferences: Enhanced Citizens' Digital Literacy discussing digital abilities and safe digital environment and focusing on digital inclusion and enhanced ICT skills; Smart City Experience Sharing in which representatives of Taiwan and other countries proposed related strategies and suggestions regarding the challenges and opportunities of digitization relevant to development smart city; and lastly, Best Practices for Promotion of Broadband Universal Service, which enabled Taiwan and other countries to share developments and results of broadband universal service with each other, reaching consensus on the sustainable promotion of universal service technology, strategies and policy objectives. TEL 58 was attended by a total of 19 economies and more than 340 participants, which was a record number (Figure 15).

Asides from participating in international conferences, NCC also endeavors to exchange information with other competent authorities overseeing communications. In one such exchange, French ARCEP Chairman Sébastien Soriano visited NCC on May 13, 2019, sharing views on 5G development strategies, 5G spectrum licensing and online platform specifications with the deputy Chairperson, Po-Tsong Wong, Commissioner Wen-Chung Guo and Commissioner Chen-Ling Hung (Figure 16).

Figure 15 Attendees of APEC TEL58 International Conference

Source: NCC

Figure 16 NCC with French ARCEP

Source: NCC

CommunicAsia 2018 Summit

The CommunicAsia Summit is a technology event in Asia that has been regularly held in Singapore, serving as an important platform for exchange among communications industries in Asia, and is one of the largest for the communications industries across the Asia-Pacific region. NCC Commissioner Yaw-Shyang Chen led the delegation to CommunicAsia 2018 Summit held from June 25 to June 28, 2018 discussing opinions with the government-industry-university representatives from various countries about the digital economic development-related issues.

During the forum, Commissioner Chen exchanged opinions on the development of Taiwan's communications market, including 5G and IoT technologies, AI, big data and data economy with representatives from various countries and industries. The commissioner also exchanged opinions on the emerging regulatory framework for convergence encompassing issues such as 5G frequency policy planning, personal information protection, cyber security policy, Telecommunications Management Act and draft of the Digital Communications Act. The exchange helped Taiwan gain valuable experience in integration of communications and information environments, and by sharing opinions with others, Taiwan's international visibility was meanwhile enhanced (Figure 17).

Asia Video Summit 2018

The Asia Video Summit is held by the Asia Video Industry Association (AVIA) annually and serves as an important platform for exchange in the audiovisual market in the territories of Asia. The Asia Video Summit 2018 was held in Hong Kong and ran from October 29 to November 1. NCC Commissioners Chen-Ling Hung and Yaw-

Figure 17 Commissioner Yaw-Shyang Chen and the Director of Singapore IMDA Policy Planning Division, Ms. Alileen Chia

Source: NCC

Shyang Chen led a delegation to the event. The summit covered extensive issues, including analysis on the status of the audiovisual industry, how emerging videos redefine pay TV, industrial diversification development, responsive strategies against emerging video piracy, and impact of 5G high-speed mobile broadband on the audiovisual market, which sufficiently reflected the intensive competition in the audiovisual market in the convergence age (Figure 18).

In light of the fact that NCC is committed to enhancing development of upstream and downstream industrial chains, establishing active space for audiovisual content innovation and protecting consumers' rights of viewing, participation at the summit enabled NCC to gain deeper understanding of development trends of the video market of various countries in Asia, including the key issues and responsive strategies related to the current market competition in various countries, serving as e reference for NCC when researching and drafting related policies.

Figure 18 Asia Video Summit 2018

Source: NCC

Establish iWIN to oversee cyber security of children and youths

According to Article 46 of the Protection of Children and Youths Welfare and Rights Act, NCC shall call on the Ministry of Health and Welfare, Ministry of Interior, Ministry of Education, Ministry of Culture and Ministry of Economic Affairs to contract private organizations to establish the Institute of Watch Internet Network, iWIN, in order to take concrete and feasible necessary prevention measures and establish internet security mechanisms for children and youths. The public can immediately report any inappropriate contents to iWIN once found. During 2018, iWIN accepted a total of 5,599 public complaints filed by the public and were able to respond within three or four days on average.

In 2018, iWIN adopted various approaches and activities to maintain cyber security for children and youths. For example, it continued to promote and provide multiple domestic and foreign free filtering and prevention software on its website, promoted the filtering service

of domestic internet access service providers, and also instilled greater awareness of cyber security for children and youths in various schools. iWIN also periodically convened the Multiple Stakeholders' Advisory Meeting, holding four meetings throughout 2018 to facilitate communication with various sectors. Meanwhile, iWIN worked with Taiwan's Microsoft, Trend Micro, ASUS, Facebook and Criminal Police Department 165 Anti-Fraud line to organize promotional activities in Taipei IT Month (Figure 19), Hualien Jhih Ka Syuan Forest Park, Kaohsiung Shoushan Zoo and Taichung Caowu Squar in order to promote concepts concerning cyber security and raise public awareness of devices and practices to protect cyber security.

Figure 19 NCC Chairperson Ting-I Chan attends Taipei IT Month

Source: NCC

Construct an environment of ubiquitous convergence

Promote broadband access in remote areas

Accelerating ubiquity of access to the broadband network in remote areas thereby reducing the divide between urban and rural areas has become a primary concern of many countries globally and is also a key in boosting market development. By executing the DIGI+ program, the 2018 Gbps coverage rate in the non-rural areas of Taiwan reached 54.2% and has thereby facilitated a sounder environment for development of the digital economy.

In order to enable those in more remote areas to benefit from high-speed broadband, NCC announced that it would accept applications for subsidy under the "Penetration of Broadband Access Infrastructure in Remote Areas Plan" according to the "Directions for Subsidy to Penetration of Broadband Access Infrastructure in Rural Areas", with the aim of reducing operators' costs and increasing their willingness to construct infrastructure under the principle of fifty-fifty profit sharing policy between government and operators. By the end of 2018, a total of 442 plans had been determined to satisfy subsidy standards, including the establishment of a Gbps fixed broadband network in 22 remote areas, establishment and expansion of 100Mbps fixed broadband networks in 90 villages in the rural areas, expansion of 241 Wi-Fi hotspots and increase of 89 4G mobile broadband base stations (Figure 20).

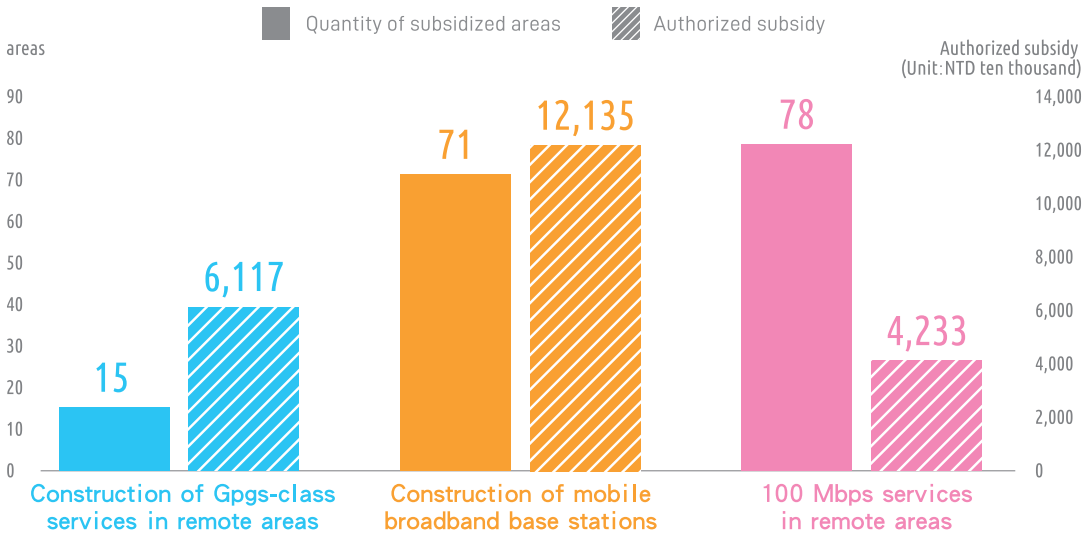

Figure 20 Penetration of broadband access and infrastructure construction in remote areas

Source: NCC

NCC shall continue to fulfill the demands for Gbps in rural areas, 100M in villages, expand Wi-Fi hotspots and increase the 4G mobile broadband base stations in rural areas, and shall adhere to policies of related ministries/departments to mitigate the digital divide between urban and remote areas.

Ensure that all people have equal access to information

During 2018, NCC coordinated with the Special Education Center of National Taiwan Normal University to present "Barrier-Free Communications Access Environment Initiatives" in an easy-to-read format, so that people with dyslexia or intellectual disabilities can understand the government's sincere intent to protect the interests and rights of people with disabilities. Meanwhile, NCC also planned a total of six conferences for the Web Content Accessibility Guidelines (WCAG) 2.0 and APP Accessibility Development Guidelines and a total of ten sessions for the WCAG 2.0 training courses. A total of forty trainees attended the WCAG 2.0 Disabled People Test and Re-training Courses (Figure 21). NCC also plans to continue to promote the accessibility webpage logo certification and testing services. In 2018, a total of 444 applications were certified by NCC as AA grade, and 7 applications as AAA grade. It is expected that the relevant measures regarding web accessibility will become more common, ultimately improving accessibility of information for people with disabilities.

Organize evaluation of TV programs for children and youths

In order to encourage TV operators to produce and broadcast suitable programs for children and encourage parents and children to view the programs together, NCC amended the qualified-age label to expand the scope applicable to the children at the age no more than 15 years old. Moreover, the original Qualified-Age Children's TV Program Label

Figure 21 Re-training courses for the disabled in Taipei

Source: NCC

was renamed as the Qualified-Age Children's and Youth's TV Program Label.

Meanwhile, NCC contracted a third party to organize the evaluation on Qualified-Age Children's and Youths' TV Programs. In the first half of 2018, a total of 82 programs for children and youths were awarded with the qualified-age label certification, with a further 83 children and youth programs being awarded with the label during the second half of 2018 (Figure 22). By promoting this labeling System, NCC has urged TV operators to improve quality of programs to provide children and youths with a more wholesome viewing environment. What is more, evaluation results can serve as reference for the viewing choices of parents and children/youths, driving a positive cycle in the audiovisual industry.

Update the legal framework for digital convergence and encourage innovation

The Telecommunications Management Act

The existing legal framework for Taiwan's telecommunications enterprises refers to a vertical diversion control framework classified

Figure 22 Promoting high-quality programs for children and youths

Source: NCC

under traditional telecommunications in which the market access threshold appears to be strict. In order to solve the difficulties in the communications market, NCC implemented the hierarchical management (Figure 23) into the regulatory framework of the Telecommunications Management Act to enable same services to apply the same control as much as possible; for instance, adoption of a registration system for telecommunications services, abolishment of the classification of telecommunications services, and reduction of the threshold for other operators to access the telecommunications market. Further, by the characteristics of the development of services provided by operators, the business obligation is divided into general obligations, special obligations or other relevant statutory obligations to ensure consumers' rights and public interests. If the controlled party is an operator with a prominent market position, as identified by NCC, special control or corrective action shall be taken against it to promote more balanced competition in the industry.

NCC proposed the draft of Telecommunications Management Act at the end of December 2016. In April 2017, the Executive Yuan was requested in writing to review the draft. Then, the Executive Yuan forwarded the draft to the Legislative Yuan for review on November 20, 2017. On April 12, October 31 and November 26, 2018, NCC attended three review meetings for the draft of Telecommunications Management Act at Legislative Yuan's Transportation Commission, and continued to assist in the process of review to strive for support. The Legislative Yuan passed the Telecommunications Management Act after the third reading on May 31, 2019. NCC is endeavoring to promptly complete relevant sub-laws with regard to licensing so as to establish a comprehensive regulatory legal framework for communications.

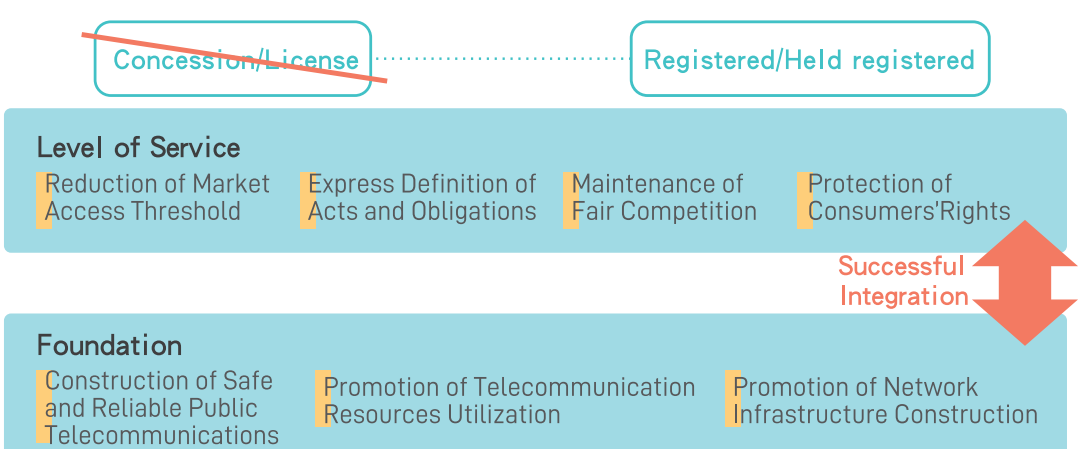

Figure 23 Hierarchical Management under the Telecommunications Management Act

Source: NCC

The Draft of Digital Communications Act

In order to promote digital communications, maintain penetration and access of digital communications services, and develop the digital economy (Figure 24), NCC established the draft of the Digital Communications Act with view to establishing comprehensive regulatory legal framework for communications and boosting the digital economy. The said draft is the first code in Taiwan engaged in promoting the digital economic development, enhancing internet governance, protecting the free circulation of digital information, maintaining penetration and access of digital communications services, promoting civil self-regulation and cooperation between public and private sectors, helping other laws, and resolving multiple network issues.

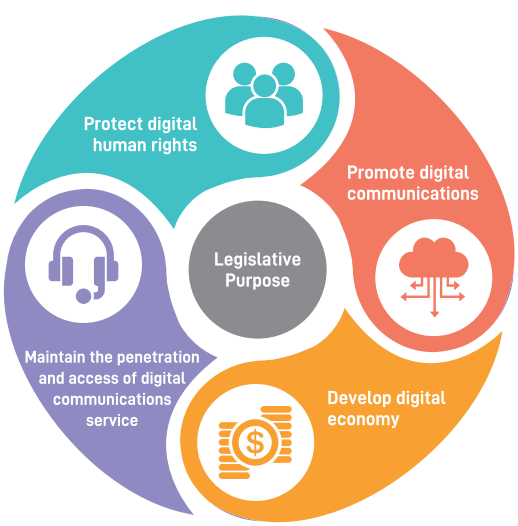

Figure 24 Functions of the Draft of the Digital Communications Act

Source: NCC

On April 18, 2017, the Draft of the Digital Communications Act was submitted for review to the Executive Yuan, which then resolved and passed the draft during its 3576th meeting on November 16, 2017, and forwarded the Draft to the Legislative Yuan for review on November 20, 2017. The Legislative Yuan's Transportation Commission reviewed the Draft item by item on May 24, 2018. The meeting of Executive Yuan on November 2, 2018 resolved that the Draft should be referred to the "Party Caucus for Negotiation". NCC plans to continue to explain to and communicate with the ruling and opposing parties at the Legislative Yuan and various sectors in order to seek support and complete the legislation procedure.

The Radio and Television Act

In order to protect freedom of speech of the media, maintain audiences' rights, and demonstrate high media professional literacy, NCC proposed the draft of amendments to the Radio and Television Act in part in 2018, including obligations of news self-regulation and verification of facts. The draft was reviewed and passed by Executive Yuan on December 13, 2018, and submitted to the Legislative Yuan for review on December 18, 2018.

The focus of the amendments resided in Paragraph 2 of Article 27 of the Satellite Broadcasting Act stipulating that "the produced and broadcast news violates the principle of fact verification and harmed public interests", while no similar requirements are provided in the Radio and Television Act. In order to make the degree of control consistent,

NCC included the draft amendments to the Radio and Television Act stipulating that TV operators engaged in producing news or other radio broadcast enterprises designated by the competent authority shall set up a self-regulatory mechanism and establish the basic regulations and requirements to be followed by members of the media organization. In the meantime, if operators violate the principle of verification and harm public interests when producing news, they shall submit the related content news to the self-regulatory mechanism and to the competent authority for review, which may add penalties for violation of the self-regulation and fact verification mechanism. It is expected that upon adoption of the amendments, the Act may strengthen public trust toward the radio and television media and maintain the stability of democracy and society in Taiwan.

Upgrade cyber security systems and strengthen the communications environment

Establish the National Communications and Cyber Security Center

In 2018, NCC established the National Communications and Cyber Security Center (NCCSC), which was officially launched after it was unveiled by President Tsai Ing-wen on November 15, 2018 (Figure 25); the NCCSC is engaged in connecting the online status of such communications operators as mobile communications, satellite communications, submarine cable communications, fixed communications, domain name server (DNS) and cable TV network, in order to achieve the goals of preparation, notification and response, and recovery for malfunction incidents in the Critical Infrastructure and network.

Meanwhile, NCC established the cyber security system for Critical Information Infrastructure (CII) to enhance the communications enterprises' collection and resolution of information concerning response to disasters, cyber security system and network operations.

NCCSC's cyber security mechanism consists of the two major information platforms, namely "C-NOC" and "C-SOC, C-ISAC, C-CERT". The establishment of NCCSC enhances the operational management, cyber security system, and disposition and response of Taiwan's communications network, effectively supervises operators to enhance the security protection of communications equipment and their ability for continuing operations, thereby protecting cyber security of the communications network and aiding in the construction of the national cyber security joint defense mechanism.

Figure 25 President Ing-wen Tsai and Chairperson Ting-I Chan participate at the ceremony of unveiling NCCSC

Source: NCC

Promote the cyber security testing system of IoT equipment

IoT has been identified as a key factor in the promotion of the digital economy. In December 2018, NCC officially adopted the IoT cyber security logo (Figure 26). The number of stars on the logo represents the level of cyber security testing level for the IoT equipment. Three stars signify that the cyber security protection level for the product satisfies the high standard. Adoption of the IoT cyber security logo makes it possible to choose different IoT equipment under different scenarios. For example, general users may select one or two star products, while government agencies or critical infrastructure founders shall select products that have been awarded two stars or more.

In the meantime, NCC also established the cyber security testing system with respect to such IoT terminal products as wireless interface, telecommunication or communications terminal equipment interface, and also announced the cyber security testing technical guide for wireless IP CAM, Wi-Fi AP, wireless router, network function MOD and cable TV set-top box successively in August and October 2018 and January 2019. Further, NCC plans to announce the draft of the cyber security guide for smart speakers, 4G broadband routers, Cable or xDSL modems, etc., as the reference for promotion of network equipment cyber security testing during 2019.

Figure 26 Information security certification logo
Source: NCC

Perform critical infrastructure protection drills

Since 2016, NCC has worked with the Office of Homeland Security of Executive Yuan to supervise telecommunication enterprises to carry out Class-1 critical infrastructure protection drills so as to verify the security protection mechanism and procedures for disposition and resolution adopted by the telecommunication enterprises' critical infrastructure. For the results generated in 2018, NCC completed one designated drill and infrastructure drill (Figure 27) for the national critical infrastructure in October and November, and independently supervised mobile communications and cable TV operators to complete the four critical infrastructure drills in November. By continuing to enhance the communications enterprises' fulfillment of critical infrastructure protection operations, NCC strengthened communications enterprises by maintaining basic network operations continuously and providing successful and safe communications network services.

Figure 27 Drill and war game for national critical infrastructure protection
Source: NCC

Outlook and Vision

Enhance Digital Foundation Construction

Given the future trends for IoT and smart life, 5G technology, which is equipped with such functions as ultra-high speed rate and ultra-low latency, will become an indispensable factor in facilitating the upgrade and innovation of industries, stimulating various vertical applications and transforming future lives. NCC plans to continue to actively promote the release of 5G frequency band, including 3.5GHz, 28GHz and 1800MHz frequency bands, and plan the bidding process for its acquisition based on the principles of fairness, efficiency and maintenance of market competition. Meanwhile, NCC shall to continue to study relevant regulations and measures helpful to the network construction in the 5G age. In response to the trend for construction of large number of small cell base stations in the 5G age, restrictions on establishment of base stations have been lifted for the time being to facilitate their construction. NCC has also passed the Co-RAN (Coordinated Radio Access Network) regulatory policy to allow operators to share certain network infrastructure to help them save network construction costs and accelerate the operators' improvement on coverage of the mobile broadband network signals. By releasing 5G spectrum and constructing the ultra-broadband network, NCC shall assist telecommunications enterprises to meet the 5G age with view to establishing a sound environment for the upgrade of domestic innovative application services.

Turning to the fixed network, NCC has adopted multiple administrative measures, such as rate review, digital experimental area planning, and cable fund utilization to achieve the comprehensive digitization of cable TV, so that individuals from all walks of life may gain access to the broadband highway as an alternative means to the telecommunications network. By promoting the "Digital & Innovative Infrastructure Action Plan" under the "Digital Nation & Innovative Economic Development Program" (DIGI+ Program) of Executive Yuan (Figure 28), NCC combined the powers from the Ministry of Transportation and Communications and Ministry of Interior to help operators cut costs of broadband construction and overcome difficulties in broadband investment, in order to enhance Taiwan's Gbps broadband network coverage rate and strengthen foundation for a variety of network digital applications in the future. Under the progressive infrastructure plan, NCC has also promoted the construction of Gbps broadband network in remote areas, namely extension of 100Mbps to the main tribes in villages/townships and expansion of Wi-Fi hotspots, so that people in these areas may enjoy high-speed fixed broadband network regardless of geographical locations.

In order to deal with complicated and changeable cyber security threats, upgrade network ability, and ensure that cyber security of various activities on the broadband communications network remains protected, NCC established the NCCSC, which is engaged in integrating the online status of the six major communications

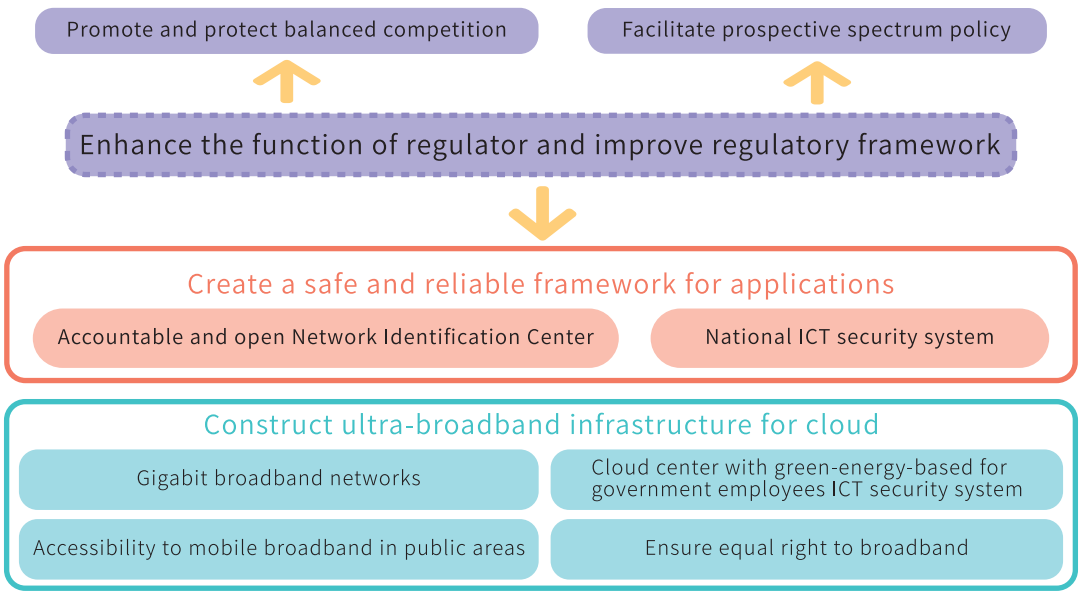

Figure 28 Digital Nation & Innovative Economic Development Program (DIGI+) 2017-2025

Source: Digital Innovation & Governance Initiative Committee, Executive Yuan

operators, including mobile communications, satellite communications, submarine cable communications, fixed communications, domain name server (DNS) and cable TV network, into the cyber security joint defense mechanism. NCC also constructed the cyber security monitoring platform, cyber security reporting and response platform, and information analysis and sharing platform under the cyber security flagship plan so that the entire communications enterprises' ability to report cyber security incidents and threats can be enhanced. Further, NCC has set up the IoT Cyber Security Testing Laboratory and Cyber Security Network Experimental Platform to analyze and research the cyber security threats in IoT networks and equipment. It also helped domestic network communications suppliers research and develop products, satisfying the cyber security standards and improving global competitiveness.

A sound foundation for digital construction is essential to promote Taiwan's comprehensive digitization and improve global competitiveness. Various emerging technologies and service applications, such as IoT, AI, big data, block chain, cloud and virtual reality, are expected to facilitate the comprehensive transformation of Taiwan's governments, economy and society. The influences of digitization are already clearly visible in various walks of life including industry, agriculture, medical care and finance. NCC plans to continue to endeavor to promote infrastructure to build the digital broadband environment and promote development of Taiwan's digital innovative application services.

Create a Sound Radio and Television Market

The operating revenue earned by the global entertainment and media industry is growing steadily. In particular, the scale of economy for emerging video is going from strength to strength with market value of online advertising also increasing. According to Research and Markets, the market value of emerging live streaming video is estimated to reach US$70 billion in 2021. Given the changes in the global radio and television market and digital innovation trend, advanced countries are aiming to determine the most effective way to respond to the new situations in the audiovisual broadcasting services. Industrially, various countries redefine the scope of radio and television enterprises, encourage emerging video platforms, and strengthen the protection of local culture. Socially, said countries continue to upgrade information and network literacy, and discuss such issues as how to mange fake news. The regulatory ideas and regulatory systems adopted by the regulatory authorities of communications under the communication policy in various countries should be updated in response to the technology development, and adjusted in a timely manner.

For the time being, the existing radio and television industry still renders considerable influence. Terrestrial and cable TV, as well IPTV, are the primary means for viewing audiences in Taiwan. Still, large-scale emerging video has gradually been taking hold, too. If the government authorities fail to adjust the traditional regulatory framework and lift the regulatory mechanism in response to industrial changes, it is expected that the radio and television industry will encounter tremendous challenges. Consequently, NCC shall continue to promote multiple payment mechanisms for cable TV, encourage operators to produce self-made contents, or modify product placements and sponsorship to enhance the existing radio and television market competitiveness. Meanwhile, NCC will also align with the international industry trends, continue to urge operators to adopt media self-regulation, fact verification mechanisms and improve quality of the existing radio and television industry.

In consideration of the international trend for 4K and 8K, and in order to provide domestic consumers with higher image quality and clearer audiovisual services, NCC plans to encourage platform operators to provide at least one multi-channel video platform to broadcast 4K UHD channels before 2020, and also encourage channel operators to broadcast ultra-definition programs. Meanwhile, NCC will also encourage operators to provide 4K or 8K services and increase the incentives for domestically-produced programs, with the aim of upgrading consumers' rights to view, stimulating industry and opportunities for export of related products, as well as improving Taiwan's global competitiveness.

With respect to the emerging video, as consumers access services from different countries and operators via the general vehicles, in order to promote media diversity and take into account market competition, cultural diversity and tolerance, and protection of children and youths, NCC plans to continue to work with other ministries/departments on the Taiwan OTT Exchange Platform to engage in discussions with multiple stakeholders on key issues, promote models for providing new types

of audiovisual content services and strengthen global ties.

Since digital convergence encompasses radio and television services, the issues of focus are increasing. In order to promote transformation of Taiwan's radio and television industry, NCC shall refer to the results of the 2018 "Communications Policy Green Book", and compile opinions from various sectors before further research and promotion of various issues about the communications policy.

Ensure Regulatory Coherence for Convergence

In order to ensure the opportunities for industrial transformation and promotion of digital economic development are best attained, NCC spares no efforts to promote multiple communications regulatory reforms; in particular, the drafts of the two acts, namely Telecommunication Management Act and Digital Communications Act proposed at the end of 2016, as the key to the environment in Taiwan's new generation communications industry. The draft of Digital Communications Act upholds connection with related laws in the tangible world to facilitate digital switchover and value of diversity as its core philosophy, which aims to maintain well-founded social order on networks. The Act also considers the borderless characteristics of the internet and adopts a model of internet governance in the convergence legal framework under which multiple stakeholders may participate in mutual communication and coordination, so that majority interests can be satisfied and minorities respected. It is also aligned with the principle of open government through introduction of public consultation and participation mechanisms, so as to enable all nationals to benefit from the outcomes generated by the convergence of technology under a sound legal framework.

The Telecommunications Management Act was passed after the third reading on May 31, 2019. Accordingly, telecommunications enterprises can utilize such rare resources as frequency in a harmonious, effective and flexible manner. Moreover, for installation and usage of the telecommunication infrastructure network, greater flexibility, such as self-contraction or lease, can accelerate the development and update of various telecommunication infrastructures, such as 5G, realize the construction of a high-quality ubiquitous network and lead society towards the development of smart cities which provide endless broadband services. The focus of the Telecommunication Management Act is threefold: (1) converge industry, encourage innovative services, and promote fair competition in the market; (2) promote the use of rare telecommunication resources as frequency and number in a harmonious, effective, fair and flexible manner; (3) enhance addition of digital convergence infrastructure network, maintain efficiency and network security. Upon promulgation and enforcement of the Act, a three-year transition period will be granted to enable the existing operators to adapt to the new law in a flexible manner. In the future, NCC plans to establish the related sub-laws authorized by the Act as soon as possible to solidify the foundation for creation of a broadband network environment and facilitating greater innovation, thereby facilitating the digital economic transformation and development in Taiwan.

The Telecommunication Management Act requires significant reform in the communications industry of Taiwan. Meanwhile, in consideration of 5G facilitating innovative application services, NCC plans to amend Administrative Regulations for the Establishment and Operation of a Telecommunications Network for the Academic and Education Purposes or Dedicated Experiments and Research and Development Purposes, and encourage telecommunication operators and innovative application service providers to develop 5G forward-looking spectrum technologies and vertical field services, and explore the emerging business models.

NCC also proposed the Communications Policy Green Book and the draft of Media Monopoly Prevention and Diversity Protection Act with the aim of updating the radio and television legal framework, upgrading communications technologies, ensuring consumers' rights, cultivating domestic productions by encouraging market access and competition. Likewise, incentives and governance of audiovisual content production is being promoted so as to revitalize development of the terrestrial radio and television industries.

NCC plans to continue to observe international trends and movement of industrial development, and particularly uphold principles of promoting use of data, enhancing broadband connectivity and infrastructure, strengthening network and information security, and encouraging self-produced contents and high-quality audiovisual services to engage in the communications regulatory coherence and research of alternative legal frameworks; maintain digital competitiveness of Taiwan's communications enterprises; adapt and integrate policies and legal systems and provide a sound regulatory environment to attract more new types of communication enterprises to enter the market, ultimately striking a balance between communications industry development and diversified communications.

Digital Inclusion

Under the forward-looking infrastructure plan, NCC provides access to high-speed broadband of fixed network in rural areas, enhances the base station disaster prevention power backup in the areas potentially affected by disasters or in remote areas, and upgrades the network quality and speed rate significantly in rural areas. Meanwhile, it assists various ministries/departments to promote the digital inclusion policies and provide digital teaching, telemedicine or links to local economies to improve the quality of life of people in such areas. NCC plans to continue to review the amendments to the telecommunications universal service system, which has been implemented for many years, and also include the non-economic regions in remote areas into the regions where the universal service is applicable, providing a universal service better than or equivalent to those provided in advanced countries.

Further, since 2012, various countries have started to increase access to communications services for people with disabilities. According to ITU report, approximately one-third of the countries globally were planning to research and develop a communications accessibility system with the aim of providing all people with the benefits of digital switchover and

improving digital inclusion. Taiwan also actively protects the rights and interests of people with disabilities to view a variety of digital contents. In addition to promoting the accessibility webpage logo certification and testing services, it has also amended laws to expressly define that the digital set-top box should be equipped with such functions as accessibility subtitles and multi-track output.

By encouraging people to increase their knowledge from a diverse range of media and their abilities in interpreting media, more people will be enabled to gain critical thinking skills so as to verify the substantive intent of the information. According to observations on the approaches adopted by advanced countries to promote the citizens' media literacy, education is the first priority, along with utilizing cooperation between public and private sectors and multi-ministerial cooperation to expand the benefits of influence. Consequently, the Ministry of Education of Taiwan has incorporated media literacy into the core literacy projects in various fields of elementary schools and junior high schools and also identified it as one facet of lifelong learning. NCC also promotes media literacy in the radio and television enterprises and their employees as a core mission with the aim of improving professional literacy and quality of program productions. Meanwhile, NCC shall encourage the media to employ their resources to expand promotion of media literacy through connection between the producers and audiences.

Digital inclusion involves a wide range of sectors; its implication also changes in response to the evolution of technology. It is expected that the scope of digital inclusion will keep evolving subject to certain developments in technology. NCC plans to continue to protect the rights of the disadvantaged to access various communications services, promote high-speed broadband in remote areas, and work with various ministries/departments to promote the media literacy. In the meantime, NCC shall promote digital inclusion policy in Taiwan in line with the international trends to ensure that all people can benefit equally.

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