

# NCC Performance Report 2014



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# Chairperson's Foreword

Since communication is essential in our daily lives, one can hardly be surprised by the continuing development of digital technology and the wide range of devices that enable us to communicate and share information faster, easier, and more conveniently. In fact, it is widely acknowledged that communication services, as well as the emerging over-the-top applications, have become a key factor behind the innovation and growth of the digital economy.

Yet, as well as the significant opportunities these advancements in technology and its convergence bring, many challenges remain. As the first independent regulatory agency in Taiwan, with responsibilities encompassing both the telecommunications and broadcasting sectors, the National Communications Commission follows these developments and the consequent transformation of market dynamics very closely. We compile market data of the communications market in Taiwan on a regular basis and conduct research on regulatory initiatives being undertaken by regulators around the world, so as to determine indicators of progress, as well as benchmark our own performance.

One of the commission's statutory duties as stipulated in the Fundamental Communications Act is that we publish performance reports annually along with specific recommendations for improvements concerning our core principles of the sound development of communications, the protection of citizens' rights and consumers' interests, the promotion of cultural diversity, the protection of minority' rights and interests, and the provision of universal services.

Since we began publishing the annual NCC performance reports after our establishment in

2006, we have witnessed dynamic changes in the communications market in Taiwan. These reports have also provided us a timely opportunity to present our noteworthy achievements and the fruition of strategic and smart regulations being in place. I am very pleased that from this year, we have the opportunity to share these developments with even more people around the globe with the launch of an English version.

In the **'Highlights'** section of the report, we have summarized some of the progress made in key areas during 2014. From **Section 1 'Who We Are and What We do'**, the role of NCC is explained in line with our objectives, functions, and authority as established by legislations. The governance structure of the commission has also been included with view to highlighting our effective and impartial policy decision-making, with greater transparency and accountability.

**Section 2 'Communications'** provides statistics and market trends encompassing both telecommunications and broadcasting in Taiwan. In short, we can see the market continues to be vibrant; people are now benefitting from more choices of communications services at more competitive prices than ever before. An overview of the status of communications resources, such as spectrum, numbers, and Internet Protocol addresses has also been included in this section.

Finally, in **Section 3 'Progress of Regulatory Reform,'** we have outlined some noteworthy results of improved regulatory mechanisms and practices, including:

**The Launch of 4G Services:** with the launch of 4G services, millions of people are now enjoying even faster mobile broadband services. Although

advancements in wireless technology have allowed for greater efficiency of spectrum, demand for mobile data remains very strong. Thus, NCC coordinates closely with other government bodies to plan for future releases of spectrum when required to ensure everyone can benefit from a faster and ubiquitous mobile broadband network.

**Digital Cable TV:** to expand penetration of digital cable TV in Taiwan, NCC introduced incentive-based regulatory mechanisms, as well as certain flexible consumer assistance measures. The effect was outstanding: penetration of cable TV jumped by 33 percent when compared to 2013. Consumers are now able to customize a wide selection of bundled packages, from add-on TV channels and DVR, to superfast broadband services.

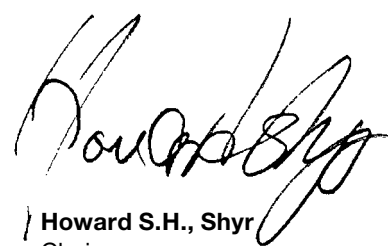
**Regulatory Framework for Convergence:** how to adapt our statutory frameworks to the dynamic and fast-changing communication environment has become a pressing issue. Before drafting legislation, we publish papers for consultation; public participation is encouraged by means of public meetings and seminars with relevant stakeholders. Moreover, existing regulatory practices are under scrutiny with view to more effective supervision in the future.

**Enhanced User Experience:** protecting consumers' interests is one of NCC's principle duties, thus we acknowledge the importance of revealing key information to help consumers to make good decisions when choosing their communications services. We have adopted several consumer protection schemes including measuring fixed-line and mobile broadband speeds, publishing complaints reports, and shortening the time of number portability.

**Digital Inclusion:** for the protection minority' rights and interests and the provision of universal services, we have continued to improve the broadband infrastructure in remote areas. Moreover, as communication is crucial during and after natural disasters, more disaster-resistance communications platforms have also been established. Meanwhile, iWIN continues to be a key mechanism to promote self-regulation in order to ensure children and youths remain safe while online.

**International Participation:** digital convergence has brought cross-border opportunities, yet challenges. To deepen understanding of the most effective regulatory practices, principles, and experiences, we have been actively participating in various multilateral events and forums. Particularly, during the International Regulators Forum held in Austria in October 2014, I was honored to be the moderator of a seminar entitled, 'Achieving Universal Broadband' and was able to learn from different perspectives, as well as share our own successful experiences in Taiwan.

To make all this information easier to find, the report is also being published in full on our website. I am delighted that this report shows how we have been committed to providing effective regulatory practices throughout 2014. I am confident that for the next chapter, we will be able to build on this work so as to truly empower the public and take the best steps forward together.



**Howard S.H., Shyr**  
Chairperson





The background is a dark gray with a complex network of thin white lines connecting small circles, resembling a digital or communication network. In the upper right and lower left corners, there are stylized representations of binary code (0s and 1s) in a light gray font, arranged in a way that suggests data flow or digital communication.

# Highlights

In accordance with the spirit of the Fundamental Communications Act, the primary duties of the National Communications Commission (NCC) are to facilitate the sound development of communications, protect the rights and interests of consumers, and promote cultural diversity and respect for the rights of minorities and disadvantaged groups. In these respects, NCC oversaw monumental progress during 2014.

With view to promoting industry development and facilitating a win-win situation for industry and consumers, the commission enabled the first operators in Taiwan to launch high-speed broadband 4G services. Meanwhile, the penetration rate of digitized cable television increased dramatically over the same period. NCC has also been amending laws and regulations to more appropriately facilitate convergence and stimulate innovation and market forces to allow greater competitiveness, not just improving the user experience but also aiming to establish a more diversified and penetrative digital environment.

NCC continually endeavors to pay close attention to the latest developments of digital convergence, as well as global trends and practices, so as to fulfill its obligations of facilitating the sound development of communications and protecting the rights and interests of the public.





## The launch of 4G services

After the release of spectrum for 4G services in the 700MHz, 900MHz, and 1800MHz bands in October 2013, the successful bidders began deploying LTE almost immediately. The first operator launched 4G services in May 2014 with the others following closely behind, allowing consumers to enjoy a noticeably faster and smoother mobile broadband experience.

**8.66** million

The number of 4G subscriptions jumped to almost 3.5 million at the end of 2014. By Aug. 2015 had reached **8.66** million.

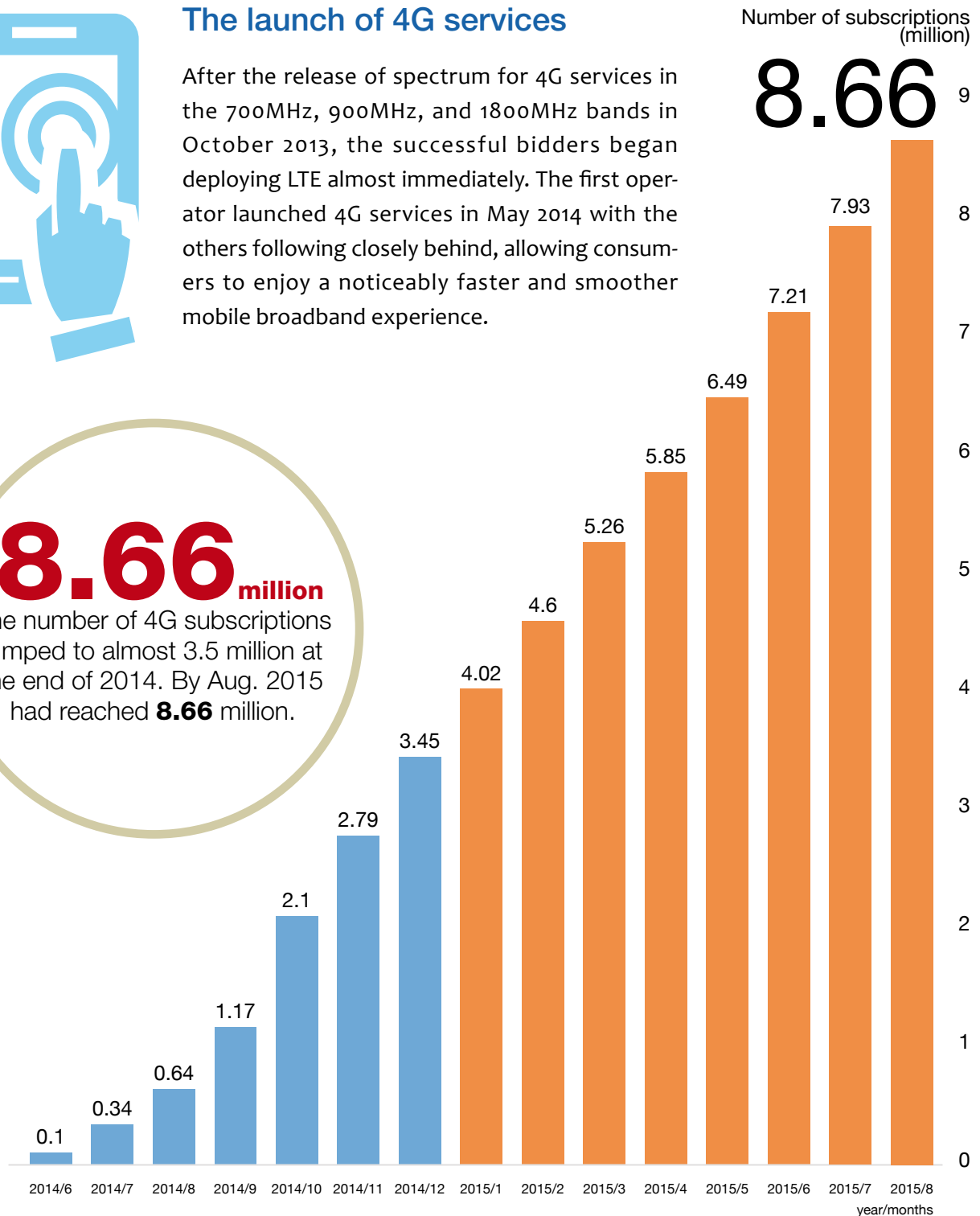


Figure 1: 4G Subscriptions (Aug. 2015)

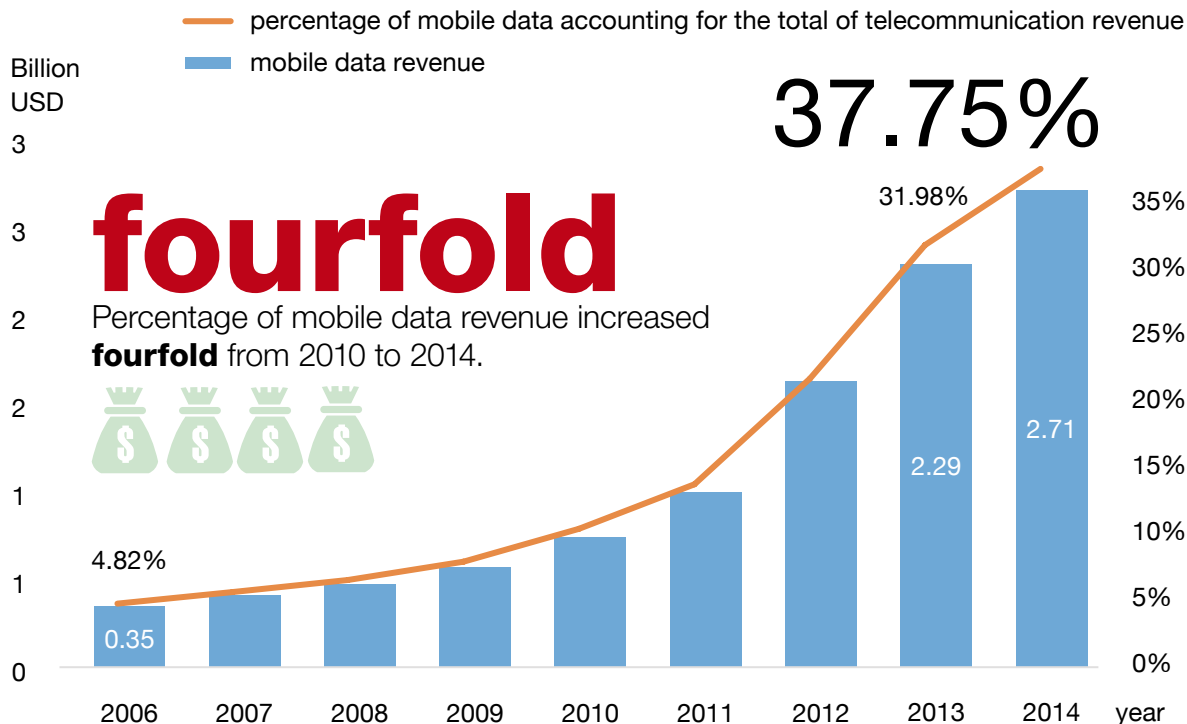


Figure 2: Percentage of Mobile Data Revenue Compared with Total Telecom Revenue

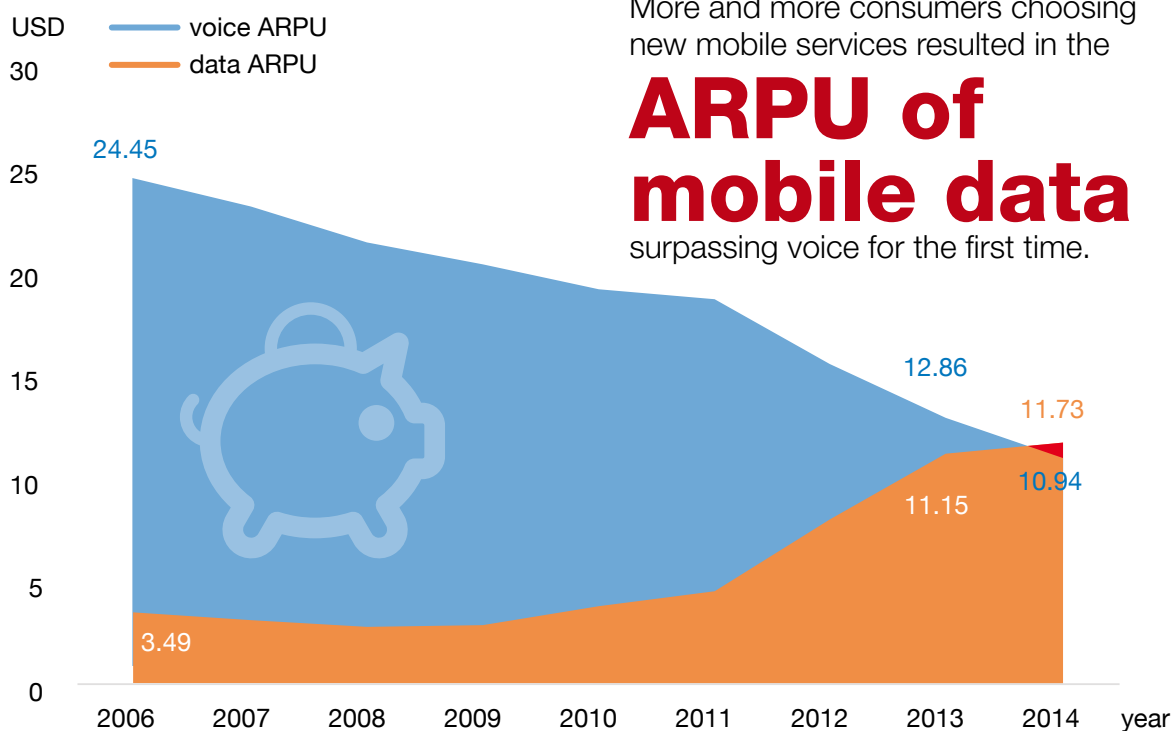


Figure 3: ARPU of Mobile Voice and Mobile Data (each December)

## Digital Cable TV

After the promotion of the digitization of cable television, operators began using coaxial and fiber-optic cable to provide a more competitive high-speed broadband Internet service, combining digital video recording (DVR), video on-demand, digital learning, as well as other functions. This has enabled the television set to become the digital center of a smart home (Figure 4).

## Regulatory Framework for Convergence

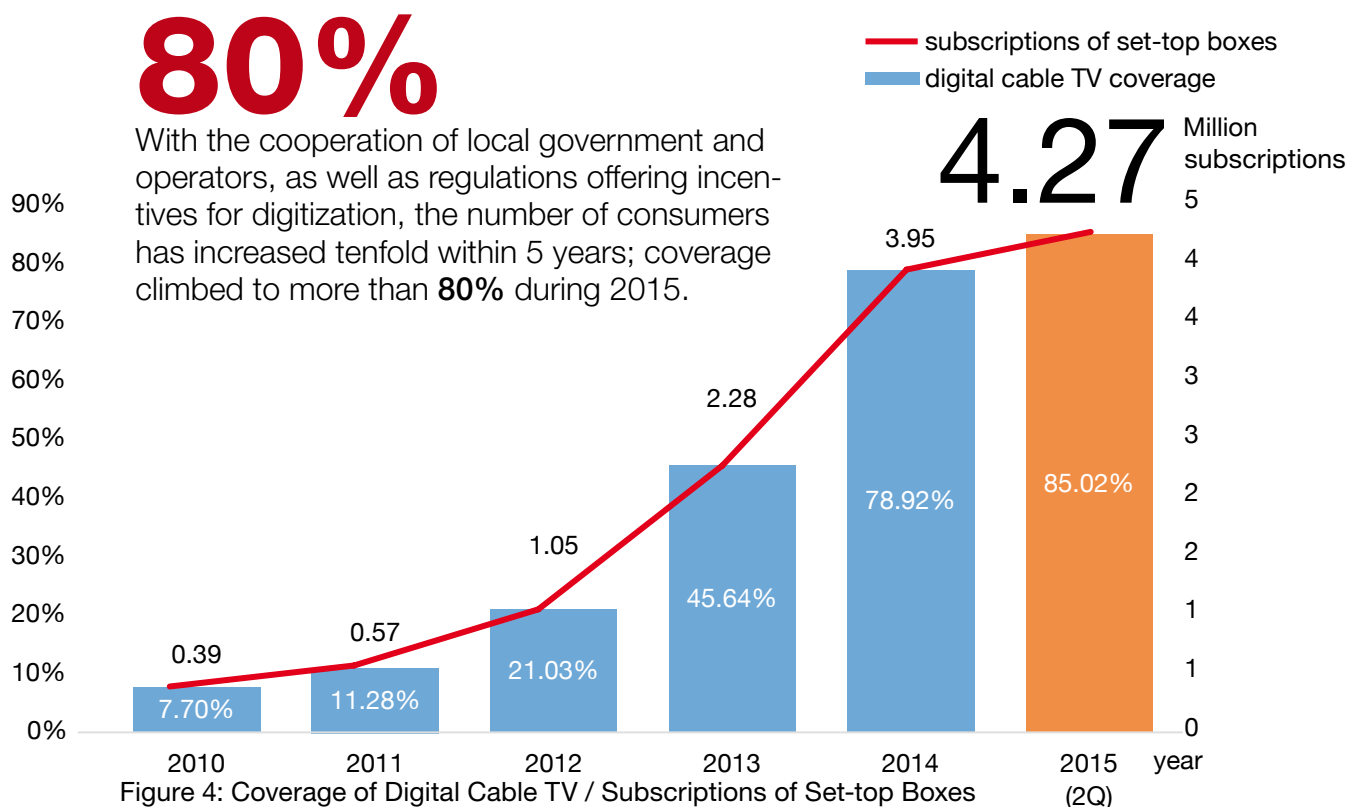
As the first independent regulatory body in Taiwan, NCC has progressively encouraged cooperation so as to facilitate convergence among the

different sectors of the communications industry. With view to drafting legislative reforms, NCC has published ten consultation papers and held public meetings concerning critical issues. Relevant stakeholders were invited to comment and submit supporting evidence so as to enhance decision-making. .

## Enhanced User Experience

With view to protecting the rights and interests of consumers, NCC introduced the following consumer protection initiatives to allow for an enhanced user experience.

- Mobile and fixed-line broadband speed tests.
- Switching service providers more easily.
- Free seven-day trial period for mobile broad-



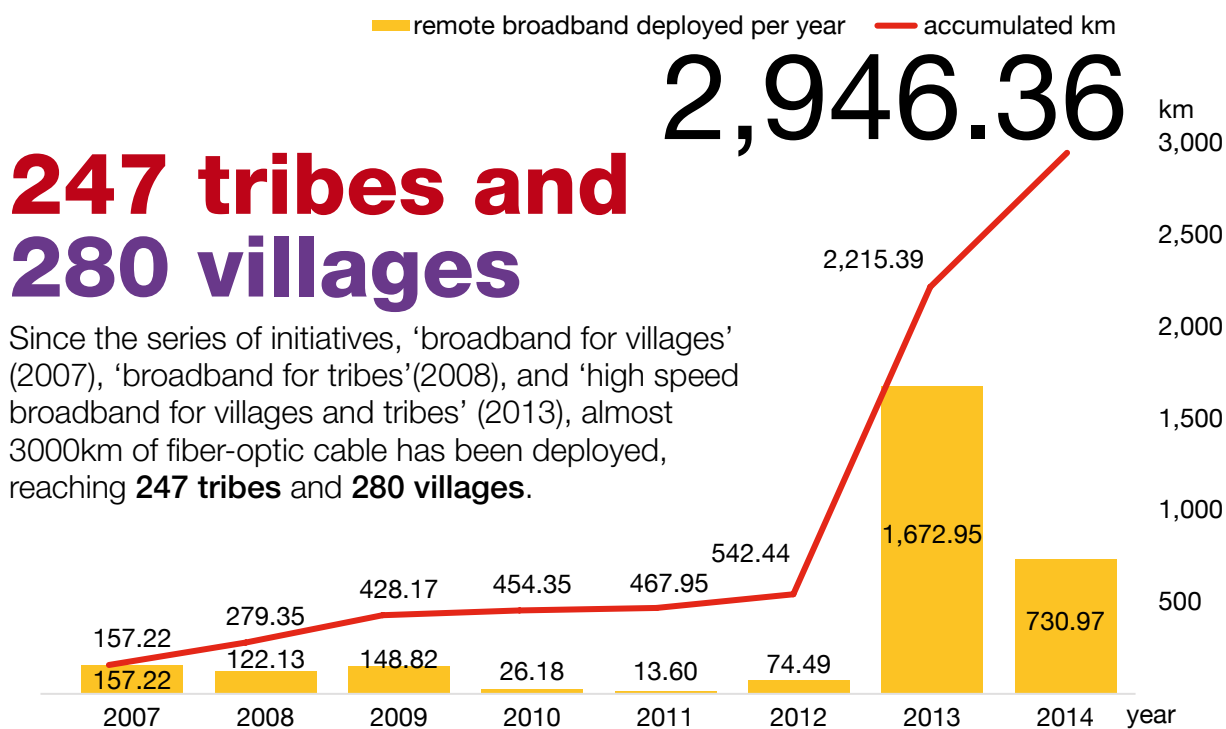


Figure 5: Broadband in Remote Areas /Accumulated Fiber-optic Cable

band service.

- Mobile broadband coverage maps.
- Regularly publish reports on telecom and communication contents complaints.

## Digital Inclusion

Although most people can readily enjoy the benefits brought by improved technologies, some are still being excluded. Thus, this so-called “digital divide” is being steadily removed to ensure that all citizens have the opportunities to enjoy the benefits brought by modern communication technology and services (Figure 5 ).

## International Participation

International exchanges benefit the development of our communications management strategy;

conversely, other countries can also benefit from NCC sharing its experiences and expertise. Such exchanges have taken place in the following forms:

- Appointed Vice-Chair of APEC TEL.
- Participated in more regional agreements.
- Renewed MoU with Communications Regulatory Commission of Mongolia.
- Hosted the International Communications Forum in Taipei.
- Expanded international participation: attended meetings such as Pacific Telecommunications Council (PTC) and Regulatory forum of International Institute of Communications (IIC).





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# Section 1

## **Who We Are and What We Do**



## Function and Responsibilities

### Legal Duties

Prior to the establishment of the NCC, responsibility for overseeing telecommunications and broadcasting was separated between the Government Information Office and Directorate General of Telecommunications. However, due to the telecommunications and broadcasting sectors steadily converging, the Executive Yuan determined that an independent regulatory agency would be a more appropriate way to govern the communications sector with a broader and more accurate strategic insight, as well as a more open and efficient administration.

Proceeding the promulgation of the Fundamental Communications Act (Jan. 2004) and the National Communications Commission Organization Act (Nov 2005), the National Communications Commission was officially established on Feb. 22, 2006 and marked a major turning point in the management of communications in Taiwan.

According to Article 1 of the National Communications Commission Organization Act, the purpose of the NCC is to ensure peoples' freedom of speech, end the 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.

## Regulatory Functions and Principles

According to Article 3 of the same act, the 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 the content of communications and other legally designated matters;
- Manage communications resources;
- Maintain the order of competitive practices in communications;
- Standardize and manage communications transmission 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 violations of communications-related laws and regulations;
- Oversee other communications-related matters.

## Governance Structure

### Commission Meeting

The Commission Meeting is the highest policy-making body of NCC, in which the formation, affirmation, and publication of the minutes of the Commission Meeting are conducted according to the NCC Organization Act and Meeting Rules.

According to Article 9 of the NCC Organization Act, the following items shall be authorized by the commission at the Commission Meeting before proceeding:

- Formulation and review of regulatory policy and systems;
- Review and evaluation of critical communications plans and proposals;
- Review and distribution of communications resources;
- Review of formulation, drafting, amendment, and abolition of communications-related laws and regulations;
- Review of public announcements of the communications industry, concession cases and ruling cases involving the acquisition, modification, or cessation of communications enterprise management rights;
- Review of the organizational chart, meeting rules, and administrative procedures;
- Review of the detailed chart of responsibility among internal units;
- Review and approval of the budget and final accounts;
- Other pertinent matters to be determined and ruled by the commissioners as required by law;

- Declaration of the recruitment and dismissal of unit heads other than that of the Human Resources Office, Accounting Office and Civil Service Ethics Office shall be conducted by the chairperson;

Commission Meetings are held on a weekly basis and additional meetings may be held when deemed necessary. The Commission Meeting is chaired by the NCC chairperson; if the chairperson is unable to attend the meeting, the vice chairperson acts on the chairperson's behalf.

All final resolutions are voted on, and are deemed valid at the consent of over half of the total seats on the Commission Meeting. Commissioners may present concurring opinions or dissenting opinions on particular resolutions, which are announced alongside the minutes of the meeting.

### Commissioners

The NCC is directed by seven commissioners, including a chairperson and a vice chairperson. The commissioners are nominated by the Premier, and appointed at the consent of the Legislative Yuan. Commissioners are equipped with professional knowledge or practical experience in telecommunications, information, broadcasting, law or finance and serve a four-year term.





Figure 1.1: Commissioners (Left to Right: Commissioner Jenn-Hwa Tu, Commissioner Yu-Fen Chiang, Vice Chairperson Hsiao-Cheng Yu, Chairperson Shih-Hao Shyr, Commissioner Shin-Yi Peng, Commissioner Yi-Ning Chen, Commissioner Po-Tsong Wong)

### **Chairperson Shih-Hao Shyr**

Chairperson Shyr was appointed as Chairperson of the NCC in August 2012 and is currently serving a four-year tenure. After graduating from National Taiwan University, he later gained a Ph.D. in law from the University of Hamburg. Before serving as Chairperson of NCC, Shyr worked as a Professor of Journalism in National Cheng-Chi University, and later served as a Dean and a Professor of financial and economic law in National Dong-Hwa University. In 2006, he was appointed and served as Vice Chairperson of NCC. As an active member of the academic field, Shyr has expertise in areas of communications policy, administration law, and competition law.

### **Vice Chairperson Hsiao-Cheng Yu**

Vice Chairperson Yu was appointed as Vice Chairperson of the NCC in August 2012 and is serving a

four-year tenure. After graduating from Chung Yuan University, he obtained a master's degree and a Ph.D. from Georgia Institute of Technology majoring in industrial and systems engineering. His expertise encompasses telecommunications and media policies, entrepreneurship and venture capital, and global high-tech management. Prior to joining the commission, Vice Chair Yu worked in the information system industry, later becoming a professor at Chiao-Tung University. He was also a committee member of the development advisory council of the Ministry of Economic Affairs.

### **Commissioner Shin-Yi Peng**

Prior to serving as an NCC Commissioner, Professor Peng was the Director of Institute of Law for Science and Technology at National Tsing-Hua University and was also the Deputy Director of



National Tsing-Hua University Research Center for Humanities and Social Sciences. Before joining the National Tsing-Hua University, she received her S.J.D. degree from the University of Wisconsin Law School. Her current research focuses on telecommunications law, spectrum management, trade in services and WTO dispute settlements.

### **Commissioner Yu-Fen Chiang**

Commissioner Chiang joined the NCC in January 2013. She graduated from Soochow University majoring in law and has passed the Attorney Qualification Exam, as well as the Senior Civil Service Examination. She has worked for the Ministry of Justice, Legal Affairs Committee and the Directorate General of Telecommunications, Ministry of Transportation and Communications; her area of expertise is communication laws.

### **Commissioner Yi-Ning Chen**

Commissioner Chen joined the NCC in August 2014. She graduated from the University of Texas where she obtained a Ph.D. Prior to that, she was serving as an Associate Dean of the Communication College at National Cheng-Chi University between 2010 and 2014, and was Vice Chairperson of the Chinese Communication Society between 2012 and 2014. Her primary research is in the area of media content and its effects, focusing on the role of media in elections.

### **Commissioner Jenn-Hwa Tu**

Commissioner Tu was appointed as an NCC commissioner in August 2014. As a graduate of National Taiwan University, he also obtained a master's degree and a Ph.D. from the Johns Hopkins University in Economics. Prior to his serving as commissioner, he was the Director of the Research Department of Business Develop-

ment (CDRI), as well as a consultant for the Ministry of Economic Affairs and a board member of Taiwan External Trade Development Council (TAITRA). His major areas of research are international trade, direct foreign investment, free trade agreements, and the cross-strait economic relationship.

### **Commissioner Po-Tsong Wong**

Commissioner Wong was also appointed in August 2014. He graduated from National Cheng-Kung University and majored in electrical engineering. He passed the special examination for Senior Telecommunications Engineer and Level 2 of the Senior National Examination in Electric Power Engineering in 1988 and 1990 respectively. Commissioner Wong was working for the Directorate General of Telecommunications, Ministry of Transportation and Communications since 1988, after which he transferred to the NCC in 2006, leading to his appointment as commissioner in 2014.

## **Working Groups**

The following six main cross-departmental working groups assist with policy formation:

1. International Affairs Working Group;
2. International Economic and Trade Working Group;
3. Mobile Broadband Licensing Working Group;
4. The 11th License Release for Radio Working Group;
5. Cable TV Digitization and Multimedia Content Platform Fair Competition Working Group;
6. Convergence Law Reform Working Group.

## Departments and Offices

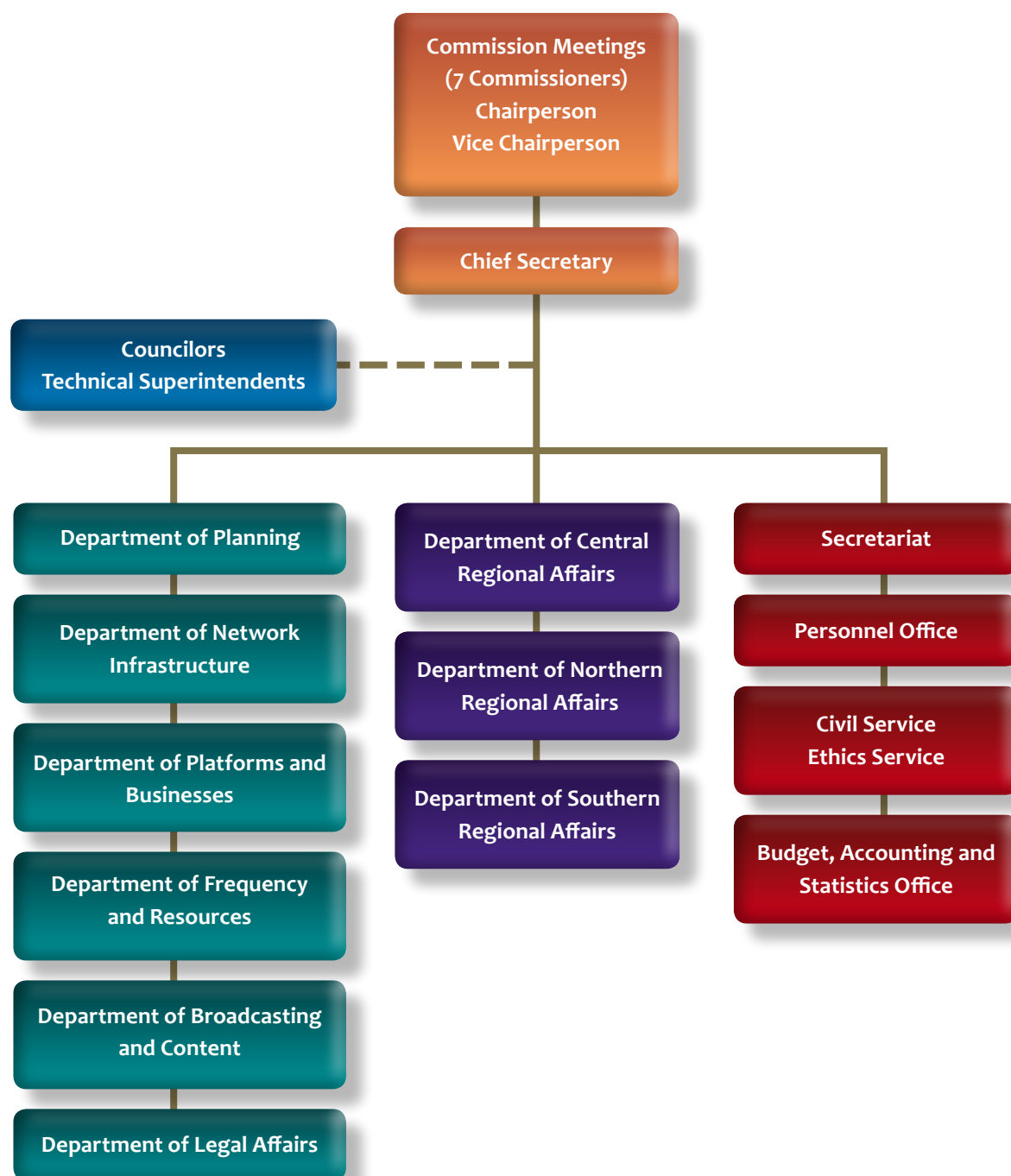


Figure 1.2: NCC Organization Chart

## Accountability

### Ethics Code

Commissioners are to perform their duties independently and stringently abide by the conflict of interest recusal principle; they may not participate in the activities of political parties or serve in government agencies or state enterprise positions as consultants; they are also forbidden from serving in a communications enterprise or organization in a full or part-time capacity.

At the 503rd Commission Meeting, the commissioners' self-regulation codes of practice were amended. This amendment introduced two main points: firstly, commissioners shall consult and listen to the opinions from the public and relevant organizations during the policy making process. However, all final decisions are to be voted on during Commission Meetings. Secondly, if a commissioner considers that the case to be reviewed involves a conflict of interests, he/she shall report to the Commission Meeting for it to determine whether recusal is necessary.

### Internal Audit

In order to improve administration efficiency, NCC established an internal audit panel, in which the vice chairperson serves as the chair and top senior civil servants of each department serve as auditors. The panel routinely carries out cross departmental audits in an objective manner and provides suggestions for improvements to achieve more effective operations so as to reach administrative goals.

An inspection report is released within two months after inspection and its approval by the vice chairperson. It includes both merits and deficiencies and provides suggestions for improvements. After receiving the report, the inspected department is required to begin eliminating deficiencies. Every six months, a regular follow up and progress report of corrections is made until the deficiencies have been completely removed.

### Risk Management

To enhance the oversight of risk, NCC set up risk management frameworks consistent with governance visions. Risk assessment is carefully developed through the process of risk identification, risk analysis and risk evaluation. Risk standards and risk levels are also established; risk assessment and monitoring for any change in the organization's risk profile are continually undertaken.

### Stakeholder Engagement

As particular policy initiatives may affect potential stakeholders, prior to passing resolutions, NCC engages with the public and relevant industry stakeholders by means of public consultations, holding public meetings, or publishing relevant information online. Reasons behind possible policy options are explained in a way that ensures even the more complicated issues can be understood fairly easily by those who are interested.





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# Section 2

# **Communications**



## Telecommunications

### Overview

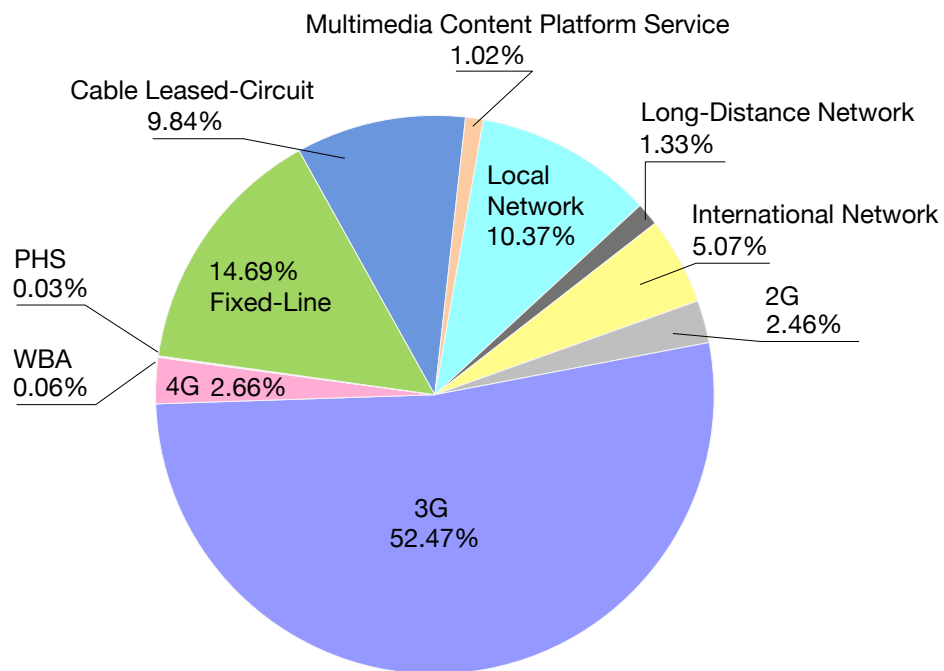


Figure 2.1: Telecom Sectors by Revenue (2014)

Source: NCC

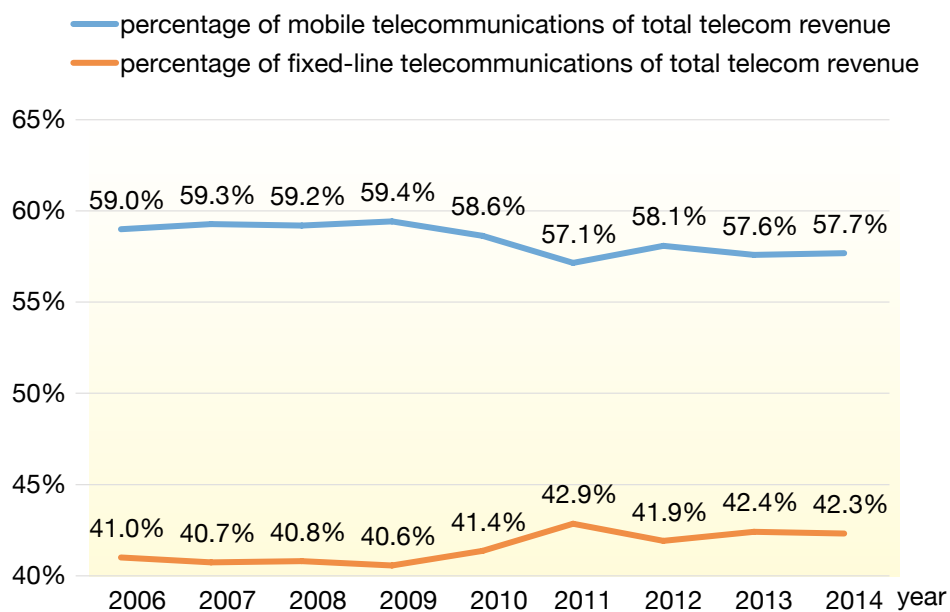


Figure 2.2: Fixed-line and Mobile Revenue

Source: NCC

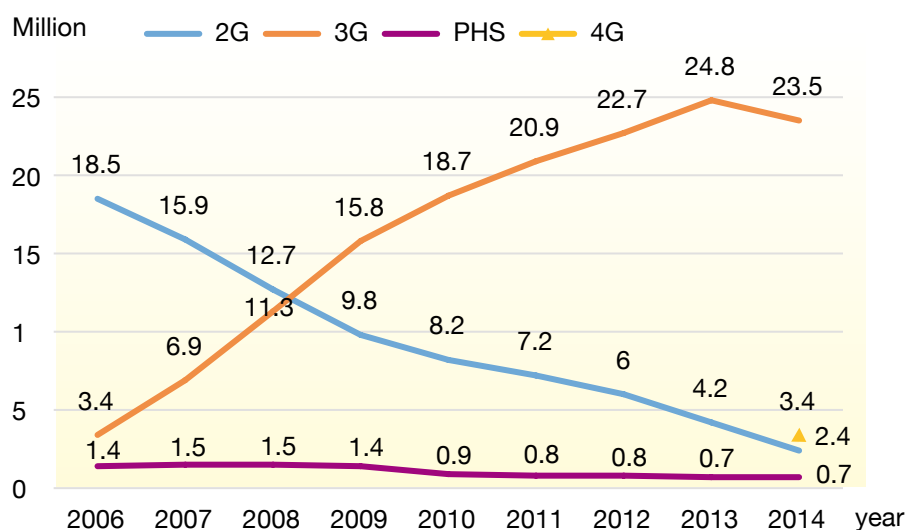


Figure 2.3: Number of 2G, 3G, 4G, and PHS Users

Source: NCC

Table 2.1: Fixed-line and Mobile Service Revenue

USD billion dollars

Service	2012	2013	2014
Mobile	7.43	7.15	7.18
Fixed-line	5.36	5.27	5.27

Source: NCC

Table 2.2: Type I<sup>1</sup> Telecom Services and Operators in Taiwan (2014)

Type of service		No. Licenses	No. Operators
Mobile	2G (Mobile Telephone Business)	8	3
	3G (Third Generation Mobile Communications Business)	5	5
	4G (Mobile Broadband Business)	6	6
	1900MHz Digital Low-Power Wireless Telephone Service (PHS)	1	1
	Wireless Broadband Access	5	5
Satellite	Fixed Satellite Service	6	4
Fixed-line	Fixed-line Network	4	4
	Local Network	10	7
	International Network	0	0
	Domestic Local and Long-Distance Land Cable Leased-circuit	62	61
	International Submarine Cable Leased-circuit	4	4

Source: NCC

<sup>1</sup> Telecommunications enterprises in Taiwan are categorized into two types: Type I and Type II. Type I operators refer to those that install telecommunications line facilities and equipment in order to provide telecommunications services; other operators are Type II operators.



Table 2.3: Type II Telecom Services and Operators in Taiwan (2014)

Type of Service	No. Licenses	No. operators
Simple Voice Resale Service	62	435
Non-E.164 Internet Telephony Service	56	
E.164 Internet Telephony Service	4	
Wholesale Resale Service	149	
Intra-corporation Network Communication Service	38	
Bandwidth Resale Service	37	
Audio Conference Service	14	
Internet Access Service	225	
Store and Forward Network	38	
Store and Retrieve Network	68	
Video Conference Service	16	
Packet Switching Service	21	
Premium Rate Service	31	
Mobile Resale Service	7	
Mobile Resale and Value-added Service	10	

Source: NCC

## Telecom Revenue

Revenue of the telecom sector remains quite stable (Figure 2.4); in 2012 it reached its highest peak in recent years with revenue of USD12.79 billion. The total revenue in 2014 was USD12.44 billion, an increase of USD23 million when compared with 2013.

## Mobile and Fixed-line Users and Penetration Rate

Mobile technology has become the primary means of communication (Figure 2.5). Penetration of mobile communications had already reached 101.6% in 2006. Moreover, penetration of mobile broadband has jumped significantly, from 14.3% in 2006 to 81% in 2014, whereas the penetration of fixed-line declined to 51.4% in 2014 (Figures 2.6).

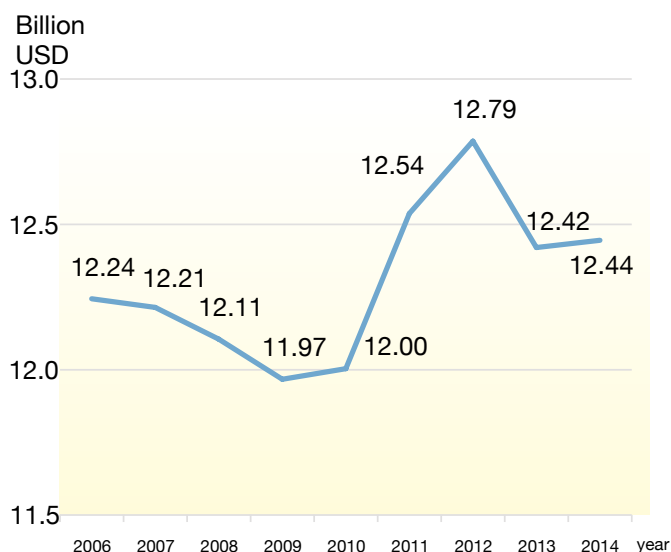


Figure 2.4: Total Revenue of Telecom

Source: NCC

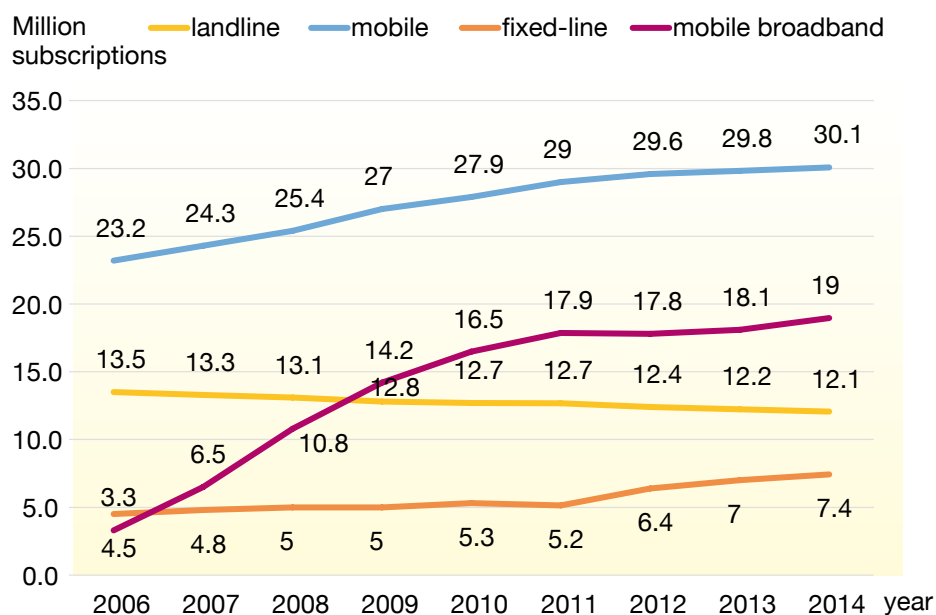


Figure 2.5: Telecommunications Subscriptions

Source: NCC

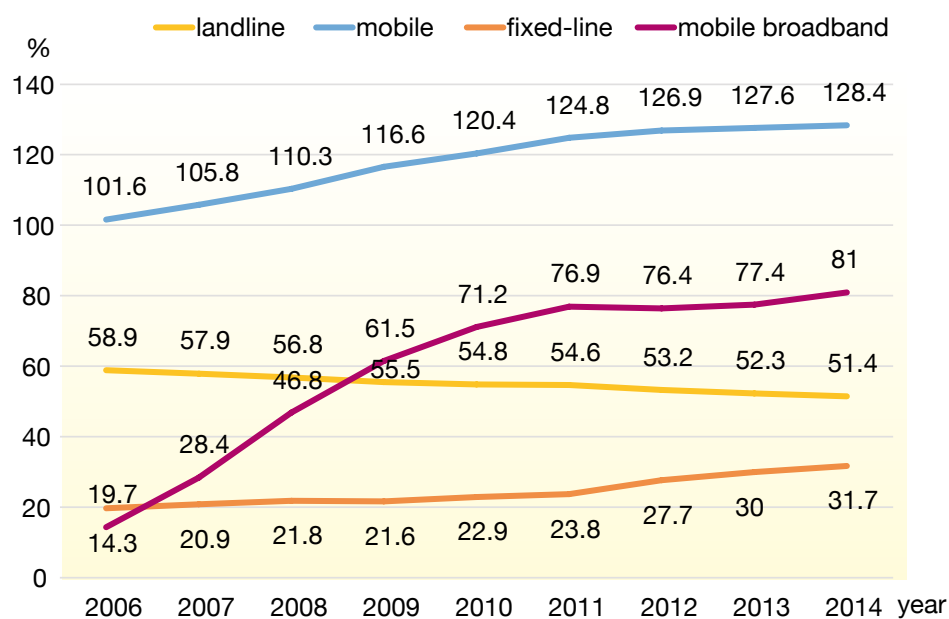


Figure 2.6: Penetration Rate

Source: NCC

## Fixed-line

### Fixed-line Revenue

The revenue of fixed-line telecommunications reached a peak of USD5.37 billion in 2011, decreased slightly to USD5.27 billion in 2013, and remained almost the same in 2014 (Figure 2.7). From the period of 2006 to 2014, fixed-line market revenue accounted for between 40% and 43% of the total telecom market revenue.

### Fixed-line Voice Service

With the popularity of mobile telecommunications services, revenue of fixed voice service has fallen to USD2.09 billion since its peak in 2011. The average expenses of fixed-line voice service per person each year fell from USD196.47 in 2011 to USD173.11 in 2014 (Figure 2.8). In 2006, the percentage of fixed-line voice revenue was 49.4% of the total fixed-line revenue and fell to 39.6% in 2014 (Figure 2.9).

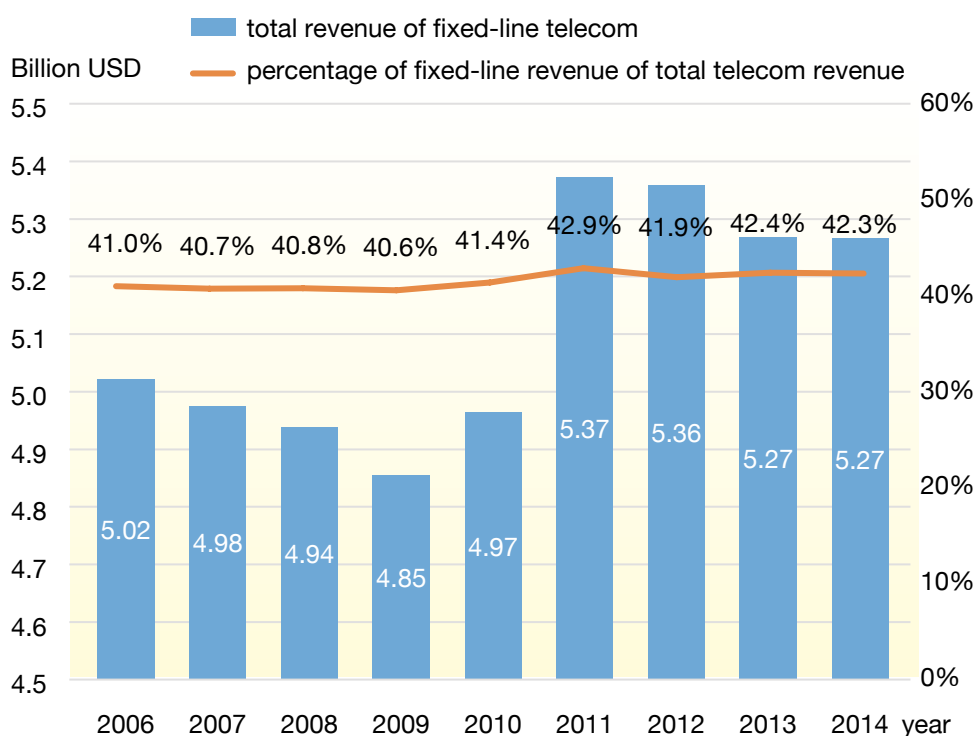


Figure 2.7: Fixed-line Revenue

Source: NCC Note: Revenue of MOD included from 2009

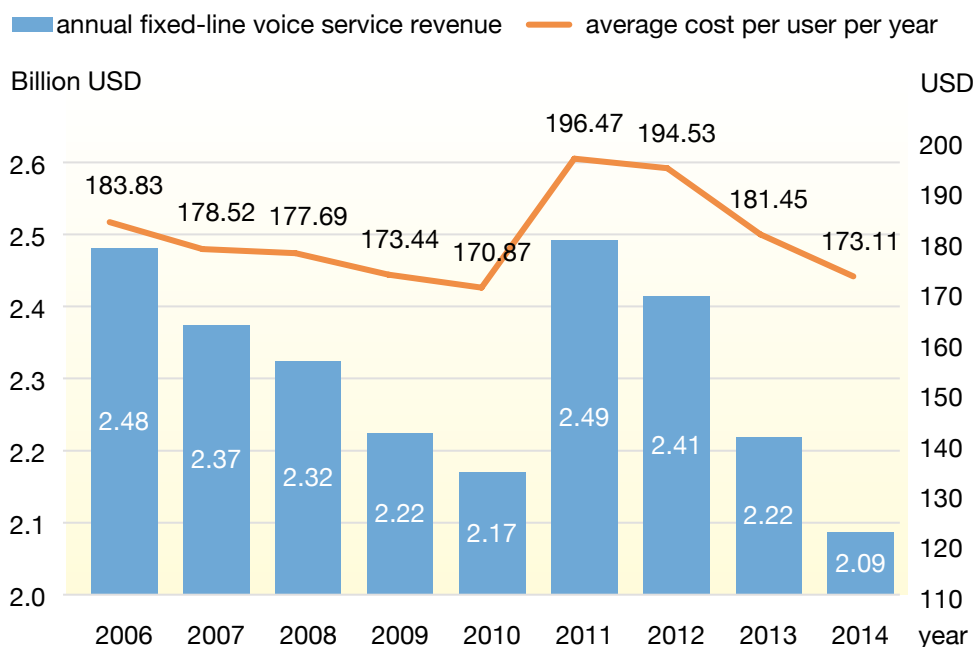


Figure 2.8: Fixed-line Voice Service Revenue / Average Cost per User  
Source: NCC

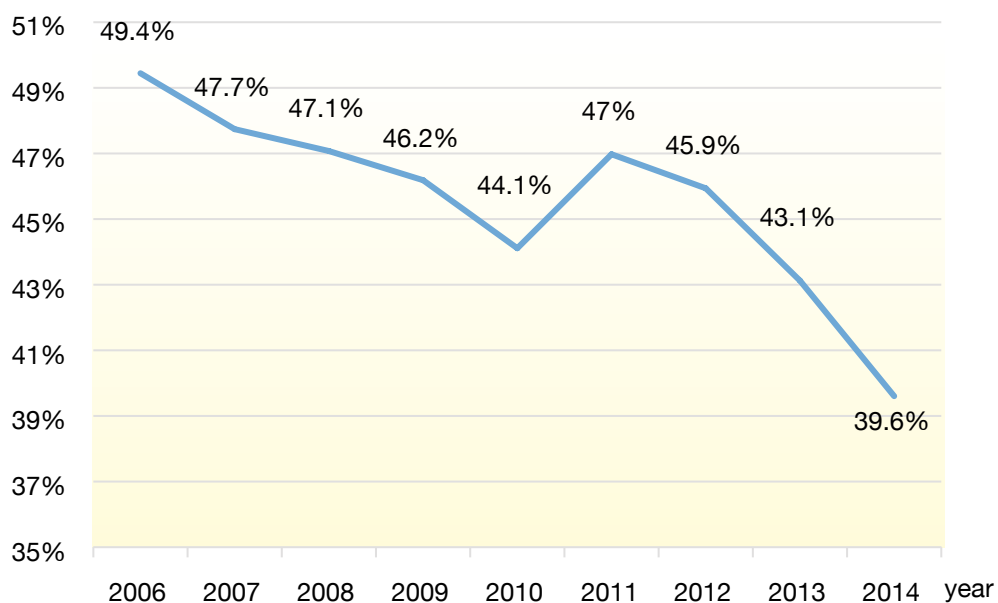


Figure 2.9: Fixed-line Voice Service Revenue of Total Telecom Revenue  
Source: NCC

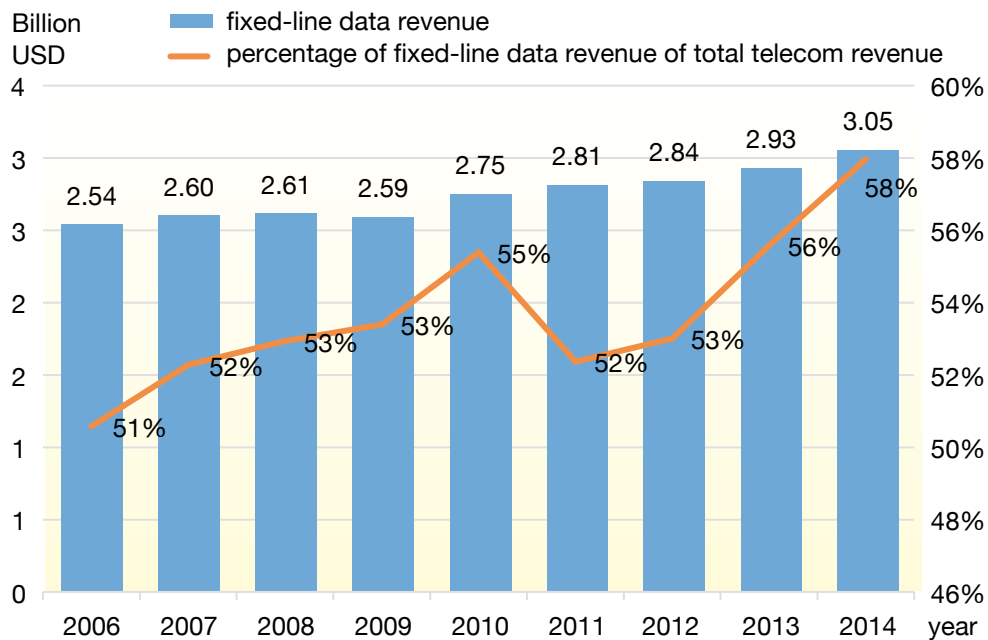


Figure 2.10: Fixed-line Data Revenue

Source: NCC

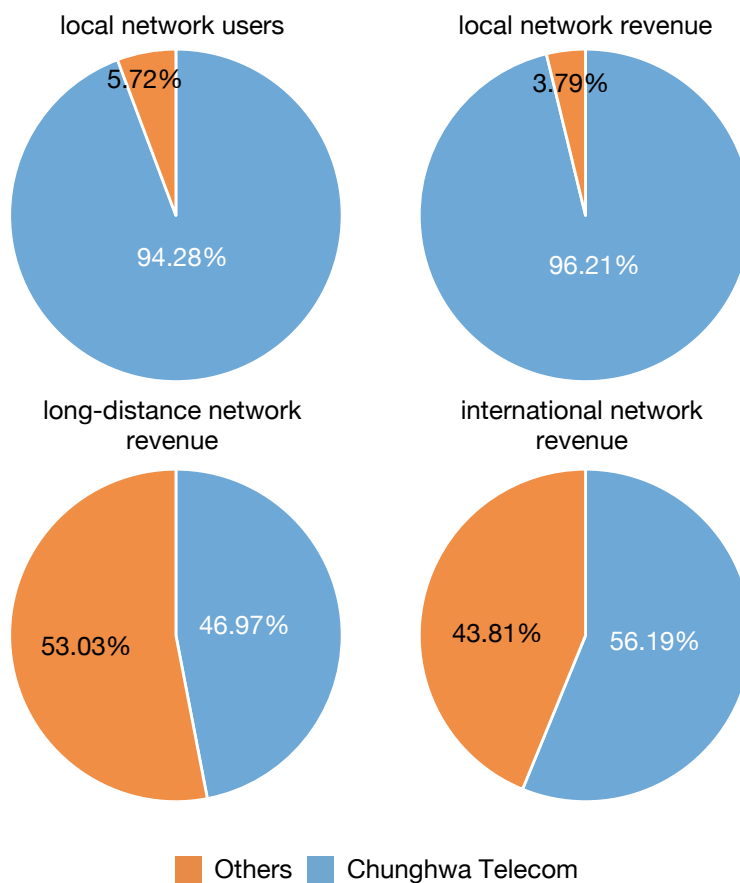


Figure 2.11: Fixed-line Communication Services

Source: NCC



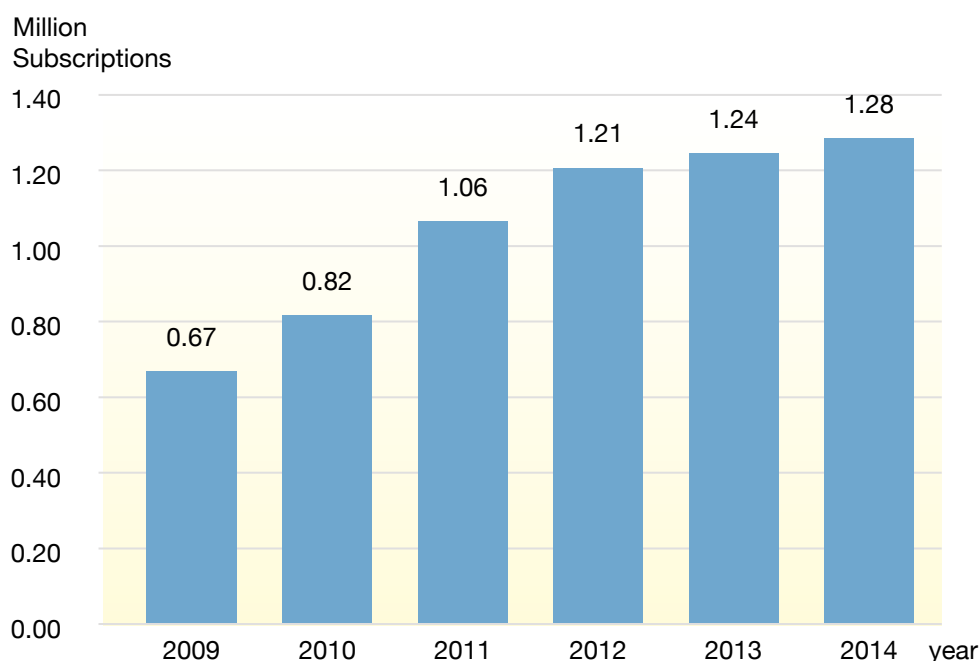


Figure 2.12: Subscriptions of Multimedia Content Platform  
Source: NCC

### Fixed-line Data Service

The revenue of fixed-line data service has remained relatively stable over recent years, which amounted to USD3.05 billion in 2014, an increase of USD1.25 million compared with the previous year (Figure 2.10). Fixed-line data revenue accounted for 51% of the total fixed-line revenue in 2006, rising up to 58% in 2014. Since 2006, fixed-line data revenue has become the primary source of income of the fixed-line market.

### Fixed-line Market Share

Four fixed-line enterprises operate in Taiwan: Chunghwa Telecom, Taiwan Fixed Network, Asia Pacific Telecom and New Century InfoComm Tech. Chunghwa Telecom local network accounts for 94.28% of the total of local network users and 96.21% of the total local network revenue. In

other words, Chunghwa Telecom occupies the local network market. Even though there is some competition for the international network, its market share is still over 50%. Chunghwa Telecom also accounts for 46.97% of the long-distance network revenue, meaning it remains the market leader regardless of the specific network (Figure 2.11).

### Multimedia Content Platform Service

Multimedia content platform service refers to a “service that provides subscribers with accessibility to multimedia content offered by content service providers through interactive media platform installed by a local network business operator.” Currently, there is only one service provider: Chunghwa Telecom. The number of subscribers to this service reached 0.67 million in 2009, increasing to 1.28 million in 2014 (Figure 2.12).

## Mobile

### Mobile Market Revenue

Mobile market revenue has remained quite stable since 2006; the total revenue for 2014 was

USD7.18 billion, an increase of USD0.03 billion compared with the previous year (Figure 2.13). Mobile telecommunications accounts for between 57% and 60% of the total telecommunication revenue.

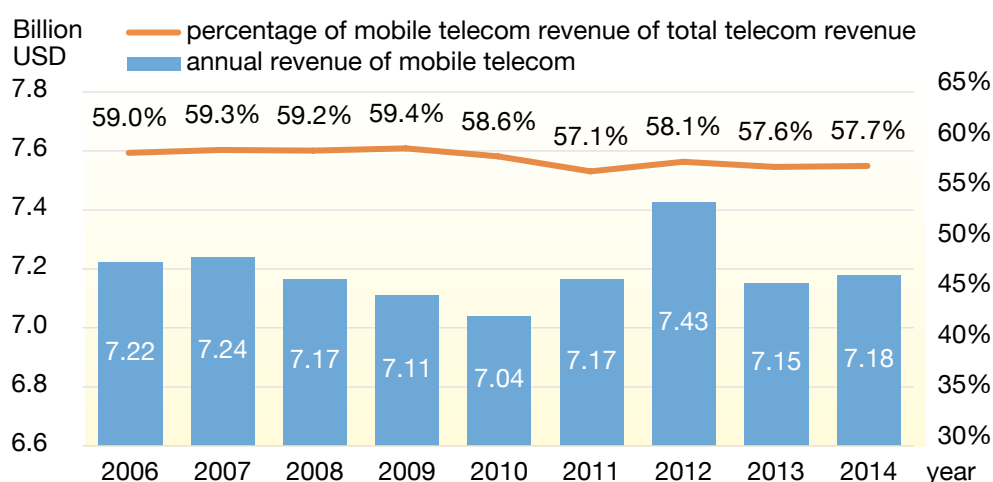


Figure 2.13: Mobile Telecommunications Revenue

Source: NCC

### Mobile Voice Service Revenue

Revenue of mobile voice has declined gradually since 2006 (Figure 2.14), especially the fall to USD4.86 billion in 2013, decreasing USD1.06 billion when compared with the year previously. In 2014, it reached the lowest point of USD4.14 billion, a

further decline of USD0.72 billion compared with 2013. Nevertheless, mobile voice remains the main income of mobile telecommunications.

The average cost of mobile voice per person per year has been steadily declining (CAGR of -7.7%) from USD296.11 in 2006 to USD155.92 in 2014.

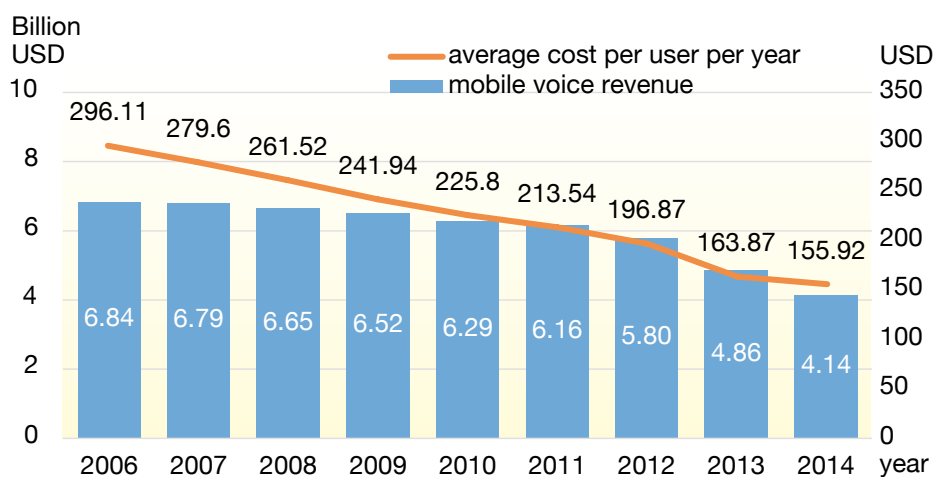


Figure 2.14: Mobile Voice Revenue

Source: NCC

## Mobile Data Revenue and Traffic Volume

Revenue of mobile data (Figure 2.15) has risen dramatically since 2006, increasing to USD2.71 billion in 2014. This is especially demonstrated in its contribution towards total revenue, which was only 4.82% in 2006, yet in 2014 jumped to 37.75%.

Volume of mobile data traffic has also grown dramatically over recent years, from 56 million

Gbytes in 2010 to 650 million Gbytes in 2014, demonstrating CAGR of 85%. Traffic increased rapidly in 2013, showing an increase of 157% compared to the year previously (Figure 2.16). The continued growth of mobile data consumption is primarily driven by the wider availability of smart devices, as well as improved network infrastructure.

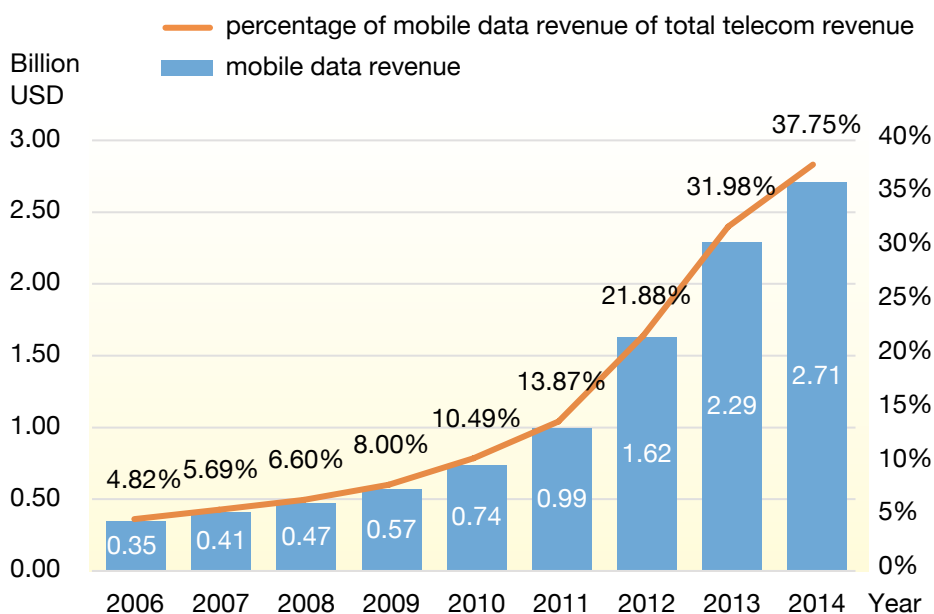


Figure 2.15: Mobile Data Revenue

Source: NCC

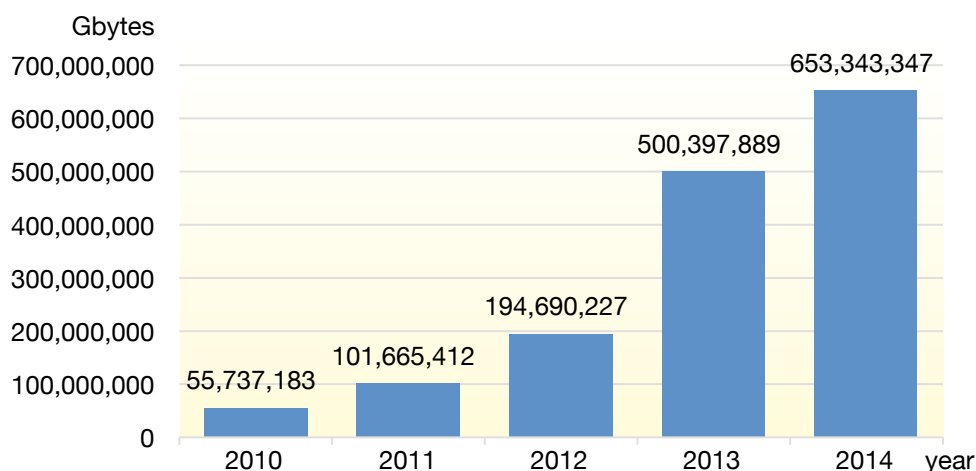


Figure 2.16: Mobile Data Capacity

Source: NCC

## Broadcasting

### Overview

Table 2.4: TV Broadcasting Revenue

	million USD	
	2013	2014
TV Broadcasting Total Revenue	218.96	229.71
TV Broadcasting Advertising revenue	140.72	135.76

Source: NCC

Table 2.6: Satellite TV Revenue

	million USD	
	2013	2014
Satellite TV Total Revenue	147.51	149.87
Satellite TV Advertising Revenue	96.36	98.26

Source: NCC

Table 2.5: Cable TV Revenue

	million USD	
	2013	2014
Basic Channels	969.07	981.22
Premium Channels	81.2	94.22
Pay-per-view Channels	0.34	0.22
Installation	14.51	13.37
Advertising	22.84	23.26
Leased Channels	76	76.5
Leased Circuits	42.66	46.11
Other	39.48	48.36
Total	1,244.77	1,283.25

Source: NCC

Table 2.7: Radio Broadcasting Revenue

	million USD	
	2013	2014
Radio Broadcasting Total Revenue	1,526.26	1,534.25
Radio Broadcasting Advertising Revenue	763.22	729.3

Source: NCC

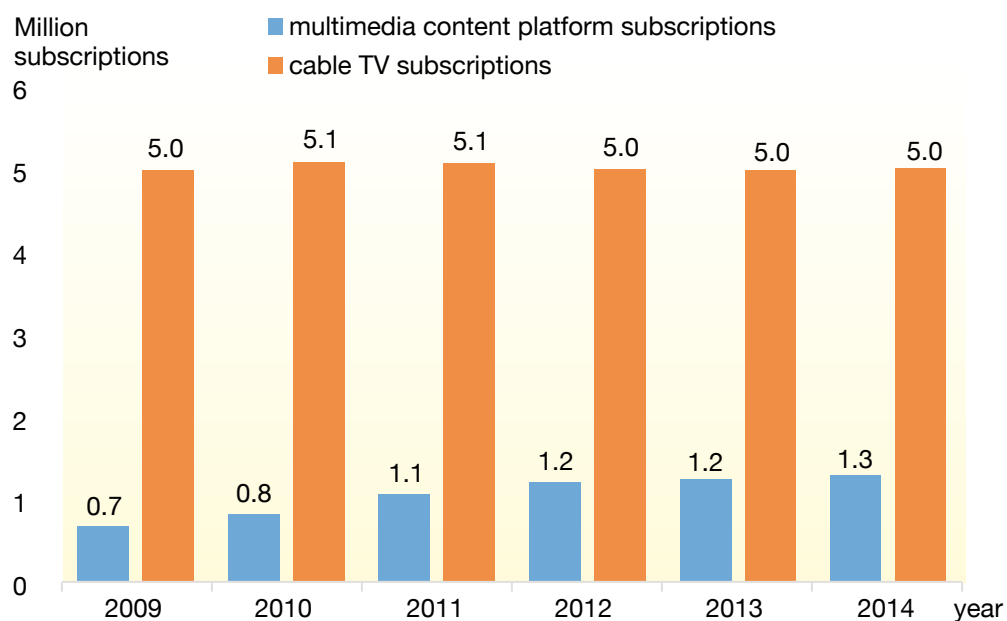


Figure 2.17: Subscriptions of Cable TV and Multimedia Content Platform  
Source: NCC

Table 2.8: Television and Radio Operators

Type	No. Operators/No. Channels
Broadcast Radio	171 Operators
Broadcast TV	5 Operators
Community Antenna	8 Operators
Direct Satellite Broadcasting Service	6 Operators
Satellite Broadcasting	108 Operators / 280Channels
Cable TV System Operators	56 Operators
Cable TV Program Transmission Systems	3 Operators

Source: NCC



## Advertising Expenditure

According to Brain.com, advertising expenditure in 2014 increased by 3.74% (Table 2.9). Television obtained the highest share (21.13%), exhibitions ranked second (13.31%), followed closely by the Internet with 13.12%. It should be noted that the expenditure of television advertising declined by 2.8%, whereas the expenditure of Internet and mobile advertising skyrocketed 15.95% and 100% respectively.

## Cable TV System Operators and Subscriptions

The market share of Cable TV is dominated by five MSOs, with CNS (23.66%) and KBRO (21.03%) gaining the highest market share, followed by TWM Broadband (13.98%), TFN(9.98%), and Taiwan Optical Platform (5.92%) (Figure 2.18). The number of Cable TV subscriptions remains steady at approximately 5 million (Table 2.10).

Table 2.9: Advertising Expenditure (2014)

Type of media	Advertising Expenditure in 2014 (billion USD)	Advertising Expenditure in 2013 (billion USD)	Growth/Decline rate (%)	Market Share (%)
Television	834	858	-2.8%	21.13%
Exhibition	525	500	5%	13.31%
Internet	518	447	15.95%	13.12%
Outdoor	467	467	0%	11.83%
Newspaper	282	297	-5%	7.15%
Mobile	281	141	100%	7.12%
Flyer	266	280	-5%	6.74%
Magazine	196	212	-7.5%	4.96%
DM	168	187	-10%	4.26%
Export	134	125	7%	3.39%
Radio	109	121	-10%	2.75%
Others	79	79	1%	2%
POP	36	36	0%	0.9%
Event	29	28	3.5%	0.7%
Yellow pages	21	22	-5%	0.53%
Total	3,948	3,805	3.74%	100%

Source: Brain.com (Feb. 2015)

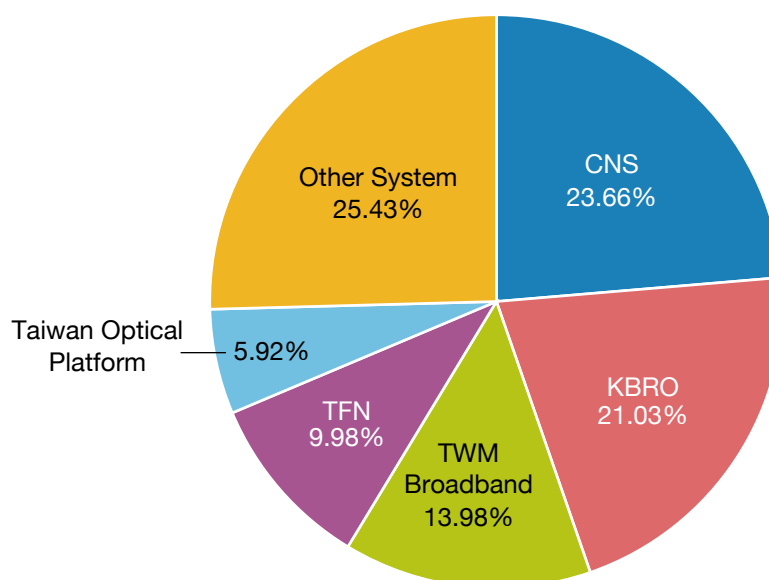


Figure 2.18: Market Share of Cable TV Operators (2014)

Source: NCC

Table 2.10: Cable TV System Operators and Subscribers

System Operator		2010	2011	2012	2013	2014
CNS	No. operator	10	10	10	10	10
	No. subscription	1,076,823	1,089,933	1,088,334	1,188,199	1,183,446
	Market share	21.18%	21.53%	21.81%	23.83%	23.66%
KBRO	No. operator	12	12	12	12	12
	No. subscription	1,131,694	1,086,449	1,047,344	1,047,540	1,051,879
	Market share	22.26%	21.46%	20.99%	21.01%	21.03%
TWM Broadband	No. operator	4	4	4	4	4
	No. subscription	680,127	690,733	694,151	697,989	699,311
	Market share	13.38%	13.65%	13.91%	14.00%	13.98%
TFN	No. operator	5	5	5	5	5
	No. subscription	555,977	544,812	510,394	494,431	499,010
	Market share	10.93%	10.76%	10.23%	9.92%	9.98%
Taiwan Optical Platform	No. operator	4	4	4	4	4
	No. subscription	292,789	294,562	294,171	296,477	296,280
	Market share	5.76%	5.82%	5.90%	5.95%	5.92%
Other (program transmission) systems	No. operator	24(3)	24(3)	24(3)	21(3)	21(3)
	No. subscription	1,347,081	1,355,248	1,354,761	1,260,586	1,272,290
	Market share	26.49%	26.77%	27.15%	25.29%	25.43%
Total	No. operator	62	62	62	59	59
	No. subscription	5,084,491	5,061,737	4,989,155	4,985,222	5,002,216

Source: NCC

## Penetration of Digital Cable TV

As of the end of 2014, the number of cable TV subscribers that had installed a digital set-top box was almost 3.95 million. Due to an incentive-based regulatory approach, the take-up rate of digital cable TV expanded significantly by 33.28% to 78.92% in 2014 (Figure 2.19).

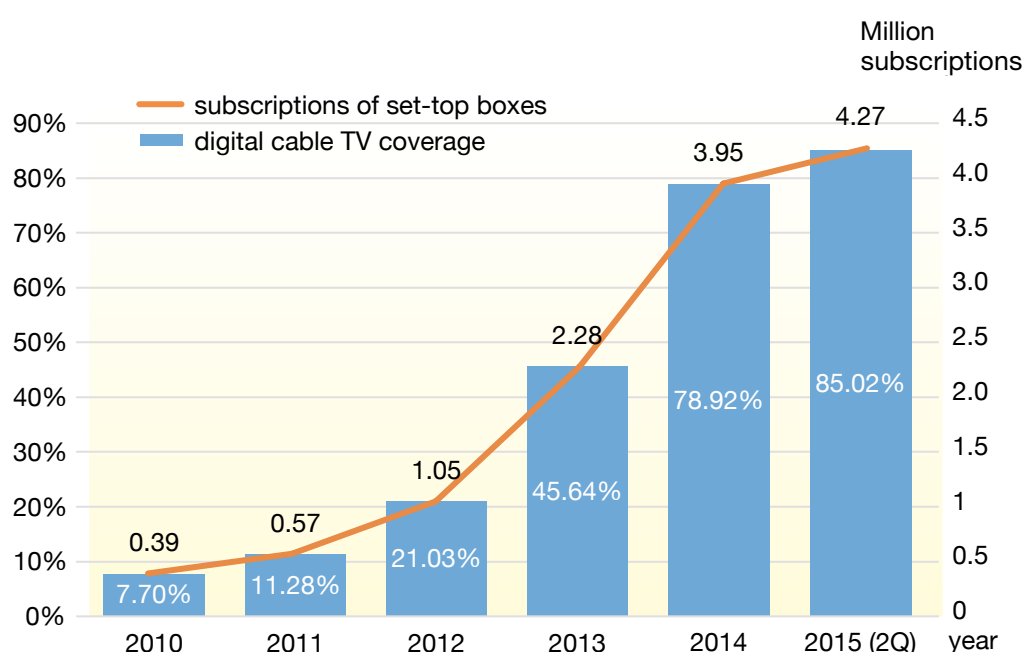


Figure 2.19: Coverage of Digital Cable TV / Subscriptions of Set-top Boxes

Source: NCC

## Satellite Broadcasting Program Suppliers

As of 2014, there were 108 satellite broadcasting program suppliers: 86 domestic supplies, 29 foreign suppliers, and 7 joint local and foreign suppliers (Table 2.11).

Table 2.11: Satellite Broadcasting Program Providers

Types of Suppliers	2011	2012	2013	2014
Domestic	80	80	84	86
Foreign	29	29	30	29
Joint local and foreign	8	6	6	7

Source: NCC

## Satellite Channels

The number of satellite channels in 2014 remained at 280: 169 domestic and 111 foreign, 60.36% and 39.64% respectively (Figure 2.20).

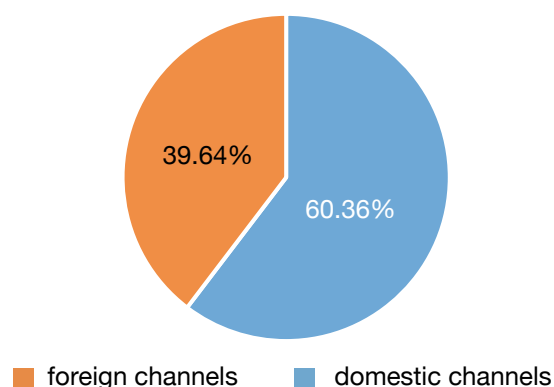


Figure 2.20: Percentage of Local and Foreign Channels (2014)

Source: NCC

## Viewing Behavior

According to a survey undertaken by NCC, among viewers that had watched TV programs during the previous week, 84.7% had used cable TV, 44.79% computers or mobile devices, and 19.13% terrestrial TV. Moreover, the average number of hours that people spend each day has increased each year, from 2.55 hours in 2008 to 3.68 hours in 2014, an increase of 1.13 hours (Figure 2.21).

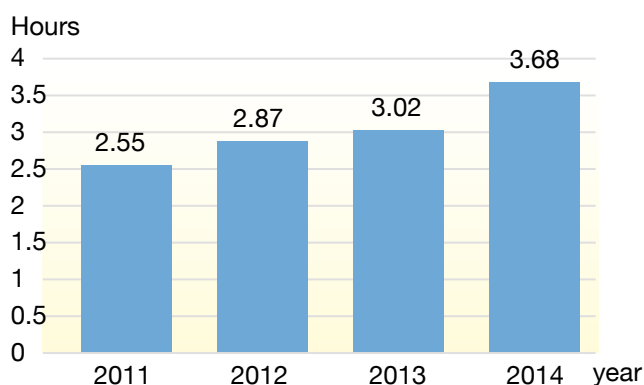


Figure 2.21: Viewing Hours

Source: NCC

## Communications Resources

### Spectrum

With the advancement of mobile technology, 2G, PHS, 3G, WiMAX and 4G licenses have been awarded accordingly. The spectrum for mobile use can be seen in the following table.

Table 2.12: Spectrum Usage (2015 September)

Spectrum (MHz)	Usage
703-748, 758-803	4G service, license expires 2030
825-845, 870-890	3G service, license expires 2018
885-915, 930-960	885-890 for 3G service, license expires 2018 910-915, 955-960 for 2G service, license expires June 2017 885-915, 930-960 for 4G service, license expires June 2030
1710-1770, 1805-1865	1721.3-1732.5, 1748.7-1755, 1816.3-1827.5, 1843.7-1855 for 2G service, license expires June 2017. 1710-1770, 1805-1865 for 4G service, license expires 2030
1885-1915, 1975-1985	Under planning
1915-1975, 2010-2025; 2110-2165	1915-1975, 2110-2165 for 3G service, license expires 2018 1915-1920, 2010-2025 under planning
2500-2690	2595-2620 for WiMAX service, license expires 10 December 2015 2500-2690 award for 4G in progress

Source: NCC

## Numbers

Most allocated numbers are for fixed-line services (32,680,000), followed by 2G (24,179,909), 3G (20,000,000), and 4G (6,000,000). To improve the effectiveness of number resource, 9.4 million numbers were recycled in 2012, 744,000 in 2013, and 1.58 million in 2014. 1.38 million 2G numbers were also recycled, as well as 200,000 (099) smart virtual numbers.

Table 2.13: Allocation of Telecom Numbers

User number		
Item	Service	Allocated number
1	Land line	32,680,000
2	2G	24,179,909
3	3G	20,000,000
4	4G	6,000,000
5	Pager	0
6	PHS	2,000,000
7	WBA	100,000
8	Premium Rate Service	250,000
9	Normal Rate Service	200,000
10	Internet Telephony Service	740,000
11	Free Phone Service	770,000
12	Personal Number Service	200,000
Internet identification		
Item	Type No.	Allocated number
1	International direct Internet code	8
2	Dialing code	5
3	Dialing Internet code	25
4	Virtual Private Network	1
5	Credit Telephone Service	0
Other allocation		
Item	Type No.	Allocated number
1	Portable number Internet code	26
2	Mobile network code	16
3	7th signal system international code	24
4	7th signal system domestic code	3,698

Source: NCC

## Internet Protocol Address and Domain Name Registry

Taiwan Network Information Center (TWNIC) is the non-profit organization that is responsible for domain name registration and IP address allocation in Taiwan. To align with global Internet development, TWNIC releases 4 types of domain name registration service. TWNIC consecutively releases four types of registration domain name services, which are attributed in English, Chinese, general in Chinese, and general in English (Table 2.14). Besides from .gov.tw, .edu.tw and .mil.tw, which are issued by each authority, the issuance of domain names was authorized to 11 companies.

### IPv4

As of the end of 2014, a total of 35,439,872 ( $138,437 \times 2^8$ ) IPv4 addresses had been issued (Table 2.15).

### IPv6

Since IPv4 addresses are almost depleted, Taiwan has worked on migration towards the new version of the Internet address protocol, IPv6, to ensure availability. A total of  $2,355 \times 2^{96}$  IPv6 addresses had been assigned by the end of 2014 (Table 2.16).



Table 2.14: Type of Domain and Number of Registrations

Type		Type	Process Registration facility	Released date	The number of accumulated registration
English characters	Specific	.gov.tw	National Development Council	89/12/31	2,232
		.edu.tw	Ministry of Education	78/07/31	479
		.mil.tw	Ministry of Defense	-	-
		.com.tw	Accredited registrars	86/05/01	208,307
		.org.tw			11,544
		.net.tw			1,722
		.idv.tw		89/05/01	11,315
		.game.tw		91/10/01	242
		.club.tw		92/01/01	354
	.ebiz.tw	92/03/01		105	
Generic	.ascii.tw		94/11/01	85,006	
Chinese characters	Specific	.商業.tw	Accredited registrars	89/05/01	113,897
		.組織.tw			7,555
		.網路.tw			1,303
	Generic	.中文.tw		90/02/16	127,089
		.中文.台灣		99/10/24	127,089
Total					689,239

Source: TWNIC

Table 2.15: IPv4

Measurement: 2<sup>8</sup>

	2010	2011	2012	2013	2014
Allocated	18,842	13,499	49	45	134
Aggregated	124,710	138,209	138,258	138,303	138,437

Source: TWINC

Table 2.16: IPv6

Measurement: 2<sup>96</sup>

	2010	2011	2012	2013	2014
Allocated	7	13	8	9	10
Aggregated	2,315	2,328	2,336	2,345	2,355

Source: TWINC



The background is a solid pink color. It features a network of thin white lines connecting small white circles, creating a web-like pattern. In the top right corner, there are several lines of binary code (0s and 1s) in a light pink, slightly curved font. In the bottom left corner, there are also lines of binary code in the same style. The main text is centered in the upper half of the image.

# Section 3

# **Progress of Regulatory Reform**

## The Launch of 4G Services

### Accelerated Release of Spectrum

Accessing social media and streaming services with mobile devices has become a part of our lives in information society. To support the consequent increasing demand for mobile data, NCC works closely with other ministries and relevant stakeholders to plan and release spectrum when required. Options for release are considered according to harmonization with international practices, standardization of new wireless technology, and emerging opportunities.

During 2013, a total of 270MHz of frequency in the 700MHz, 900MHz, and 1800MHz bands was released for 4G services (Figure 3.1). It is worth

noting that Taiwan was one of the first countries to allocate the 700MHz band in the Asia-Pacific Telecommunity (APT) 700 MHz spectrum band plan.

### Rapid Growth of 4G

After the five 4G operators in Taiwan launched their respective 4G services in 2014, the number of high-speed base stations rapidly increased and had reached 15,480 by the end of the year. In less than twelve months mobile broadband coverage had increased to 95% and the revenue of 4G operators climbed to USD331.26 million, demonstrating that NCC had achieved its regulatory objective of ensuring competitiveness in mobile broadband market, as well as protecting the interests of consumers.

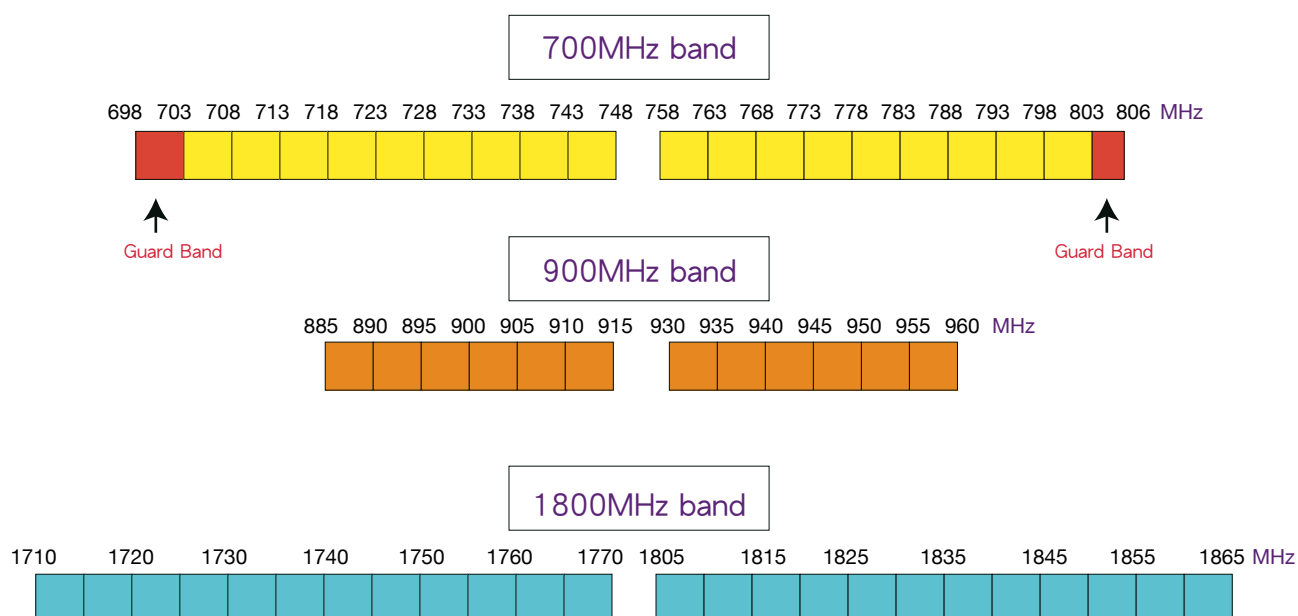


Figure 3.1: Spectrum Release in 2013

Source: NCC

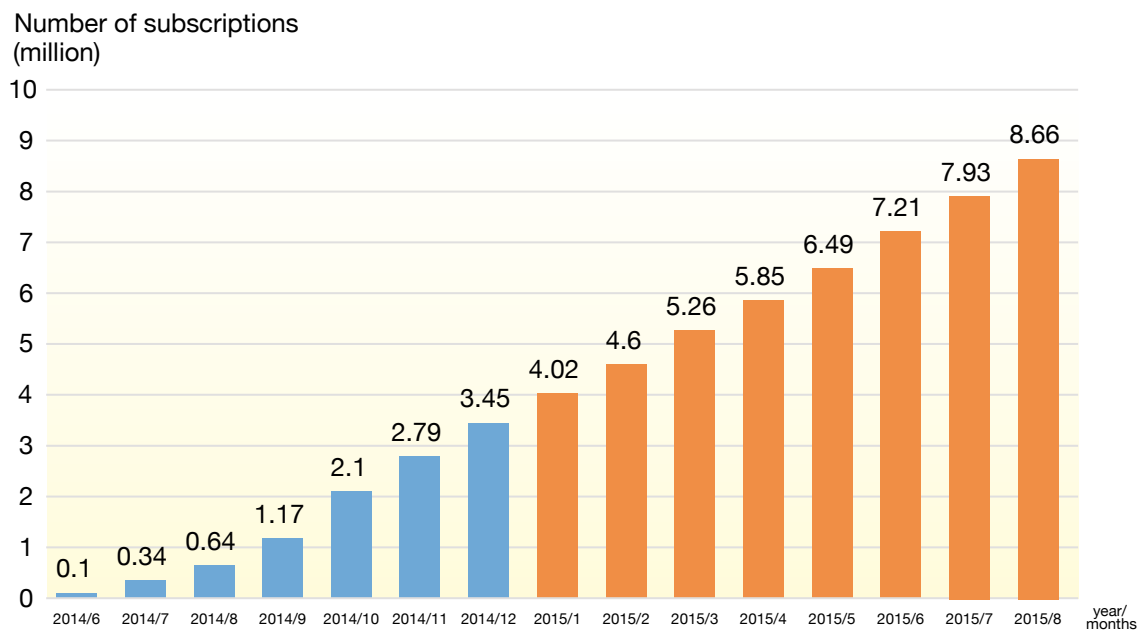


Figure 3.2: Growth of 4G

Source: NCC

According to our study, within half year of the launch of 4G by the end of 2014, approximately 3.5 million users had already upgraded or subscribed to 4G services, with the number swiftly increasing to 8.66 million by August 2015.

### 4G Smart Life and Mobile Economy

Since consumers of mobile broadband are not restricted by place or time and can access a huge range of content and applications, advertising companies are also combining big data analyzing techniques to target potential customers and, with 4G services especially in mind, have been able to provide high quality interactive advertisements to convey brand imaging and product information. According to Brain.com, revenue of mobile advertising almost doubled from USD141 million in 2013 to USD281 million in 2014.

Based on the research conducted in 2014 by the Institute for Information Industry and Mobile

First, users of 4G are more willing than 3G users to use GPS, shop online, and use mobile banking services. According to the report published in 2015, the most frequently used services of 4G smart phone users are email, GPS, online ticket booking, and gaming.

To realize the vision of building a mobile broadband intelligent Taiwan, in 2014, the Executive Yuan coordinated with relevant ministries to implement the “Accelerating Mobile Broadband Service and Industry Development” initiative. A key aspect of the initiative encourages 4G operators to cooperate with local governments to develop mobile applications, such as smart transportation apps and disaster response services, etc. A key part of the vision for an ‘intelligent Taiwan’ is to create more versatile public services, create more business opportunities for local enterprises, and benefit both citizens and visitors.



## Spectrum Planning

It is widely acknowledged that wireless technology and applications play a key role in driving the digital economy growth, promoting e-government services, and reducing the digital divide. In order to accelerate the release of spectrum, the Executive Yuan coordinated with relevant ministries and, in May 2015, announced the Spectrum Release Plan (2015). In accordance with this plan, we will release a total of 190MHz of frequency in the 2500MHz and 2600MHz bands in 2015.

Throughout 2014, we undertook a series of preliminary policy consultations regarding spectrum allocation options, license obligations and auction designs. These have been completed and as soon as the regulations are amended, we will begin the bidding process. Potential bidders can bid based on their existing spectrum holdings, as well future business prospects. Since demand for spectrum is expected to continuously increase, we are committed to supporting the government's spectrum release plan and facilitating the more efficient use of spectrum.

## Digital Cable TV

### Incentive-based Plans to Promote Digitization

To promote the digitization of cable television, NCC utilized the Cable Radio and Television Development Fund to subsidize qualified applicants for digital cable network upgrades and the comprehensive deployment of digital set-up boxes. The incentive-based regulatory practices consist of two projects: the Acceleration Project, which is for operators that are just beginning digitization, and the Early Bird Project, for operators that have completed digitization.

The Acceleration Project allows cable television system operators that have achieved a penetration rate of more than 80 percent in their area of operation, or an increase of over 40 percent, to receive 50 percent subsidies of its expenses (capped at USD0.23 million). The Early Bird Project allows cable television system operators that have already reached 100 percent digitization in their area of operation to benefit from a subsidy plan ranging from USD0.07 million to USD0.49 million.

The two projects have encouraged more cable television system operators to switch from analogue to digital. NCC processed 45 applications during 2014 with the total amount of subsidies reaching USD10.54 million.

### Digitization Trial Plan

Another step toward supporting the industry to move toward broadband convergence was the Cable Television Trial Plan, first launched in 2010, encouraging operators to pursue full digitization and adjust accordingly to the response from consumers.

The key aspects of the plan include requiring operators to propose digitization and network upgrade schedules that accord with technical regulations, a method for set-top boxed deployment, as well as assistance for consumers when making the transition. At the 599th Commission Meeting on 9th July 2014, the commission passed a resolution to amend the plan, including many deregulatory practices; for instance, operators no longer need to transmit channels 2-25 in both analogue and digital signals.



Figure 3.3: Digitization of Cable TV Conference (Dec. 2014)



Figure 3.4: Press Conference for Digitization of Cable TV in Tainan (Aug. 2014)

During 2014, we received 65 applications; consequently, 608,922 users benefited from the plan and made the transition to digital cable television. This demonstrates that the relaxing of the conditions for the transfer to digital significantly increased motivation to do so.

## Regulatory Framework for Convergence

### Horizontal Model of Reform

The current regulatory regime in Taiwan still prescribes a ‘vertical’ approach where telecommunication businesses are regulated by the Telecommunications Act, and radio and television broadcasting businesses are regulated by the Radio and Television Act, Cable Radio and Television Act, and Satellite Broadcasting Act.

However, with technology convergence, many countries have moved toward regulatory convergence and adopted a ‘horizontal’ approach. With view to drafting legislative reforms, NCC has published ten consultation papers and held public meetings concerning critical issues. Relevant stakeholders were invited to comment and submit supporting evidence so as to enhance decision-making (Table 3.1).

On 25th August 2014, NCC held a public hearing meeting concerning the ‘Convergence Legislative Framework’ to explain the overall converged regulatory model. The proposed model has adopted a ‘horizontal’ and ‘evolving’ approach, bridging the current regulatory regime toward a converged framework. The reform package includes the continuation of the Telecommunica-

tions Act and the Cable Radio and Television Act, which will facilitate the development of communication platforms. Meanwhile, the Radio and Television Act and Satellite Broadcasting Act will be combined, but still follow the principle of the content and network integration, yet with progressive steps toward deregulation and flexibility.

Other issues of the reform can be categorized into three types:

Firstly, transformation into the horizontal model of regulation: by introducing general obligations to communication businesses, the new regulatory framework will be more flexible, thus encouraging new entrants into the market, leading to greater competition and choice. NCC published four relevant consultation papers in 2014 (accompanied by respective public meetings): ‘Encourage Cross-Sector Convergence, Adopting Horizontal Regulatory Model,’ ‘Introducing General Obligations for Deregulation,’ ‘Definition, Classification and Entry of Regulated Business,’ and ‘Management of Communications Infrastructure and Network under the Development of Digital Convergence.’

Secondly, development of a regulatory framework that promotes competition and encourages industry development: as with the objectives underpinning the legislative reforms of most countries, NCC has shifted focus to promote competition through re-regulation, particularly in asymmetric regulation, and mechanisms to improve market efficiency. As a result, two public hearing meetings were held on these topics. Two public consultation papers were also published: ‘How to Promote Fixed-line Broadband Market

Competitiveness’ and ‘Better Asymmetric Regulations to Encourage Competition.’ Public meetings were also held with the aim of compiling more feedback.

Thirdly, promotion of media pluralism and establish content management mechanisms: the emergence of new technology and Internet has created issues in regulatory imbalances between traditional electronic media and newly over-the-top services. Also, how to pose appropriate supervision to secure media pluralism so that the public has numerous sources of information has also become fundamental in facilitating a democratic society. Three relevant public consultations were published: ‘How to Prevent Monopolization of Broadcasting Ownership and Protect Pluralism,’ ‘The Investment and Control from the Government and Political Parties in Broadcasting Business,’ and ‘Content Management in the Age of Convergence.’ The follow-up public meetings enabled more public engagement, aiding the commission’s decision making.

## Enhanced User Experience

### Measuring Broadband Speeds

In order to assess the performance of both fixed-line and mobile broadband services, in 2014, we commissioned research to determine whether there was a difference between speeds that the operators claimed to provide and what consumers actually experienced. The survey undertook measurements of the actual upload (download) /advertised upload (download) fixed-line broadband speeds. The results showed that the average rate of download speed among the different service tiers in 2014 was between 88.4-115.2% of the advertised rates - the highest being the 15Mbps tier, 115.2%. The average rate of upload speed among different service tiers was between 93.3-110.3% - the highest being the 25Mbps tier, 110.3%.

Table 3.1: Public Meetings Concerning the Draft of Amendments for Digital Convergence

Date	Issues
Jan. 1, 2014	How to Promote Fixed-line Broadband Market Competitiveness
Feb. 2, 2014	How to Prevent Monopolization of Broadcasting Ownership and Protect Pluralism
Feb. 2, 2014	The Investment and Control from the Government and Political Parties in Broadcasting Business
Jun. 19, 2014	Better Asymmetric Regulations to Encourage Competition
Jul. 14, 2014	Content Management in the Age of Convergence
Aug.14, 2014	Encourage Cross-Sector Convergence, Adopting Horizontal Regulatory Model
Aug. 14, 2014	Introducing General Obligations for Deregulation
Aug. 25, 2014	Convergence Legislative Framework
Aug. 28, 2014	Definition, Classification and Entry of Regulated Business
Dec. 5, 2014	Management of Communications Infrastructure and Network under the Development of Digital Convergence

Source: NCC



As for the mobile broadband offered by the five 3G operators in Taiwan, the results of the survey showed that during the first half of 2014, the average download speed was 6.08Mbps, compared with an average download speed of 4.44Mbps at the end of 2013, an increase of 36.9%. The survey undertaken during the second half of the year showed further improvement; the average downloading speed was 6.27Mbps, compared with the average speed of 6.08Mbps taken from the previous research.

Table 3.2: 3G Mobile Broadband Speeds

	2013	2014	
		Phase One	Phase Two
Average upload speed	1.13Mbps	1.1Mbps	1.08 Mbps
Average download speed	4.44Mbps	6.08Mbps	6.27Mbps

Source: NCC

Further research will be conducted in 2015, not only to promote the transparency and competitiveness of both fixed-line and mobile broadband performance, but also further the interests of consumers in terms of better quality of service.

## Switching Providers Easily

Number portability enables subscribers to retain their existing phone numbers when switching operators. It is a mandatory mechanism widely adopted by regulators to reduce the transferring cost of consumers, and stimulate competition among operators.

To shorten the process of porting, NCC has extended the operation days from 250 days to 353 days, including almost all weekends. This allows consumers switching to another operator to do so more easily and quickly. The number of

mobile and fixed-line being ported was 28,472,026 and 39,672,000 respectively at the end of 2014. A total of 6,197,019 and 3250 porting applications were handled for mobile and fixed-line telephone respectively.

Table 3.3: Ported Mobile and Fixed-line Numbers

Effective Date	Mobile	Fixed-line
2005 10-12	93,858	94
2006	511,358	516
2007	2,080,264	1093
2008	3,318,003	3946
2009	3,220,594	8109
2010	3,072,746	6629
2011	3,068,243	5102
2012	3,452,627	6177
2013	3,457,314	4756
2014	6,197,019	3250
Total	28,472,026	39,672

Source: NCC

## Free Seven-day Trials and More

Protecting consumers' interests is one of the principle duties of NCC; thus, we recognize the importance of revealing key information to help consumers to make good decisions when choosing their communications services. To protect consumers' interests and improve communications service quality, NCC requires all 3G and 4G operators to provide a free seven-day trial period for potential customers to decide whether or not to take up the service based on their experience during the trial.

Moreover, operators are required to publish coverage maps on their websites so that consumers can see whether a specific place has reliable



service (Table 3.4). It is also mandatory for operators to post city or county mobile coverage maps of where it is located in stores.

Table 3.4: Mobile Coverage Maps of Operators

Operator	The links of signal coverage search engine
Chunghwa Telecom	<a href="http://www.emome.net/internet_coverage">http://www.emome.net/internet_coverage</a>
Taiwan Mobile	<a href="https://www.taiwanmobile.com/mobile/calculate/cover_map.html#.VdGz6bKqpBc">https://www.taiwanmobile.com/mobile/calculate/cover_map.html#.VdGz6bKqpBc</a>
Far EasTone Telecommunications	<a href="http://www.fetnet.net/cs/Satellite/eCare/NetworkCommunication">http://www.fetnet.net/cs/Satellite/eCare/NetworkCommunication</a>
Taiwan Star Telecom	<a href="https://www.tstartel.com/mCWS/serviceCoverage.php">https://www.tstartel.com/mCWS/serviceCoverage.php</a>
Asia Pacific Telecom	<a href="http://www.aptg.com.tw/others/Coverage.htm">http://www.aptg.com.tw/others/Coverage.htm</a>

Source: NCC

## Telecom and Communication Contents Complaint Reports

Although NCC encourages consumers to express opinions or resolve problems with service providers directly, consumers still make complaints to the NCC covering a wide range of communication issues. Complaints are compiled, analyzed, and published regularly to monitor the service quality and inform consumers.

As for telecom service, Telecom Complaints Reports are published monthly, including provider-specific data. During 2014, consumers made a total of 9,912 complaints, 87.4% of which were concerned with mobile services. Most complaints were concerning connection quality (43%), application/transfer/renewal (14%), and billing (6%).

To ensure high quality and protect diversity of contents, NCC also publishes Communication

Content Complaints Reports quarterly. A total of 10,016 complaints were received during 2014, an increase of 8,209 compared to 2013. The most common complaint was under the category ‘disrupt public order or adversely affect good social customs,’ with 4,003 complaints

## Digital Inclusion

### High Speed Broadband Deployed in Remote Areas

Universal service assures the basic communication rights of all people. Since the Internet has become a fundamental aspect of our information society, alongside traditional voice service, building a ubiquitous broadband network has become a key issue of universal service.

The projects of ‘Broadband for All Villages’ and ‘Broadband for All Tribes’ were completed in 2007 and 2010 respectively. Since the beginning of 2012, NCC has been promoting the increase of broadband speeds from 2Mbps to 12Mbps. From 2007 to 2014, an accumulated total of nearly 3000 kilometers of fiber-optic cable has been deployed (Figure 3.5), reaching 280 villages and 247 tribes (Figure 3.6).

### Disaster-resistance Communications Platforms

When disaster strikes, effective communications are necessary to coordinate prompt actions and relief operations. Therefore, it is imperative that the connectivity of communications technology is ensured, especially during emergency and disaster situations.

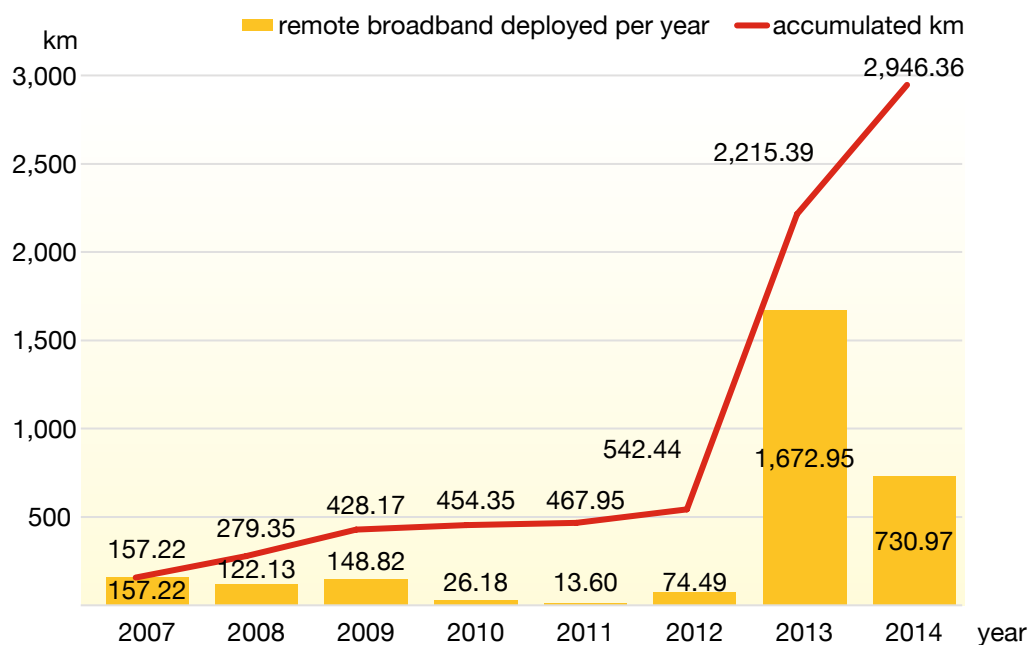


Figure 3.5: Broadband in Remote Areas / Accumulated Fiber-optic Cable  
Source: NCC

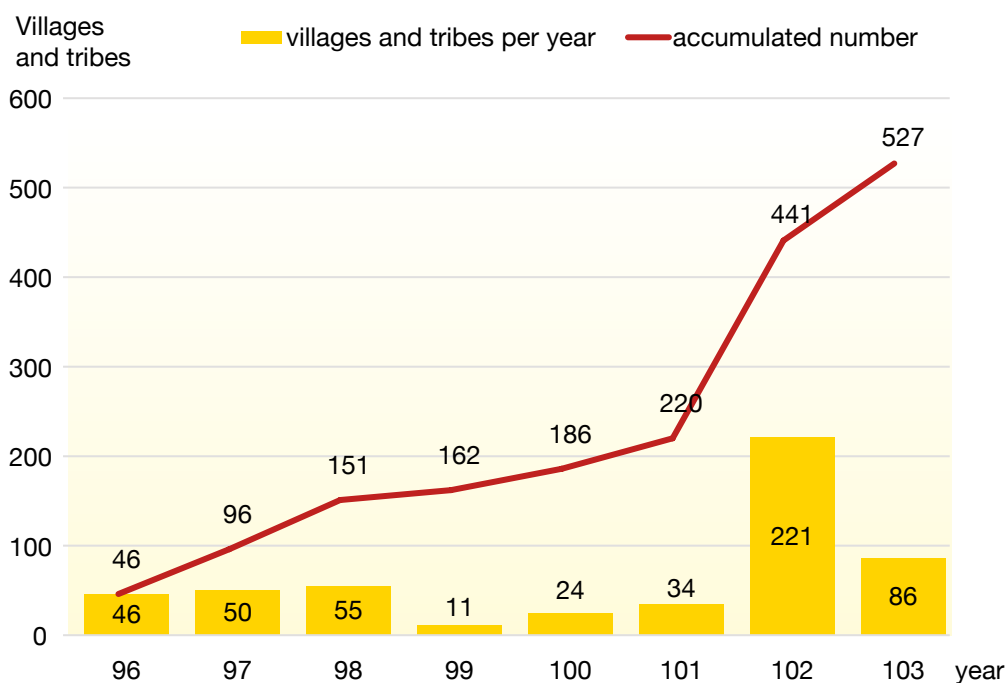


Figure 3.6: Broadband in Remote Areas / Accumulated Villages and Tribes  
Source: NCC



Figure 3.7: Online Safety for Children and Youths Scheme

NCC has been working with local governments to build disaster-resistance communications platforms, the first of which was launched in 2010. Since then, more have been built each year; during 2014, six sites were built in Taipei City, Tainan City, Chiayi County and Pingtung County.

### iWIN Protects Children and Youths Online

With the ubiquity of the Internet and connected devices, more and more children and youths access and use contents and services online. In accordance with the Children and Youth Welfare Act, NCC has planned and promotes the Internet content self-regulating platform.

NCC commissioned the Institute of Watching Internet Network (iWIN) to promote content filtering software, accept complaints, and act to remove illegal contents. It also organizes safety awareness programs for children, youths, parents

and teachers. In 2014, iWin received 15,051 complaints concerning improper contents online, with obscene contents by far the most common type of complaint.

### International Participation

#### Expanding Our International Participation

With a view to promoting Taiwan's support for development of the information and technology (ICT) industry across the Asia-Pacific region, senior technical specialist Mr. Morris Lin of NCC was successfully appointed as the new Vice-Chair of the Asia-Pacific Economic Cooperation Telecommunications and Information Working Group (APEC TEL) during its 51st meeting held in the Philippines in May. Mr. Lin took up the position with immediate effect and begins a new realm of the country's diplomatic leadership concerning ICT.

Furthermore, NCC has also actively engaged in other international conferences and events held by Pacific Telecommunication Council (PTC), International Institute of Communications (IIC), Groupe Speciale Mobile Association (GSMA), International Telecommunication Union (ITU), and prominent communications regulators.

In June 2014, Commissioner Shue-Wen Wei was invited as panelist at ‘Broadband for All’ conference held by Swedish Post and Telecom Authority (PTS). In the panel discussion, Commissioner Wei shared spectrum management and regulatory practices in Taiwan, as well as our experiences of the recent 4G auction and licensing (Figure 3.8).

In October 2014, Chairperson Shyr attended International Regulators Forum (IRF) held by IIC. As the moderator of the ‘Achieving universal broadband – considerations in emerging and mature markets’ panel discussion, Chairperson Shyr described how Taiwan exercised incentive-

based competitive policy in promoting broadband deployment and achieved ubiquitous broadband (Figure 3.9).

In December 2014, Commissioner Yi-Ning Chen attended ‘2014 International Roundtable’ held by Korea Communications Standards Commission (KCSC), and shared a presentation entitled, ‘When News Itself may also Be A Disaster - How Taiwan Regulates Disaster Broadcasting.’ The talk covered disaster prevention system, as well as key laws, regulations, and guidelines, and some case studies for the broadcasting of disasters in Taiwan (Figure 3.10).

## Strengthening International Relations

Asides from participating in various international organizations and conferences, the NCC also invited other communications regulators to Taiwan for exchange of views and experiences.



Figure 3.8: Commissioner Wei (far right) During Broadband for All Conference





Figure 3.9: Chairperson Shyr as Moderator of IIC Conference



Figure 3.10: Commissioner Yi-Ning Chen at International Roundtable Meeting

In February 2014, as part of NCC's 8th anniversary celebrations, an International Communications Forum was held (Figure 3.11). Australian Communications and Media Authority (ACMA) Vice-chairperson Mr. Richard Bean and Body of European Regulators of Electronic Communications (BEREC) Chairperson, as well as the director of Swedish Post and Telecom Authority (PTS) Mr. Göran Marby all made keynote speeches sharing their regulatory experiences.

In August 2014, the NCC signed the Memorandum of Understanding (MOU) with the Communications Regulatory Commission of Mongolia (CRC).

In November 2014, the Korea Communications Standard Commission (KCSC) vice-chairperson also visited the NCC, and exchanged policy issues concerning media development and content management (Figure 3.12).



Figure3.12: KCSC Vice-chairperson (center left) at NCC



Figure 3.11: International Communications Forum (Feb. 2014)



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