



National Broadcasting and
Telecommunications
Commission (NBTC)



ANNUAL REPORT 2024



Communication constitutes one of the most critical factors in fostering constructive development and progress, as well as maintaining national security and safety. In the contemporary era, where global circumstances are constantly evolving, rapid and timely communication assumes paramount importance. All parties and agencies involved in the nation's communications should collaborate closely and coordinate their efforts in a coherent and harmonious manner. Most importantly, there should be dedicated efforts to conduct comprehensive and extensive academic research and study of modern technology, followed by careful consideration and selection of effective and proven components for adaptive implementation through intelligent innovation, appropriately suited to our national capacity and circumstances. This approach will enable the nation's communications sector to achieve its full developmental potential and contribute comprehensively to enhancing the country's economic, social, and political stability.

Chitralada Villa Royal Residence
July 15, B.E. 2526 (1983)

*The Royal Speech was bestowed by
His Majesty King Bhumibol Adulyadej the Great
on the Occasion of the Centennial of the Post and Telegraph Department
and the National Communication Day, on August 4, B.E. 2526 (1983)*

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Preface

In accordance with Section 76 of the Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010), the National Broadcasting and Telecommunications Commission (NBTC) is mandated to prepare annual performance reports covering spectrum management, broadcasting services, television services, and telecommunications services, as applicable. These reports must present detailed work plans and performance results, including particulars regarding spectrum management, frequency allocation, and the operation of broadcasting services, television services, and telecommunications services, as applicable, as well as operational plans for subsequent periods. The reports shall be submitted to the Council of Ministers and Parliament within one hundred and twenty days from the end of the fiscal year and disclosed to the public.

Therefore, The NBTC has prepared the NBTC Annual Performance Report 2024, which comprises key performance achievements of the NBTC for 2024, market condition and competition reports in broadcasting, television, and telecommunications services, fiscal year 2024 budget management, policies, operational plans, and expenditure budget for fiscal year 2025, as well as significant challenges and obstacles in broadcasting, television, and telecommunications services that affect the public, including recommendations for remedial approaches. Detailed information is contained within this report. It is earnestly hoped that the information in this report will be beneficial to the public.

The National Broadcasting and
Telecommunications Commission



Message from the Chairman of the **NBTC**

Clinical Professor Sarana Boonbaichaiyapruk
Chairman of the NBTC

In 2024, the National Broadcasting and Telecommunications Commission (NBTC) managed Thailand's frequency spectrum and regulated broadcasting, television, telecommunications, and satellite services in response to global and domestic changes affecting the broadcasting, television, and telecommunications sectors. These changes included economic insecurity, social and political transformations, worldwide conflicts, and environmental concerns. In order to address the digital divide, the NBTC increased support

for corporate activities and reduced regulations, while simultaneously ensuring that the public has access to high-quality telecommunications, television, and broadcasting services. Furthermore, the NBTC attempted to protect consumers while encouraging the long-term use of technology, providing the ground work for the growth of national communications to keep pace with changing conditions. The principal operational outcomes are as follows:



1. Spectrum Management to meet the demands of the digital economy.

The Spectrum Management Master Plan has been amended to align with the WRC-23 resolutions, in accordance with the international agreements. The IMT Spectrum Roadmap (B.E. 2567 – 2571) (2024 – 2028) has been prepared to serve as a preliminary time frame for allocating spectrum for IMT businesses, to accommodate the spectrum usage demands of various sectors sufficiently, and enhance the efficiency and quality of future telecommunications services. Also, the multi-band auction has been prepared for 2025 (850 MHz, 1500 MHz, 1800 MHz, 2100 MHz, 2300 MHz, and 26 GHz) to accommodate the increasing demand for usage and support the digital economic development.

2. Developing Thailand's Broadcasting and Television Sectors to Meet International Standards in Alignment with the Digital Era.

The NBTC has implemented the transition of FM radio trial stations, which are set to conclude their trial broadcasts on December 31, 2024, into a complete licensing system in accordance with the law. This transition enables both current FM trial broadcasters and new entrants wishing to operate broadcasting services to enter the licensing system. The FM frequency auction has been prepared for the provision of broadcasting services in the local commercial operations category for 2025. Also, the NBTC has prepared the Notification of the NBTC on Measures to Promote the Collaboration among Licensees, Program Producers, and Media

Professionals in the Broadcasting and Television Sectors, and the Notification of the NBTC on Criteria for Supporting Socially Beneficial Programs in the Broadcasting and Television Sectors. In addition, the NBTC is currently in the process of endorsing the Notification of the NBTC on regulatory framework for community development and support of qualified community service operators to facilitate the promotion and supervision of broadcasting and television technology service, B.E. 2566 (2023).

3. Enhancing Competitive Dynamics in the Telecommunication Sector.

The NBTC has amended the criteria and prescribed measures to create an enabling environment for market entry and competition among telecommunications operators, while ensuring regulatory oversight through post-merger measures. This also includes the development of criteria for last-mile network services and mobile internet service pricing, as well as the promotion of Mobile Virtual Network Operators (MVNOs) to enhance service options and accessibility for the public.

4. Preserving national satellite orbital slots.

The NBTC prescribed the Notification of the NBTC on Criteria and Procedures for Granting Rights to Access Satellite Orbital Slots at the positions of 50.5, 51, and 142 degrees East by the open direct award process, which is a combination of the direct award process and the beauty contest process, instead of an auction. In addition, the NBTC granted

a license to TC Space Connect Company Limited to hold the rights to operate a geostationary satellite at the position of 50.5 degrees East orbital slot (with the usage rights set to expire on November 24, 2024). The announcement inviting applications to obtain usage rights for the geostationary satellite at the positions of 51 degrees East and 142 degrees East orbital slots is currently under preparation.

5. Protecting Consumers and Promoting Civil Rights in Broadcasting, Television, and Telecommunications sector.

The NBTC has prescribed measures to protect consumers and enhance cybersecurity in accordance with the Royal Decree on Measures for the Prevention and Suppression of Technology-Related Crimes, B.E. 2566 (2023). These measures mandate SIM user identity verification and the blocking of fraudulent links, as well as support the operations of the Integrated Cybercrime Prevention and Suppression Operation Center (ICPSOC). The aim is to collaboratively address cybercrimes that affect the economy and national security, and to regulate unfair practices against consumers, as outlined in the Notification of the NBTC on Acts of Consumer Exploitation in Broadcasting and Television Services, B.E. 2555 (2012). In addition, the measures aim to empower consumers by enhancing their knowledge, understanding, and media literacy, thereby strengthening their capacity to safeguard their rights.

6. Providing Universal Access to Broadcasting, Basic Television, Basic Telecommunications Services, and Social Services.

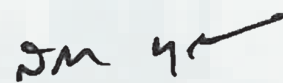
The Universal Services Obligation Action Plan for Broadcasting and Basic Television Services, and Social Services, (B.E. 2566 – 2568) (2023 – 2025) has been drafted in line with the Universal Services Obligation Plan for Broadcasting and Basic Television Services, and Social Services, (B.E. 2566 – 2568) (2023 – 2025), to provide access to broadcasting and basic television services to all groups of people, including persons with disabilities, and underprivileged individuals. Also, the Universal Services Obligation Plan, No. 4, B.E. 2566 (2023) (1st Amendment) has been amended, aiming to develop and expand basic telecommunications services to cover all areas and USO target groups nationwide. Moreover, collaboration with related agencies has been established to create the Cell Broadcast system, ensuring that the public has access to critical and necessary information during emergencies through integration with the government's command and control systems, thereby enhancing safety and reducing loss of life and property from various disasters.

7. Enhancing International Collaboration.

This aims to develop technology and telecommunications policies and support the utilization of eco-friendly technology in the telecommunications sector, thereby reducing

environmental impact on natural resources and ensuring alignment with the Sustainable Development Goals (SDGs). In addition, the NBTC has participated in shaping global telecommunications strategies through the ITU and expanded cooperation with countries in the Asia-Pacific region to safeguard national interests on the global stage and to strengthen the competitiveness of Thailand's communications and telecommunications sectors internationally.

On behalf of the Chairman of the NBTC. I would like to express my profound appreciation to all executives, associations, and employees of the Office of the NBTC and the commissioners for their dedication and perseverance in fulfilling their duties of regulating and improving the broadcastings, television, and telecommunications sectors. Ultimately, I would like to reaffirm that the NBTC and the Office of the NBTC will collaborate together to fulfill our responsibilities with integrity and justice in order to protect the citizens and the nation.



(Clinical Professor Sarana Boonbaichaiyapruk)
Chairman of the National Broadcasting
and Telecommunications Commission

Message from the Secretary-General

Mr. Trairat Viriyasirikul
Deputy Secretary-General,
Acting Secretary-General of the NBTC
(July 1, 2020 – Present)



The Office of the National Broadcasting and Telecommunications Commission (Office of NBTC) is dedicated to facilitating the National Broadcasting and Telecommunications Commission (NBTC) in the execution of its strategic priorities as outlined in the 2024 annual work scheme. This program encompasses spectrum management, spectrum authorization, and regulatory supervision of broadcasting, television, telecommunications, and satellite communication service operations.

According to the regulations, the NBTC started the process of transitioning experimental FM radio stations into fully licensed systems in 2024. Preparations are underway for the supply of local commercial broadcasting services via auction processes. The NBTC has begun studies on prospective scenarios in the television business in

anticipation of the expiration of digital terrestrial television service licenses by 2029. Furthermore, investigations are underway to establish digital platforms for terrestrial television service access channels, which may involve the integration of such access through connected television devices. One of the primary objectives is to ensure that Thailand's satellite orbital slot rights at the 50.5 degrees East position are preserved in collaboration with the International Telecommunication Union (ITU). These rights are scheduled to expire on November 27, 2024. An auction for appealing and fortunate mobile phone numbers has also been organized. Thailand has also designed a five-year national frequency allocation plan for international mobile telecommunications (IMT) from B.E. 2567 - 2571 (2024 – 2028).

Moreover, preparations are proceeding for the allocation of spectrum bands that are either nearing the end of their current licenses or are currently unassigned and will be auctioned in 2025.

Particularly in the public healthcare sector, there has been an increase in the provision of essential telecommunications and social services to underserved or unserved areas in order to ensure universal access. There are two primary initiatives: the deployment of high-speed internet in national parks and a six-month internet service program for individuals with disabilities. The NBTC has consistently been committed to the advancement of public empowerment and the preservation of citizens' rights, as well as the promotion of media literacy among consumers.

The Office of the NBTC has executed Memorandums of Understanding (MOUs) with 21 educational institutions and civil society organizations to guarantee that digital advantages are accessible to a diverse, equitable, and educated population. Additionally, the NBTC has enhanced its citizen complaint and problem-reporting channels by integrating with the city's issue management platform, "Traffy Fondue," which enables the prompt resolution of public issues. The NBTC has collaborated with telecommunications carriers to develop technologies for the identification, monitoring, and prevention of cyber threats in order to prevent cybercrime.

In an effort to authenticate the proprietorship of mobile phone numbers associated with mobile banking accounts and telecommunications services, a strategy has been implemented to employ Mobile ID technology. The Office of the NBTC persists in its pursuit of governance-based methods and high-performance approaches. For the third year in a row, it was recognized as an "excellent" central government agency and received the Digital Government Award 2024 (DGA Awards), as well as awards for e-Participation, Data Governance, and the ITA Awards 2024 for Ethics and Transparency. As a result, it secured the top national position.

On behalf of the Office of the NBTC, I am deeply grateful to the Chairman of the NBTC, the executives, the staffs, and all employees of the Office of the NBTC for their collaborative efforts in effectively advancing the NBTC's mission. The Office of the NBTC is committed to improving its operations through transparency, to become an organization that is trusted by the public. We are dedicated to the effective regulation of the broadcasting, television, telecommunications, and satellite industries, thereby guaranteeing that they are capable of effectively addressing the challenges of the digital era. The nation's and its citizens' genuine welfare is the definite focus of all initiatives.



(Mr. Trairat Viriyasirikul)

Deputy Secretary-General

Acting Secretary-General of the National
Broadcasting and Telecommunications Commission

The National Broadcasting and Telecommunications Commission





**Clinical Professor
Sarana Boonbaichaiyapruk**
| Chairman of the NBTC

●> **Education**

- Assumption College
- Doctor of Medicine, Chulalongkorn University
- Diploma, Medical Specialty, University of Southern California, California, USA

●> **Royal Orders and Decorations Earned**

- Knight Grand Cordon (Special Class) of the Most Exalted Order of the White Elephant
- Knight Grand Cordon (Special Class) of the Most Noble Order of the Crown of Thailand

●> **Work Experience**

- Cardiologist, American Board accredited at Kaiser Permanente, California, USA
- Lecturer for Medical Students, Residency Training, and Cardiologist at the Faculty of Medicine, Ramathibodi Hospital, Mahidol University, until attained Vice Dean, Faculty of Medicine, and Clinical Professor
- Member of the National Legislative Assembly
- Public Health Standing Commissioner, the National Legislative Assembly
- Energy Commissioner, the National Legislative Assembly



Air Marshal Thanapant Raicharoen | NBTC Commissioner

➤ Education

- Bachelor – Master of Computer Engineering, Munich University of the Federal Armed Forces, Germany (Royal Thai Air Force Scholarship)
German Air Force Officer School, Class of 1983 (Royal Thai Air Force Scholarship) Air Force Officer School, Class of 28 (1st Year)
- Doctor of Philosophy, Computer Science, Chulalongkorn University (The Royal Golden Jubilee Ph.D. Scholarship)

➤ Work Experience

- Programmer, SIEMENS, Munich, Germany
- Visiting Researcher, University of Maryland at College Park, USA
- Defence Information Division Director, Defence Information and Space Technology Department
- Planning and Engineering Division Director, Defence Information and Space Technology Department
- Staff Officer to Deputy Permanent Secretary for Defence (Senior Group Captain)
- Sub-committee on Space Law Development, the National Space Policy Committee
- Sub-committee on Air Transportation, the National Legislative Assembly
- Sub-committee and Honorary Advisor, Ad-hoc Committee for Considering the Draft Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services (No. ...) B.E. ... B.E. 2560 (2017)
- Honorary Advisor, the Committee on Science, Information Technology and Mass Communication, the National Legislative Assembly
- Judge of Bangkok Military Court
- Professional Expert, Office of the Permanent Secretary for Defence
- Deputy Secretary-General of Spectrum Management and Regional Affairs Cluster, Office of the NBTC
- Deputy Secretary-General of Regional Affairs Cluster, Office of the NBTC



Emeritus Professor Pirongrong Ramasoota

| NBTC Commissioner

●> **Education**

- Bachelor of Arts in English (First-Class Honors), Chulalongkorn University
- Master of Arts in Communication, Department of Communication, University of Hawaii at Manoa, USA
- Doctor of Philosophy in Communication, School of Communication, Simon Fraser University, Canada

●> **Work Experience**

- Sub-committee on Public Communications, the Committee on Science, Technology, Communication, and Telecommunications, the Senate
- Sub-committee on Political Development and Public Participation, the Senate
- Ad-hoc Committee of the Draft Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications services B.E. ..., the House of Representatives
- Advisor to Joint Committee for considering the Draft Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunication Services, B.E. ..., the House of Representatives
- Advisory Board, Privacy International (PI)
- Board of Directors, Communication Policy Research South (CPR South)
- Board of Directors, Asian Media Information and Communication Centre (AMIC)
- Lecturer, Department of Journalism, Faculty of Communication Arts, Chulalongkorn University
- Head of Department of Journalism, Faculty of Communication Arts, Chulalongkorn University
- Head of Media Policy Research Unit, Faculty of Communication Arts, Chulalongkorn University
- Vice Dean, Division of Graduate Studies, Faculty of Communication Arts, Chulalongkorn University
- Vice President for Social Outreach and Global Engagement, Chulalongkorn University



Mr. Torpong Selanon
| NBTC Commissioner

●> **Education**

- Bachelor of Education in Special Education, Suan Dusit Rajabhat University
- Master of Arts in Social Development Administration, Analysis and Social Planning, the National Institute of Development Administration

●> **Work Experience**

- Sub-committee on Regulation Reform of Media, Telecommunications and Information Businesses, Committee on Mass Communication and Information Technology Reform, the National Reform Council
- Chairman of the Sub-committee on Education Reform for Person with Disabilities, Committee on Education Reform for Person with Disabilities, the Elderly, and the Underprivileged, the National Reform Steering Assembly (NRSA)
- Committee and Assistant Secretary, Committee on National Social Reform Steering, the National Reform Steering Assembly (NRSA)
- Member of the National Reform Steering Assembly (NRSA)
- Chairman of the Sub-committee on Empowerment for Person with Visual Impairment, the National Committee on Empowerment for Person with Disabilities
- Chairman of the Sub-committee on Broadcasting Licensing Consideration, the National Broadcasting and Telecommunications Commission
- Advisory Director, the National Committee on Empowerment for Person with Disabilities, Ministry of Social Development and Human Security
- Chairman of the Sub-committee on Non-Frequency Business, the National Broadcasting and Telecommunications Commission
- Advisor to the National Broadcasting and Telecommunications Commission for Consumer Protection and Civil Liberties Promotion
- President of the Thailand Association of the Blind



**Associate Professor
Suphat Suphachalasai**
| NBTC Commissioner

●> **Education**

- Bachelor of Economics (2nd Class Honors), Ramkhamhaeng University
- Master of Economics in Economic Development, the National Institute of Development Administration
- Master of Arts in Agricultural Development Economics, Australian National University, Canberra, Australia
- Doctor of Philosophy in Economics, Australian National University, Canberra, Australia

●> **Work Experience**

- Advisory Director, Committee on Research Fund Monitoring and Evaluation, Thailand Research Fund
- National Research Council Committee, Economics
- Free Trade Agreement Strategy and Negotiation Commission
- Advisory Director in the Trade Competition Commission
- International Economic Policy Committee (IEPC)
- Lecturer, Faculty of Economics, Thammasat University
- Director, APEC Studies and Regional Cooperation Studies Centre, Thammasat University
- Director, Australian Studies Centre, Thammasat University
- Director, Thammasat Institute for Study of International Cooperation
- Director, Thammasat Institute of Area Studies



**Police General
Nathathorn Prousoontorn**
| NBTC Commissioner

●> **Education**

- Bachelor of Political Science (RPCA 37), Royal Police Cadet Academy
- Bachelor of Laws, Ramkhamhaeng University
- Master of Science (Computer), Chulalongkorn University
- Master of Arts (Translation), Chulalongkorn University
- Master of Public Affairs, Kentucky State University, USA
- Doctor of Political Science, Chulalongkorn University

●> **Training**

- Police Management Development Program (PMDP#127), AIPM, Australia
- FBI (NA#239), FBI, Quantico, Virginia, USA

●> **Work Experience**

- Inquiry Official and Crime Protection and Suppression, Police Station Level
- Superintendent of Information Center (Computer), Royal Thai Police
- Director of International Law Enforcement Academy (ILEA)
- Commander, Immigration Division 2, (International Airport)
- Deputy Commissioner, Immigration Bureau
- Commissioner, Immigration Bureau
- Assistant Commissioner General
- Special Advisor, Royal Thai Police



**Associate Professor
Somphob Purivigraipong**
| NBTC Commissioner

●> **Education**

- Bodindecha (Sing Singhaseni) School, Class of 14
- Master of Science in Applied Physics (2nd Class Honors), King Mongkut's Institute of Technology Ladkrabang
- Master of Engineering in Electrical Engineering, King Mongkut's Institute of Technology Ladkrabang
- Doctor of Philosophy in Satellite Engineering, Surrey Space Centre, University of Surrey, UK

●> **Work Experience**

- Chancellor of Space Science and Geo-Informatics Institute, Geo-Informatics and Space Technology Development Agency (Public Organization)
- Head of Observation Satellite System for Development (THEOS-2) Project Team
- Associate Professor, Aerospace Engineering
- Vice President, Mahanakorn University of Technology
- Director, Centre of Electronic Systems Design and Signal Processing, Mahanakorn University of Technology
- Director, Graduate School, Geographic Information System Technology Division, Mahanakorn University of Technology
- Sub-committee on Dual-Use Items Consideration, Department of Foreign Trade, Ministry of Commerce
- Academic Committee, the Thai Astronomical Society
- Thailand Representative, Space Advancement of Thailand Report, in the Plenary Session of the Committee on the Peaceful Uses of Outer Space (COPUOS), the United Nations Office for Outer Space Affairs (UNOOSA), at Vienna, Austria

(Unofficial Translation)
Notification of the Office of the Prime Minister

RE: On the Appointment of the Chairman and the National Broadcasting
and Telecommunications Commission

Pursuant to the Royal Command appointing the National Broadcasting and Telecommunications Commission, consisting of 11 commissioners, effective from October 7, 2011, in accordance with the Notification of the Office of the Prime Minister, dated October 7, 2011;

Whereas the Chairman and the National Broadcasting and Telecommunications Commissioners, in a total of 6 commissioners, retired as being seventy years of age, resigned, and was under prohibited qualifications according to the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) and its amendment by virtue of the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services (No. 2) B.E. 2560 (2017), and the promulgation of the Act on the Organization to Assign Frequency and to Regulate the Broadcasting and Telecommunications Services (No. 4) B.E. 2564 (2021), effective as of March 2, 2021, amending the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services (No. 2) B.E. 2560 (2017) in which relating to acquisition and selection of individuals to be appointed as the National Broadcasting and Telecommunications Commissioners. The on-duty commissioners, prior to this Act, shall maintain their positions, or continue performing duties. In case of the vacancy of office regardless of reasons, the commission shall consist of the remaining commissioners until the appointment of the new board of the National Broadcasting and Telecommunications Commission based on Section 10 of the Act

By virtue of Section 6 and Section 16 of the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services (No. 4) B.E. 2564 (2021), the 12th Senate meeting (2nd annual ordinary session) on December 20, 2021, passed a resolution approving the list of 5 candidates for the National Broadcasting and Telecommunications Commission, namely 1) Air Marshal Thanapant Raicharoen (broadcasting service aspect), 2) Professor Pirongrong Ramasoota (television broadcasting service aspect), 3) Clinical Professor Sarana Boonbaichaiyapruk (consumer protection aspect), 4) Mr. Torpong Selanon (people's liberty and rights promotion aspect), and 5) Associate Professor Suphat Suphachalasai (other fields that benefit the NBTC duties (b) economic aspect).

The Secretariat of the Senate invited those 5 candidates, approved by the Senate, to the meeting on January 14, 2022, to nominate one of the candidates to be a Chairman of the National Broadcasting and Telecommunications Commission. Consequently, Clinical Professor Sarana Boonbaichaiyapruk was voted as the Chairman of the National Broadcasting and Telecommunications Commission. The President of the Senate requested the proposal of the list to the King for Royal Command for appointing the Chairman and the National Broadcasting and Telecommunications Commissioners, in a total of 5 persons, as follows:

- | | |
|--|--|
| 1. Clinical Professor Sarana Boonbaichaiyapruk | Chairman |
| 2. Air Marshal Thanapant Raicharoe | Commissioner
(Broadcasting service aspect) |
| 3. Professor Pirongrong Ramasoota | Commissioner
(Television broadcasting service aspect) |
| 4. Mr. Torpong Selanon | Commissioner
(People's liberty and rights promotion aspect) |
| 5. Associate Professor Suphat Suphachalasai | Commissioner
(Other fields that benefit the NBTC duties
(b) economic aspect) |

And the Secretariat of the Cabinet proposed the list to the King for Royal Command for the appointment. In this regard, the King is graciously pleased to appoint the Chairman and the National Broadcasting and Telecommunications Commissioners as proposed.

This notification shall come into effect as from April 13, 2022 onwards.

Issued on April 13, 2022.

Countersigned by
General Prayut Chan-o-cha
Prime Minister

(Unofficial Translation)
Notification of the Office of the Prime Minister

RE: Appointment of the National Broadcasting
and Telecommunications Commissioners

Whereas the Royal Proclamation to appoint the Chairman and the National Broadcasting and Telecommunications Commissioners, in a total of 5 persons, since April 13, 2022, according to the Notification of the Office of the Prime Minister dated April 13, 2022, two commissioner positions are still vacant. By virtue of Section 6 and Section 16 of the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services (No. 4) B.E. 2564 (2021), the 22nd Senate meeting (1st annual ordinary session) on August 16, 2022, passed a resolution approving the appointment of Police General Nathathorn Prousoontorn as the National Broadcasting and Telecommunications Commissioner (other fields that benefit the NBTC duties (a) law aspect). The President of the Senate requested the proposal to the King for Royal Command for the appointment, and the Secretariat of the Cabinet proposed to the King for Royal Command for the appointment.

In this regard, the King is graciously pleased to appoint the person to be the National Broadcasting and Telecommunications Commissioner as from October 22, 2022.

Issued on October 28, 2022.

Countersigned by
General Prayut Chan-o-cha
Prime Minister

(Unofficial Translation)
Notification of the Office of the Prime Minister

RE: Appointment of the National Broadcasting
and Telecommunications Commissioners

Whereas the Royal Proclamation to appoint the Chairman and the National Broadcasting and Telecommunications Commissioners, in a total of 5 persons, since April 13, 2022, according to the Notification of the Office of the Prime Minister dated April 13, 2022, and the Royal Proclamation to appoint the National Broadcasting and Telecommunications Commissioner additionally 1 person, since October 22, 2022, according to the Notification of the Office of the Prime Minister dated October 28, 2022, one commissioner position is still vacant. By virtue of Section 6 and Section 16 of the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services (No. 4) B.E. 2564 (2021), the 24th Senate meeting (2nd annual ordinary session) on February 14, 2023, passed a resolution approving the appointment of Associate Professor Somphob Purivigraipong as the National Broadcasting and Telecommunications Commissioner (in the field of telecommunications service aspect). The President of the Senate requested the proposal to the King for Royal Command for the appointment, and the Secretariat of the Cabinet proposed to the King for Royal Command for the appointment.

In this regard, the King is graciously pleased to appoint the person to be the National Broadcasting and Telecommunications Commissioner as from March 18, 2023.

Issued on March 19, 2023.

Countersigned by
General Prayut Chan-o-cha
Prime Minister



Executive Summary

The National Broadcasting and Telecommunications Commission (NBTC) has performed its duties in accordance with the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunication Services, B.E. 2553 (2010) and its amendments, by managing and allocating spectrum, and regulating broadcasting, television, telecommunications, and satellite sectors. The NBTC has also preserved the nation's access rights to the satellite orbital slots for efficient utilization. It is also committed to protecting consumers and promoting the rights and freedoms of all citizens, including vulnerable groups, as well as facilitating legislative development to keep pace with technological advancements. In addition, the NBTC is dedicated to enhancing academic capacity and promoting transparency and good governance within the Office of the National Broadcasting and Telecommunications Commission (Office of the NBTC). In 2024, the key performance highlights of the NBTC can be summarized as follows:

1. Spectrum management. The NBTC has achieved significant results, including:

1.1 Spectrum management policies have been implemented, which include the following: 1) The development of the Spectrum Management Master Plan to update the master plan content to align with the spectrum usage requirements of various sectors and the newly developed technologies in Thailand, and the revision of the National Frequency Allocation Table (2021) to correspond with the outcomes of the World Radiocommunication Conference 2023 (WRC-23). 2) The preparation of the Five-Year Spectrum Allocation Plan for International Mobile Telecommunications Services in Thailand (2024-2028) to serve as a roadmap indicating the preliminary timeframe for spectrum allocation for international mobile telecommunications services,

which corresponds to the spectrum usage requirements of various sectors and is sufficient for future quality telecommunications services that are timely and internationally compatible.

1.2 The studies on the appropriateness and appropriateness of spectrum management in light of current circumstances, including the following: 1) The study and development of licensing guidelines for fixed satellite services in the 27-27.5 GHz to establish approaches that enable satellite services and IMT services to share the same spectrum band; and 2) The study of the appropriateness and policy formulation for spectrum usage in transportation and logistics systems to suit current circumstances, as the spectrum requirements for transportation and logistics systems of agencies under the Ministry of Transport are related to spectrum usage by the automotive industry, mobile telephone service providers, and importers and distributors of equipment that utilizes Digital Enhanced Cordless Telecommunications (DECT) technology.

1.3 Development of radio frequency plans, spectrum usage criteria, spectrum usage enhancements, and monitoring of radio frequency plan implementation, including 1) Development of radio frequency plans and frequency usage criteria for International Mobile Telecommunications (IMT) services with licenses expiring in 2025 and 2027. This includes existing frequency bands with established radio frequency plans, such as the 850 MHz, 1800 MHz, and 26 GHz; frequency bands that require radio frequency plan updates, such as the 2100 MHz band; and frequency bands that require new radio frequency plans, such as the 1500 MHz and 2300 MHz. Additionally, (draft) criteria and procedures for licensing spectrum usage for International Mobile Telecommunications services in the 850 MHz, 1500 MHz, 1800 MHz, 2100 MHz, 2300 MHz, and 26 GHz will be developed. This intends to achieve efficient

spectrum allocation without interference, ensure transparency in auctions, promote the utilization of frequency spectrum as a national communication resource for maximum public benefit and public interest, and align with government policies aimed at developing the digital economy and preparing for multi-band frequency auctions. 2) Preparation of the (draft) Notification of the NBTC regarding usage for radio communication equipment, specifically wireless microphones and digital radio communication systems that utilize Digital Enhanced Cordless Telecommunications (DECT) technology, as well as pertinent technical standards, are being prepared to accommodate the growing use of wireless microphones, particularly for large-scale concerts and live broadcasts that necessitate advanced technology to support Thailand's status as a hub for international conferences and global events. 3) Development of the (draft) Notification of the NBTC aeronautical spectrum usage criteria to guarantee the clear and efficient use of frequency for aviation-related services. Aeronautical communication systems are essential components of safe and efficient air navigation, and they must be in accordance with international spectrum usage standards. 4) Research on methods for enhancing spectrum usage regulations to accommodate unmanned aircraft and associated communication systems.

1.4 Radio frequency spectrum administration coordination activities are conducted within both national and international regulatory frameworks. These frameworks including: 1) spectrum notification and registration procedures for cross-border coordination with adjacent administrations, and 2) bilateral frequency coordination and assignment along common borders through established Joint Technical Committee mechanisms. At the 10th Meeting of the Thailand-Cambodia Joint Technical Committee on Frequency Coordination and Assignment (JTC) held from March 26-28, 2024, Thailand's administration successfully concluded bilateral agreements to resolve detrimental interference in the 700 MHz band allocation.

The competent authorities will execute coordinated field measurements to reduce radio frequency interference. Furthermore, Thailand participated in the 37th Meeting of the Thailand-Malaysia JTC from July 2-4, 2024, where technical discussions regarding spectrum utilization procedures and provisional technical parameters for 3.5 GHz coordination arrangements were concluded. In addition, the administration participated in the 6th Meeting of the Thailand-Myanmar Joint Technical Committee on Frequency Coordination and Assignment (JTC) from November 6-8, 2024, and successfully concluded bilateral consultations regarding the mitigation of interference in the 850 MHz band allocation along the common border. Concurrent agreements were implemented to address frequency arrangements within the UHF spectrum allocation.

Consequently, Thailand participated in the 13th Meeting of the Thailand-Lao PDR JTC from November 26-28, 2024, and reached a consensus on the technical parameter specifications for trial deployments in the 700 MHz and 2600 MHz. This agreement encompassed the Time Division Duplex (TDD) frame structure configurations and GPS time synchronization protocols as outlined in the relevant ITU-R Recommendations.

2. Regulatory Supervision of Broadcasting and Television Services has demonstrated substantial regulatory outcomes, including

2.1 The regulatory transition of experimental FM broadcasting stations to full authorization compliance has been executed by the administration in accordance with national telecommunications legislation. This process involved the thorough review and amendment of regulatory notifications that govern frequency authorization and FM broadcasting service provision. The objective was to facilitate the transition of experimental FM broadcasting operators, whose trial authorization expires on December 31, 2024, into the formal licensing regime. Implementation included processing applications for FM frequency authorizations for local commercial broadcasting services under the NBTC regulatory framework on

authorization criteria and procedures for spectrum usage and broadcasting service provision. Public notifications were disseminated via the NBTC official portal on October 15, 2024 informing prospective applicants for public service broadcasting and community broadcasting frequency assignments. Subsequent invitation notifications for local commercial FM broadcasting authorization applications were published on November 7, 2024, ensuring comprehensive stakeholder notification. Administrative preparations for authorization applications pursuant to these public invitations have been finalized.

2.2 The comprehensive analysis of optimal approaches for digital radio licensing frameworks and the development of digital radio frequency allocation plans, which comprise associated licensing criteria and technical specifications, are utilized to implement digital radio broadcasting authorization. The (Draft) regulatory documents have been prepared, including: the (Draft) NBTC Announcement on Digital Broadcasting Radio Frequency Plans, (Draft) NBTC Announcement on Technical Standards for Digital Radio Broadcasting Transmitters, and (Draft) NBTC Announcement on Technical Standards for Digital Radio Broadcasting Receivers. Digital radio authorization guidelines were developed concurrently with frequency planning and technical standards preparation.

Additionally, a digital radio broadcasting pilot program was executed, conducting trial transmissions in the Bangkok Metropolitan Region and selected provincial areas. Implementation outcomes will inform the establishment of comprehensive regulatory criteria and operational guidelines.

2.3 The following regulatory initiatives have been implemented to facilitate industry development and implement proportionate regulatory supervision consistent with contemporary broadcasting service environments; comprehensive regulatory framework modernization has been executed. 1) Development of regulatory instruments for the National Broadcasting and Telecommunications Commission (NBTC) regarding

consolidation measures for content producers, media practitioners, and broadcasting service licensees; 2) establishment of criteria for the support of public interest programming in broadcasting and television services; 3) amendment of the Must-Carry content regulations to exclude FIFA World Cup Final matches from mandatory carriage obligations. 4) enhancing the (draft) NBTC announcement on criteria for promoting ready communities and supporting quality community service operators. 5) strategic assessment of Thailand's broadcasting service evolution under dynamic industry conditions, encompassing regulatory and promotional policy frameworks, spectrum and infrastructure resource allocation methodologies for broadcasting and convergent communication services, and regulatory modernization recommendations to enhance competitive market dynamics; 6) technical feasibility analysis of digital platform integration mechanisms for Digital Terrestrial Television (DTT) services, including Connected TV inter operability protocols; 7) implementation of improved Emergency Warning System (EWS) capabilities following national disaster preparedness policies, which includes the deployment of EWS across mobile communication networks and DTT broadcasting infrastructure to ensure rapid disaster alert dissemination. This will facilitate the effective distribution of public warnings, impact mitigation, and comprehensive emergency information broadcasting to affected populations during critical incidents.

3. Regulatory Supervision of Telecommunication Services, Satellite Services, and Regulatory Enforcement has demonstrated substantial regulatory outcomes, including;

3.1 Deployment of the Cell Broadcasting System (CBS)/Mobile Alert System to implement mobile emergency alert capabilities by essential national policy mandates for mobile network operators (MNOs). The purpose of this regulatory initiative is to modernize public warning infrastructure and establish seamless integration with national emergency alert systems for

population warning during critical incidents, such as flood events, seismic activity, and tsunami threats, by facilitating interoperability with competent national emergency management authorities' command and control systems. the system deployment objectives include the enhancement of public safety and national security interests, asset protection from natural hazards, and casualty mitigation

3.2 Endorsed the universal service obligation (USO) project framework for deploying basic telecommunications infrastructure and social services in underserved markets and coverage gaps, pursuant to the Universal Service Action Plan No. 3 (2022). This initiative operates under the National Universal Service Plan No. 3 (2022) with allocated funding of 8,000.00 million baht to expand telecommunications infrastructure coverage to designated USO target communities nationwide. Furthermore, authorized implementation of the Universal Service Plan No. 4 (2023) (First Amendment), incorporating strategic resource allocation under the revised USO framework, with total committed funding of 24,000.00 million baht through the Research and Development Fund for Broadcasting, and Telecommunications Research for Public Benefit (RDPB).

3.3 Accelerated implementation of comprehensive measures to prevent cross-border mobile signal exploitation for criminal activities through mandatory requirements for all mobile service providers to remove or reorient base station antennas currently directed toward neighboring countries, thereby restricting service coverage exclusively within Thailand's territorial boundaries and prohibiting cross-border signal transmission. Furthermore, signal repeater inspections are implemented to detect unauthorized retransmission of Thai signals, which are promptly discontinued upon detection. Internet service providers must monitor customers with multiple leased line subscriptions or abnormal traffic patterns in designated areas. They are obligated to report any suspicious activities to the NBTC for

a joint investigation with the Royal Thai Police to identify potential criminal applications. All of these measures are designed to prevent the misuse of telecommunications infrastructure and disrupt criminal organizations. Field monitoring operations include intensive cross-border signal detection along frontier areas, integrated with law enforcement cooperation to obstruct call center criminal networks. This represents the continuation of comprehensive anti-fraud measures targeting SIM cards, transmission infrastructure, and connectivity resources, addressing threats to national economic, social, and security systems. In addition, a Memorandum of Understanding (MoU) was signed with the National Cyber Security Committee Office (NCSA) to facilitate cybersecurity collaboration. This agreement encompasses threat prevention, incident response, and risk mitigation against cyber threats, thereby promoting the adoption of advanced technology to improve the security of telecommunications services and public cybersecurity awareness.

3.4 Authorization of satellite orbital resource utilization rights and foreign satellite system access for domestic service provision has been executed pursuant to national satellite regulatory frameworks. The NBTC has granted orbital slot access authorizations in accordance with statutory telecommunications obligations under national primary legislation and the satellite orbital resource management plan, specifically: 1) The initiation of authorization procedures for orbital positions 51 and 142 degree East, which remain unassigned, and the regulatory authorization granted to TC Space Connect Company Limited for the utilization of geostationary satellite orbital slots at the 50.5 degree East orbital position, as outlined in the Notification of the NBTC on Criteria and Procedures for Satellite Orbital Slot Access Rights Authorization at Orbital Positions 50.5, 51, and 142 degree East, August 24, 2024. 2) Authorization of foreign satellite channel utilization for domestic services, specifically for OneWeb

satellite constellation telecommunications service expansion, including spectrum usage authorization, radiocommunication station establishment, and radiocommunication equipment deployment by National Telecom Public Company Limited, along with landing rights authorization for OneWeb satellite network operations to enhance satellite network capacity services.

4. Consumer Protection in Broadcasting Services, Television Services, Telecommunications Services, and Fundamental Rights and Freedoms Protection has demonstrated substantial regulatory outcomes, including;

4.1 Implement the revision and improvement of the Notification of the NBTC on complaint handling procedures for telecommunications operations B.E. 2559 (2016) and the (draft) NBTC Regulation on criteria for complaint reception and consideration in the broadcasting, television, and telecommunications sectors (B.E....). This initiative is designed to create comprehensive systems, mechanisms, concepts, and procedures for the management of complaints in the broadcasting, television, and telecommunications sectors. The aim is to guarantee that the Office of the NBTC conducts pertinent operations with the utmost efficiency, promptness, and diligence in resolving service end-user issues, all while ensuring that procedural conditions and methodologies are following the evolving technological developments.

4.2 Establish a Memorandum of Understanding (MoU) concerning coordinated regulatory oversight of commercial communications, health product advertisements, and consumer protection against deceptive practices within broadcasting services, television broadcasting, and telecommunications networks. This multilateral regulatory cooperation framework between the Office of the NBTC and nine designated authorities aims to optimize regulatory coordination mechanisms and strengthen enforcement harmonization across relevant national regulatory bodies.

4.3 Implemented comprehensive consumer protection enhancement programs incorporating digital literacy frameworks, accessibility standards, and inclusive telecommunications policy development to enable end-user rights protection capabilities, encompassing 1) Executed digital media literacy capacity-building programs targeting consumer advocacy networks, gender-inclusive groups, and socially diverse community representatives through regional deployment, complemented by multilateral cooperation agreements with 21 educational institutions and civil society organizations promoting universal digital access, equitable service utilization, and informed digital citizenship. 2) Revised regulatory instruments that relate to accessibility provisions for individuals with disabilities in audiovisual media services, thereby guaranteeing adherence to international accessibility standards and adaptive regulatory frameworks that are responsive to the transformation of the digital media ecosystem. 3) Implemented digital Inclusion initiatives to ensure that individuals with disabilities and underserved populations have non-discriminatory access to the broadcasting, television, and telecommunications services, thereby attaining service accessibility parity with mainstream users. Improved awareness of information accessibility rights for individuals with disabilities and promoted digital rights through converged media platforms. Strengthened multi-partners community engagement encompassing persons with disabilities, elderly populations, academic institutions, consumer protection organizations, educational associates, and relevant parties, facilitating knowledge transfer mechanisms and social dialogue to achieve universal service accessibility across broadcasting, television, and telecommunications 4) Facilitated mobile network operator implementation of differentiated service offerings and tariff reduction schemes across prepaid and postpaid mobile service categories, ensuring telecommunications service affordability for persons with disabilities and social welfare beneficiaries through inclusive pricing

mechanisms. 5) The implementation of telephone number suspension procedures for deceptive SMS campaigns and fraudulent voice conversations that target the public. The Notification of the NBTC on identity verification and user data requirements for mobile service subscribers was issued to address SIM card fraud associated with call center criminal organizations. Coordinated with pertinent agencies to monitor and investigate potentially fraudulent Mobile Banking accounts, implemented Mobile ID verification systems to confirm the ownership of mobile numbers associated with Mobile Banking accounts through service provider networks and created educational materials to increase awareness and offer consumer protection guidance in the broadcasting, television, and telecommunications sectors.

5. Academic Affairs. The NBTC has achieved significant results, including;

5.1 Execute comprehensive technical analysis and formulate policy recommendations for regulatory frameworks governing the broadcasting, television, telecommunications, and satellite communications, including: 1) Establishing Regulatory Impact Assessment (RIA) methodologies as standardized evaluation protocols for assessing regulatory consequences prior to implementation of specific governance strategies 2) Conducting technology foresight studies on satellite and space technologies in Thailand (Technology Foresight Brief: Satellite and Space) utilizing 10-year projection models through systematic foresight analysis 3) Investigating international market definition standards and technical capability assessments concerning baseline transmission rates, interconnection parameters, deployed technologies, and geographical coverage to support wholesale broadband access market definition reviews 4) Performing spectrum valuation for FM broadcasting frequencies in commercial sectors through auction mechanisms, evaluating spectrum bands at 850 MHz, 1500 MHz, 1800 MHz, 2100 MHz, 2300 MHz, and 26 GHz, and evaluating spectrum

usage demand to prepare for spectrum allocation for international mobile telecommunications services, among others.

5.2 Develop international academic networks and facilitate knowledge transfer through global technical conferences and expert forums, including: 1) Strategic partnerships with the Australian Competition and Consumer Commission (ACCC) on spectrum allocation frameworks and telecommunications market competition oversight, complemented by collaboration with the Australian Communications Consumer Action Network (ACCAN) on digital ecosystem development. These engagements with Australian regulatory bodies have established comprehensive international cooperation mechanisms, culminating in Memorandum of Understanding (MoU) frameworks that optimize the Office of the NBTC standards through harmonization with international regulatory practices and systematic knowledge exchange for technical capacity building. 2) Multilateral conferences with Swedish regulatory authorities and research institutions to discuss critical telecommunications infrastructure and policy development, with a particular emphasis on the Swedish Post and Telecom Authority (PTS) for policy dialogue on next-generation technology governance, 5G network implementation strategies, Swedish spectrum management methodologies, and international standardization forum participation. These collaborative sessions have enhanced the Office of the NBTC and PTS strategic cooperation, substantially advancing bilateral telecommunications relations.

Furthermore, The Office of the NBTC has formalized an academic Memorandum of Understanding (MoU) with the Department of Technology Management and Economics (TME) at Chalmers University of Technology for technical knowledge exchange, professional development enhancement, and collaborative research initiatives, with planned joint research programs with TME in subsequent implementation phases.

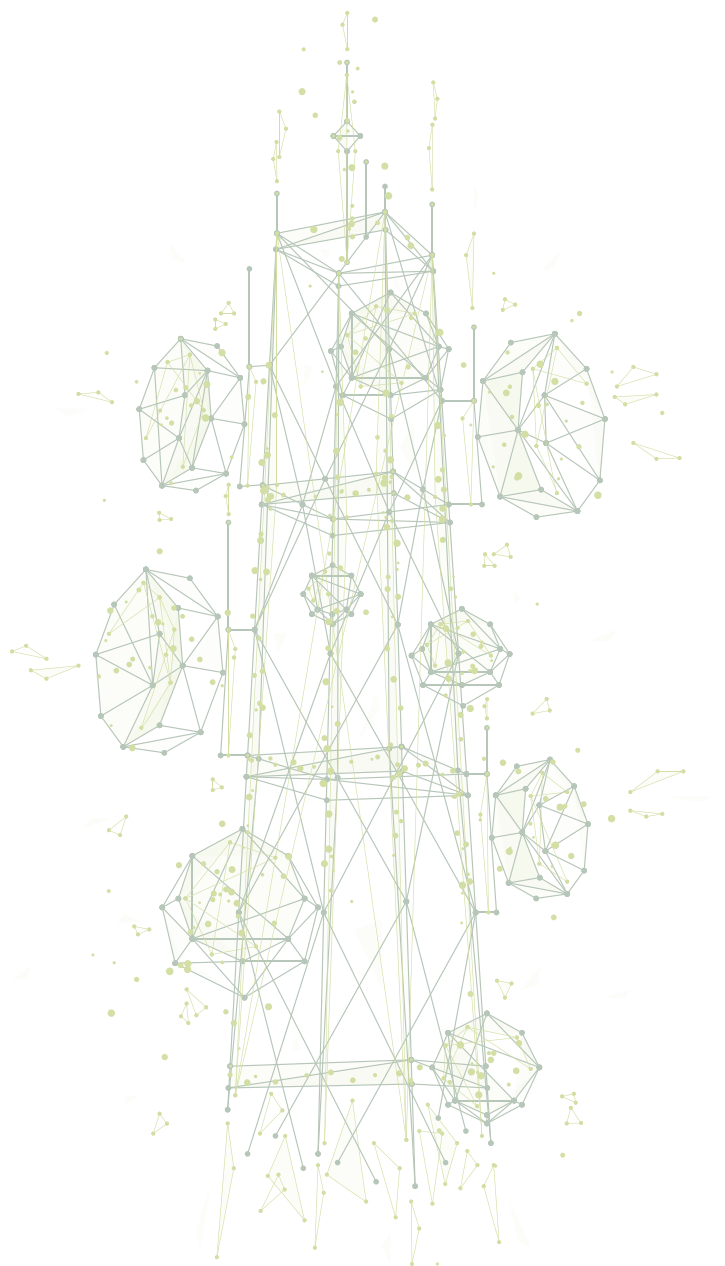
6. Organizational Development. The NBTC has achieved significant results, including

6.1 Implementing policies to uphold the standards of integrity and transparency assessments, with a focus on sustainable development. The Office of the NBTC received a score of 97.27 in 2024 for the Integrity and Transparency Assessment (ITA) conducted by the Office of the National Anti-Corruption Commission (NACC). Moreover, it was awarded an honorary plaque and the ITA AWARDS 2024 Certificate of Recognition for being the highest-rated agency in the category of the Other State Agencies, for three consecutive years, and was designated as a central regulatory body attaining “Excellent Pass” certification standards.

6.2 Establish leadership as a premier national digital regulatory authority implementing data-driven organizational frameworks with international compliance standards (Data Driven Organization) and comprehensive digital transformation protocols (NBTC Digitalization) through systematic implementation. The Office of the NBTC received the Digital Government Award 2024 “DG Awards 2024” in 2024, establishing itself as the preeminent regulatory entity in Thailand’s department-level government agency service provider category. This achievement was achieved for three consecutive assessment cycles. This recognition, administered by the Digital Government Development Agency (Public Organization) (DGA), acknowledges regulatory bodies demonstrating superior organizational evolution toward advanced digital governance frameworks.

Concurrently, the office of the NBTC received three specialized commendations for exceptional digital advancement based on DGA’s 2024 comprehensive assessment of digital government preparedness across Thai regulatory institutions, encompassing: the Quality Agency Recognition for Government Data Governance Excellence, the Quality Agency Recognition for Electronic Stakeholder

Engagement Promotion (e-Participation), and the Outstanding Digital Organization Leadership Award, recognizing regulatory executives demonstrating exceptional management competencies in organizational digital transformation initiatives and digital operational culture establishment.



The Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunication Services (No. 4), B.E. 2564 (2021), published in the Royal Gazette and effective as of March 2, 2021, has improved the recruitment and selection process for appointing the NBTC. It repealed the virtue of Section 6 of the Act (No. 2), B.E. 2560 (2017). The newly appointed NBTC board shall consist of 7 commissioners, each with expertise and experience in one of the following fields: broadcasting, television, telecommunications, consumer protection, and the promotion of civil rights and liberties. The other two commissioners shall be selected from candidates with expertise in other fields that benefit the duties of the NBTC. The current National Broadcasting and Telecommunications Commission comprises the following:

1. Clinical Professor Sarana Boonbaichaiyapruk Chairman
2. Air Marshal Thanapant Raicharoen Commissioner
(in the field of broadcasting business)
3. Professor Pirongrong Ramasoota Commissioner
(in the field of television business)
4. Mr. Torpong Selanon Commissioner
(in the field of promotion of civil rights and liberties)
5. Associate Professor Suphat Suphachalasai Commissioner
(in other relevant fields beneficial to the NBTC (b) Economics)
6. Police General Nathathorn Prousoontorn Commissioner
(in other relevant fields beneficial to the NBTC (a) in the field of Laws)
7. Associate Professor Somphob Purivigraipong Commissioner
(in the field of telecommunications business)



Authorities and Duties of the NBTC

In accordance with Section 27 of the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunication Services, B.E. 2553 (2010) and its amendment, the NBTC shall have the authorities and duties as follows:

To prepare Spectrum Management Master Plan, Table of National Frequency Allocation, Broadcasting and Television Master Plan, Telecommunications Master Plan, Radio Frequency Plan, Satellite Orbital Rights Management Plan, and Telecommunications Numbering Plan, and proceed according to the plans, which shall align with the National Digital Economy and Society Development Plan and Policy.

To assign radio frequencies for the undertaking of broadcasting, television, radiocommunications, and telecommunication services.

To define characteristics and categories of broadcasting, television, and telecommunication services.

To license and regulate the use of frequencies and radiocommunications equipment in the undertaking of broadcasting, television, and telecommunication businesses, or radiocommunications business, and prescribe licensing criteria and procedures, conditions, or licensing fees. In this regard, the NBTC may assign the Office of the NBTC to grant licenses on behalf of the NBTC only for the radiocommunications equipment licensing, according to the criteria and conditions specified by the NBTC.

To prescribe criteria on the radio frequency usage for effectiveness, without causing interference to the same type of business and other types of business.

To license and regulate broadcasting, television, and telecommunications businesses to ensure service provision with quality, efficiency, timeliness, reliability, and fairness to consumers, and prescribe related licensing criteria and procedures, conditions, or licensing fees

To license and regulate the use of telecommunications numbers, and prescribe related licensing criteria and procedures, conditions, or licensing fees.

To prescribe criteria and procedures for network access and interconnection, and for determining network access or interconnection charges to be applied to undertaking broadcasting, television, and telecommunication services, for the same type of business and other types of business, to ensure fairness to consumers, service providers, and investors, or between the telecommunications service providers with due regard to public interest.

To set the tariff and service fee structures for broadcasting, television, and telecommunications businesses to ensure fairness to consumers and service providers, with due regard to public interest.

To set standards and technical specifications for broadcasting, television, telecommunications, and radiocommunications operations.

To prescribe measures to prevent monopoly, anti-competitive conduct, or unfair competition in broadcasting, television, and telecommunication services.

To prescribe measures for a comprehensive and equal telecommunications service provision, in accordance with Section 50.
(12/1) To retrieve unused or unworthily used frequencies, or reuse efficiently, as specified in the plan, which shall be determined in accordance with (1) from the licensees to reallocate in accordance with the criteria, procedures, and conditions prescribed by the NBTC. However, such conditions must define the method of compensation, reimbursement, or remuneration for those whose frequencies have been retrieved by taking their rights into account in each case.

To protect the rights and liberties of the people from being exploited by the operators, and protect individual rights of privacy and freedom to communicate through telecommunications, as well as promote the rights, liberty, and equality of the public in accessing and utilizing frequencies in the broadcasting, television, and telecommunications services.

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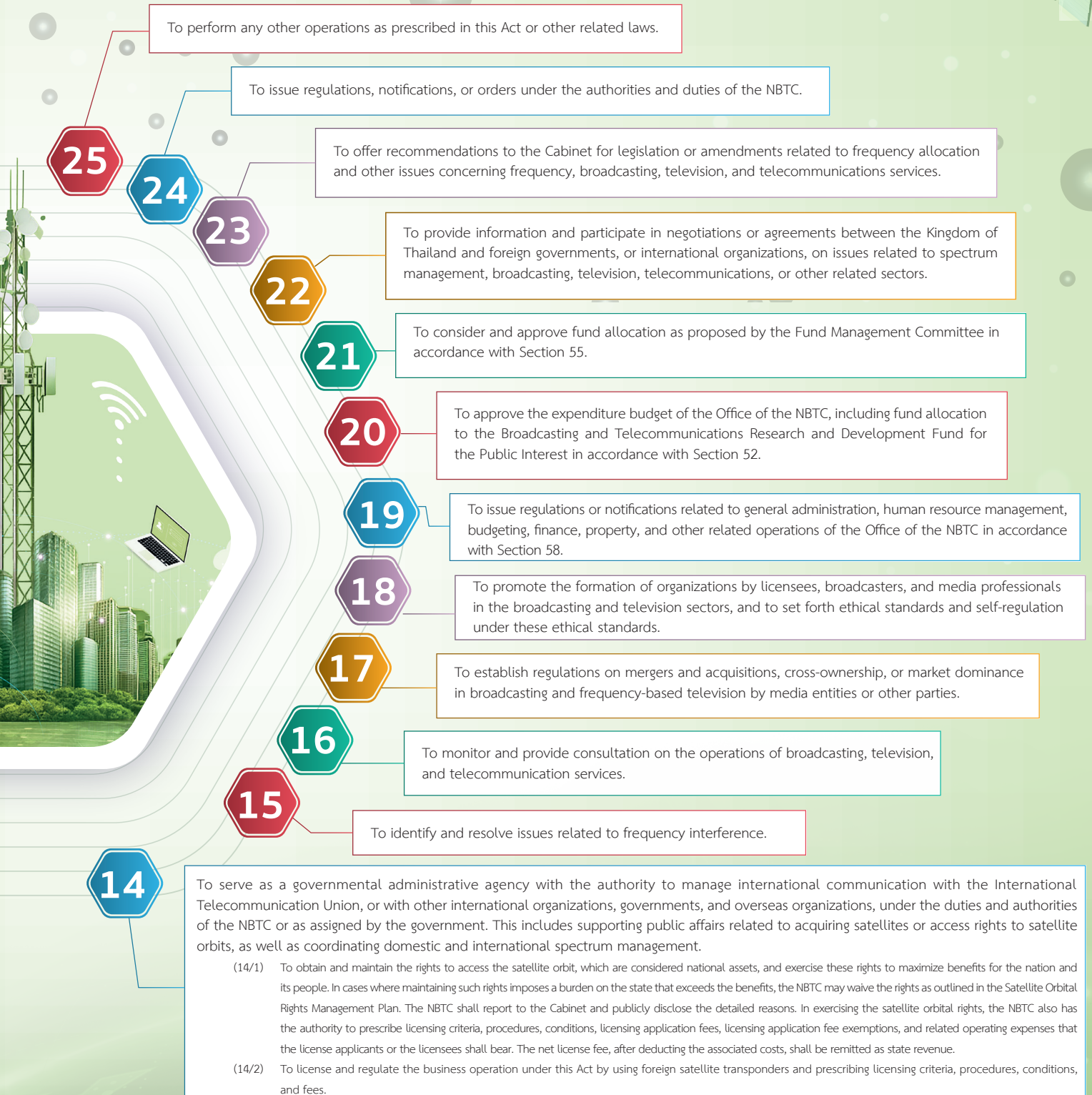
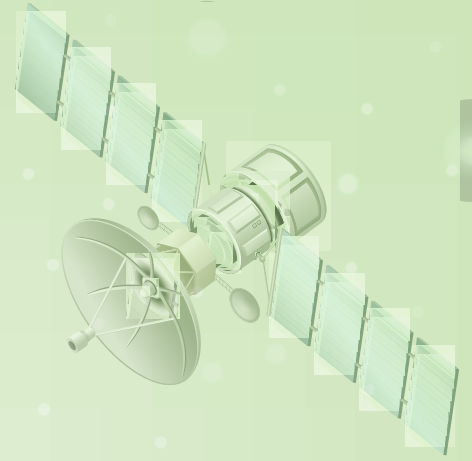
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Authorities and Duties of The Office of the NBTC

In accordance with Sections 56 and 60 of the National Broadcasting and Telecommunications Commission Organization Act B.E. 2553 (2010), as amended, the Office of the National Broadcasting and Telecommunications Commission (referred to as “the Office of the NBTC”) is constituted as a legal entity. The Office of the NBTC is established as an autonomous state agency operating outside the framework of conventional government departments under public administration legislation and does not qualify as a state-owned enterprise, according to the Budget Procedure Act or other relevant statutory provisions. The Office of the NBTC functions under the oversight of the Chairman of the NBTC and is administered by a Secretary General who bears responsibility for operational management, maintains direct accountability to the Chairman of the NBTC, and exercises supervisory authority over all personnel

within the Office of the NBTC. In addition, Section 57 establishes the legislative authority and functions of the Office of the NBTC, which are summarized as follows:



Annual Expenditure Budget Preparation Revenues of the Office of the NBTC The BTFP Fund



Annual Expenditure Budget Preparation.

In accordance with Section 57 (2) of the Act on the Organization, B.E. 2553 (2010) and its amendments, it prescribes that the Office of the NBTC prepare the annual expenditure budget and propose it to the NBTC for approval. The annual expenditure budget encompasses any expenditures related to operations under the responsibilities of the NBTC, the Monitoring and Evaluation Committee, and the Office of the NBTC. This annual expenditure budget must be prepared with principles of its worthiness, cost-effectiveness, and efficiency. If any item or project for which a budget has been allocated has neither incurred expenditure nor created debt obligations within the fiscal year, such item or project shall be canceled, and the allocated budget shall be remitted as state revenue.

According to Section 57 (7) of the Act on the Organization, B.E. 2553 (2010) and its amendments, the annual expenditure budget must be prepared in accordance with Section 57 (2). Before approval by the NBTC, the Office of the NBTC shall submit the draft yearly expenditure budget to the National Digital Economy and Society Commission for consideration. Subsequently, the Office of the NBTC shall revise and amend the draft accordingly. However, the expenditure budget for the Monitoring and Evaluation Committee shall be submitted to the Committee for further revision. If the Office of the NBTC or the Monitoring and Evaluation Committee disagrees with the Commission’s feedback, the Office of the NBTC shall submit the draft budget along with the Commission’s comments to the NBTC for consideration.

Once approved by the NBTC, the Office of the NBTC shall publicly disclose the annual expenditure budget, along with the items or projects approved, through information network systems or other accessible means.

The Monitoring and Evaluation Committee shall propose the expenditure budget for remuneration and other expenses under Section 71, paragraph seven to the Office of the NBTC to be incorporated in the draft annual expenditure budget. In this regard, the Office of the NBTC may provide opinions on the budget allocation in the annual expenditure budget proposal. Accordingly, the Office of the NBTC must submit the draft annual expenditure budget to the National Digital Economy and Society Commission no less than 90 days before the fiscal year begins, and the National Digital Economy and Society Commission must complete its review and provide feedback no less than 30 days before the fiscal year starts. After receiving the Commission's comments or upon the expiration of this period, the Office of the NBTC shall submit the draft annual expenditure budget to the NBTC for final proceedings.



Revenues of the Office of the NBTC.

In accordance with Section 65 of the Act on the Organization, B.E. 2553 (2010) and its amendments, the Office of the NBTC shall derive revenues from the following sources: licensing application fees and licensing fees for spectrum use as per Section 44/2 paragraph one, licensing application fees and business licensing fees as per Section 45 paragraph one, and license transfer fees as per Section 44/3.

Additionally, the revenues shall include income or benefits accrued from the performance of duties by the NBTC and the Office of the NBTC, income derived from the Office of the NBTC's assets, financial returns, donated properties, government subsidies, and other income as prescribed by the NBTC regulations governing the operations of the Office of the NBTC. After deducting the operational costs of the Office of the NBTC, necessary burden expenses, and financial

contributions to the Fund under Section 52, the EdTech Fund under the national education law, and the Digital Economy and Society Development Fund under relevant legislation, the remaining revenues shall be remitted as public revenue. In cases where the Office of the NBTC of the NBTC's revenues are insufficient to cover the Office of the NBTC's operational and necessary burden costs, and no alternative funding sources are available, the government shall allocate the national budget to the Office of the NBTC as required.



The Broadcasting and Telecommunications Research and Development Fund for Public Interest.

In accordance with Section 52 of the Act on Organization, B.E. 2553 (2010) and its amendments, the Broadcasting and Telecommunications Research and Development Fund for Public Interest (BTFP) has been established to fulfill the objectives as follows:

1. To ensure the comprehensive and equal public access to broadcasting and telecommunication services, and to empower the communities and community service providers as per Section 51.
2. To promote and support communication resources utilization, research and development regarding broadcasting, television, and telecommunication businesses, including digital literacy on spectrum usage, information technology, technologies for persons with disabilities, the elderly, and the underprivileged, as well as telecommunications and related industries.
3. To empower the workforce in broadcasting, television, telecommunication services, and information technology industries, as well as support the organizational operations related to establishing professional ethical standards or legal profession standards according to broadcasting and television business-related laws.
4. To support, promote, and ensure consumer protection in areas of broadcasting, television, and telecommunication services.

5. To ensure compliance with the Thai Media Fund law through appropriate budget allocation.

6. To support spectrum utilization for maximum effectiveness, and spectrum retrieval for reallocation, as well as the provision of compensation, reimbursement, and remuneration for spectrum retrieval to ensure maximum efficiency.

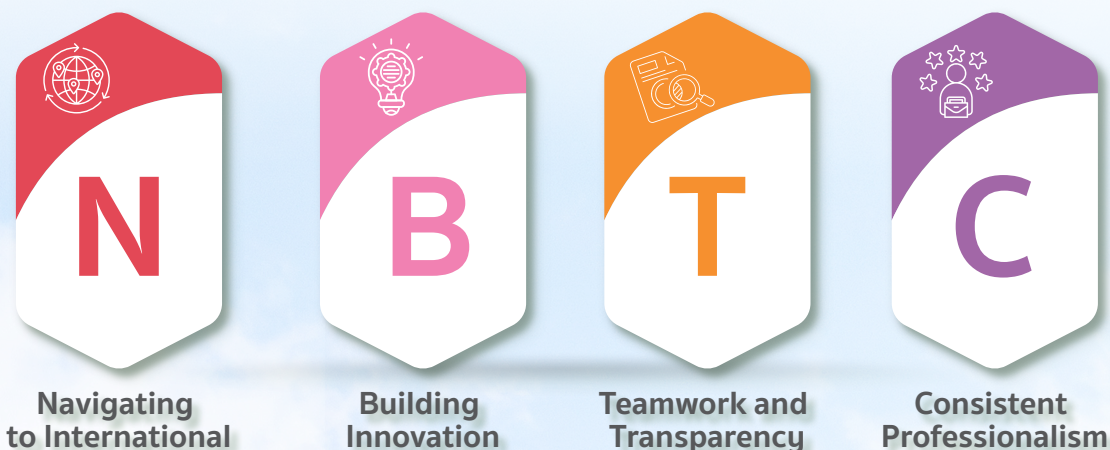
The Fund Management Committee shall consist of the Chairman of the NBTC, who will serve as the Chairman of the Committee, the Permanent Secretary of the Prime Minister's Office, the Permanent Secretary for Defense, the Secretary-General of the

National Economic and Social Development Board, the Director of the Budget Bureau, the Comptroller General, and the Director of the National Electronics and Computer Technology Center, along with two other qualified experts to serve as committee members. The Management Committee of the Fund shall be responsible for managing the fund and making recommendations on fund allocation under Section 52 to the NBTC for approval. In cases where the NBTC has differing opinions, it must provide the rationale for further consideration.

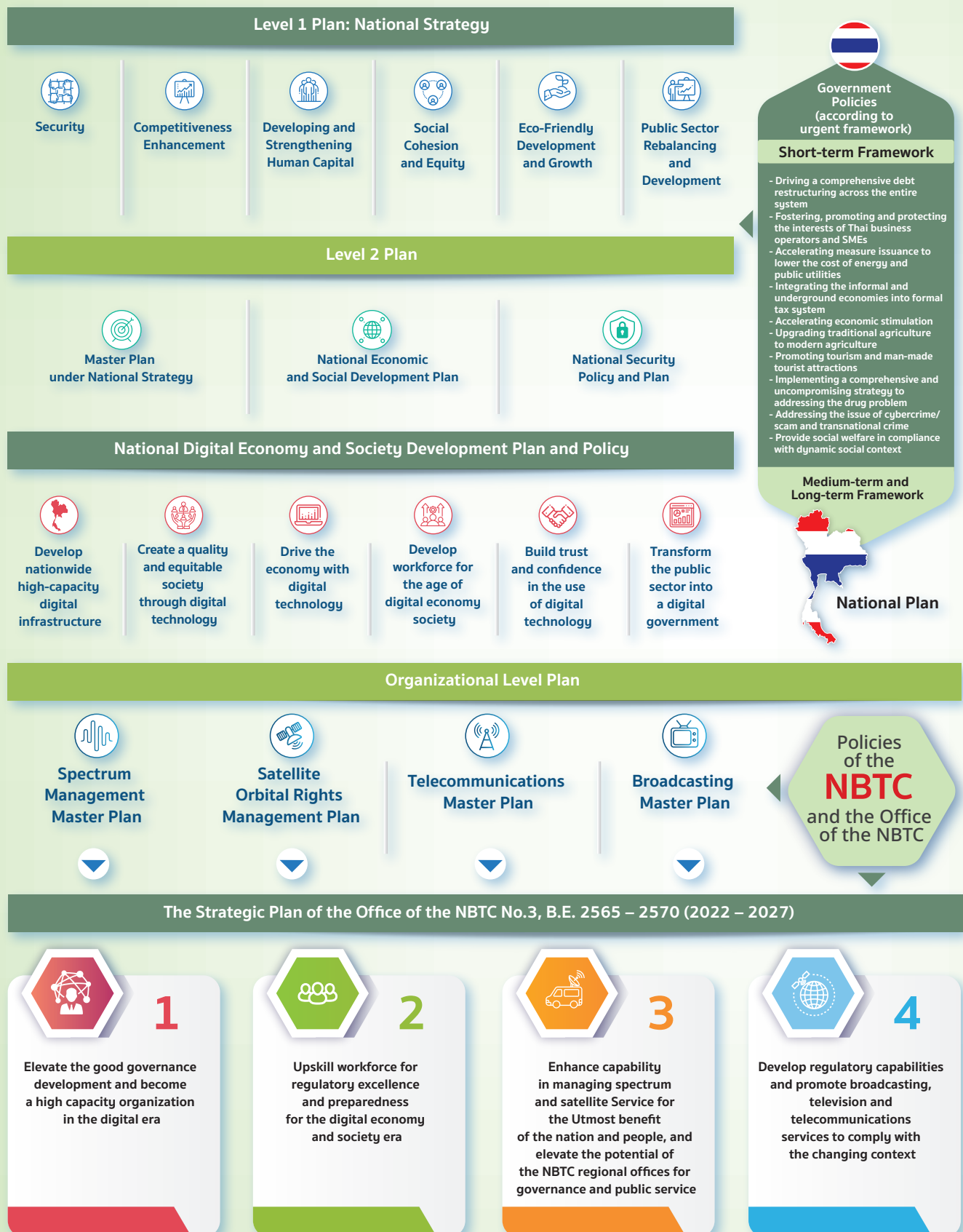
Vision, Mission, and Core Values



CORE VALUES



Strategic Issues of the Office of the NBTC and the Causal Relationship with Government Policies, National Strategies, and National Plans



The High - Level Executives

of the Office of the NBTC



Mr. Trairat Viriyasirikul

Deputy Secretary-General Acting Secretary-General of the NBTC
(July 1, 2020 – present)



Mr. Trairat Viriyasirikul

Deputy Secretary-General of
Strategic and Internal Affairs Cluster



Mr. Sutisak Tantayotin

Deputy Secretary-General
of Telecommunications Cluster



Mr. Sombat Leelapata

Principal Expert
Acting Deputy Secretary-General
of Regional Affairs Cluster



Mr. Keerati Apaphant

Principal Expert
Acting Deputy Secretary-General
of Academic Affairs Cluster



Mr. Chanthaphat Khamkhokgruad

Principal Expert
Acting Deputy Secretary-General
of Broadcasting and Television Cluster

The Principal Experts

and Assistant Secretary-General



Mr. Chanthaphat Khamkhokgruad
Principal Expert



Mr. Saneh Saiwong
Principal Expert



Mr. Sombat Leelapata
Principal Expert



Mr. Keerati Apaphant
Principal Expert



Ms. Pornpak Sathitweroj
Principal Expert



Ms. Korkanok Kijbanjai
Principal Expert



Mr. Chalermchai Kokkeadtikul
Assistant Secretary-General,
Office of the NBTC



Mrs. Yupha Sapying
Assistant Secretary-General,
Strategic and Internal Affairs Cluster



Ms. Orada Teppayayon
Assistant Secretary-General,
Administration Cluster



Ms. Maneerat Kamjornkitjakarn
Assistant Secretary-General,
Broadcasting Cluster



Mr. Chaturon Choksawat
Assistant Secretary-General,
Regional Affairs Cluster



Ms. Pulsiri Ninkitsaranont
Assistant Secretary-General,
Telecommunications Cluster



Mrs. Ramida Leelapata
Acting Assistant
Secretary-General,
Academic Cluster



Organizational Structure and Workforce of the Office of the NBTC

The NBTC is a constitutional and independent state agency responsible for allocating spectrum and regulating broadcasting, television, and telecommunication businesses. The Office of the NBTC supports operations as mandated by the NBTC and required by law. The NBTC is committed to principles of good governance, transparency and accountability. The laws and regulations regarding spectrum allocation and regulation have been continually revised and updated to align with the evolving industry landscape and comply with governmental practices to ensure efficiency operations. However, for the sake of discretion and transparency, the NBTC and the Office of the NBTC have established performance monitoring and evaluation processes to ensure accountability in their operations, both from external and internal units, including the Monitoring and Evaluation Committee, created by Section 70 of the Act on the Organization, B.E. 2553 (2010) and its amendments, and approved by the Senate. This committee is responsible for monitoring and evaluating the performance and management of the NBTC, the Office of the NBTC, and the Secretary-General of the NBTC. They will inform the NBTC of the assessment results within 90 days

from the end of the fiscal year. Additionally, the Internal Audit Committee, established by Section 68, paragraph two, of the Act on the Organization, B.E. 2553 (2010) and its amendment, operates independently, free from the intervention of the NBTC, the Office of the NBTC, and any other agencies. The Internal Audit Committee shall present the audit report to the NBTC every 180 days to ensure effective and efficient auditing in finance, accounting, supply, and management of the Office of the NBTC. This aims to improve work quality, enhance the effectiveness of risk management, and ensure orderly control and regulation. This mechanism is vital for regulating, monitoring, and balancing the operations within the authorities and duties with integrity and morality, free from prejudices, in accordance with the intent of the Constitution of the Kingdom of Thailand.

As of December 31, 2024, the Office of the NBTC has a total workforce of 2,120 employees. The organizational structure consists of 6 clusters, 47 bureaus, 4 regional offices of the NBTC, 1 institute, and 1 center, as well as the structure of agencies with auditing authority. As presented in Charts 1, 1-1, and 1-2.



Chart 1 : Structure of Agencies with Auditing Authority

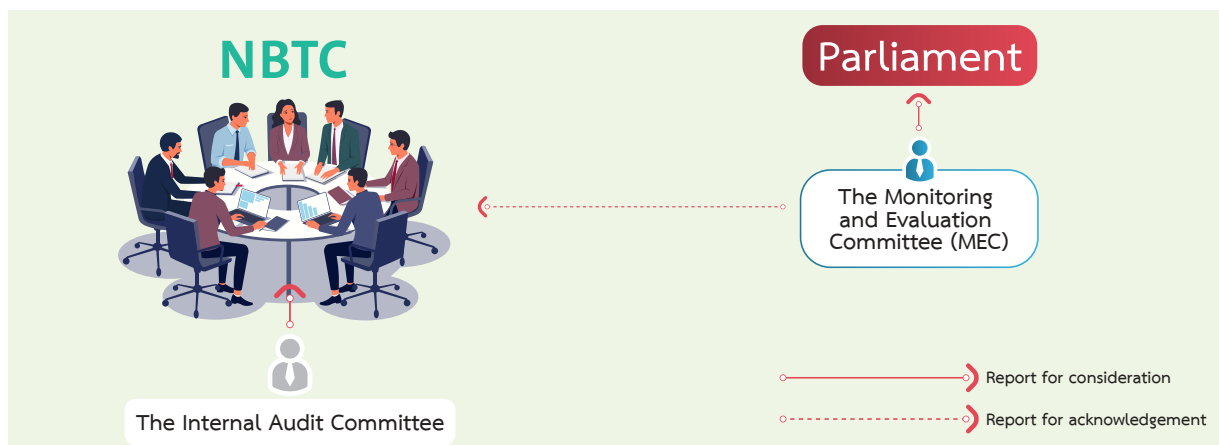
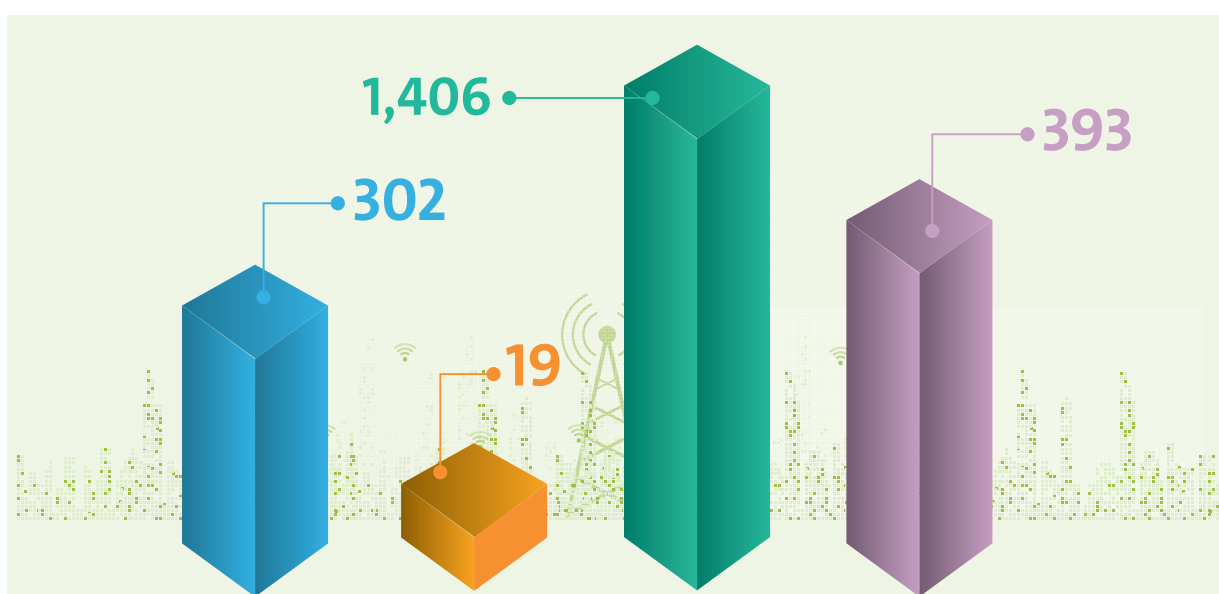


Chart 1-1 : Workforce of the Office of the NBTC for the Year 2024



 Management Position - Deputy Secretary-General 1 Person - Acting Secretary-General 1 Person - Deputy Secretary-General 1 Person - Assistant Secretary-General 6 Persons - Executive Director 51 Persons - Division Director 243 Persons	 Academic Position - Principal Expert 6 Persons - Senior Expert 6 Persons - Expert 7 Persons
 Operational Position - Senior Officer 690 Persons - Middle-level Officer 458 Persons - Junior Officer 258 Persons	 Employee - Permanent Employee 148 Persons - Temporary Employee 245 Persons

Remark : Data as of December 31, 2024

Source : Human Resources Management Bureau, Office of the NBTC



Chart 1-2 : Organizational Structure of the Office of the NBTC

Organizational Structure of the Office of the National Broadcasting and Telecommunications Commission



The Organizational Structure of the Office of NBTC consists of five Deputy Secretary-Generals, six Assistant Secretary-Generals, 47 bureaus, four regional offices of the NBTC, one institute, and one center

Remarks : 1. Organizational Structure of the Office of NBTC according to the NBTC Regulation on Internal Division, B.E. 2562 (2019)

2. Data as of December 31, 2024



Chairman of the NBTC



Secretary-General of the NBTC



PART 2 KEY PERFORMANCE OF THE NBTC IN 2024



Spectrum Management

A fundamental driver of national competitiveness and multi-dimensional development, which encompasses economic growth, social advancement, educational enhancement, and security fortifying, is efficient spectrum management. Acknowledging this strategic importance, the NBTC has implemented spectrum governance frameworks prioritizing national and public welfare. Accordingly, the Commission has formulated comprehensive spectrum management policies and conducted systematic reviews and updates of regulatory instruments and technical standards to ensure alignment with rapidly advancing technological developments, while facilitating international coordination for interference resolution to preserve national spectrum interests. The NBTC has produced notable achievements and key performance indicators in 2024, including:

1. Spectrum Management Policy Framework

1.1 Development of National Spectrum Management Master Plan.

The National Spectrum Management Master Plan has been revised through comprehensive revision of strategic elements encompassing strategic objectives, implementation strategies, key performance indicators, critical success factors, and supplementary annexes A and B. Simultaneously, the National Frequency Allocation Table B.E. 2564 (2021) underwent systematic updates to ensure alignment with technological innovations and Thailand's evolving spectrum usage requirements, while incorporating regulatory decisions from the World Radiocommunication Conference 2023 (WRC-23). A comprehensive stakeholder consultation process was implemented utilizing multiple submission channels including registered postal service, electronic correspondence, digital platforms (Google Forms), and



The Public Hearing Conference for the (draft) Notification of the NBTC on Spectrum Management Master Plan

direct submission during the period May 31 - July 15, 2024, supplemented by live digital broadcasting on June 11, 2024, at The Berkeley Hotel Pratunam, Bangkok. Following presentation to the 23rd NBTC Commission meeting on October 16, 2024, the Commission endorsed the draft regulatory instrument, culminating in official promulgation through the Royal Gazette on December 24, 2024.

1.2 Formulation of Thailand's Five Year International Mobile Telecommunications (IMT) Spectrum Allocation Strategic Plan (B.E. 2567 – 2571) (2024 – 2028).

The Thailand's spectrum allocation plan for IMT serves as a spectrum roadmap, outlining the preliminary timeframe for spectrum allocation for international mobile telecommunications. It ensures alignment with the evolving spectrum demands across various sectors and supports the timely provision of high-quality and internationally compatible telecommunications services in the future.

The objectives of the roadmap are 1) to allocate spectrum efficiently for the maximum benefit of the nation and the public, 2) to enhance digital infrastructure, infrastructure development, and service delivery capabilities in response to the evolving usage demands in the future, 3) to promote market competition, and improve service quality for the overall benefits of consumers.

According to the implementation, spectrum bands in Category 1 (license-expiring spectrum bands) and Category 2 (unoccupied spectrum bands or to be allocated) undergo allocation processes commencing in 2025, encompassing the 850 MHz, 1500 MHz, 1800 MHz, 2100 MHz, 2300 MHz, and 26 GHz to facilitate service expansion and next-generation telecommunications infrastructure deployment. In this regard, The Office of the NBTC facilitated targeted stakeholder consultation through Focus Group methodology on May 29, 2024, at Pullman King Power Hotel, Bangkok. Thereafter,

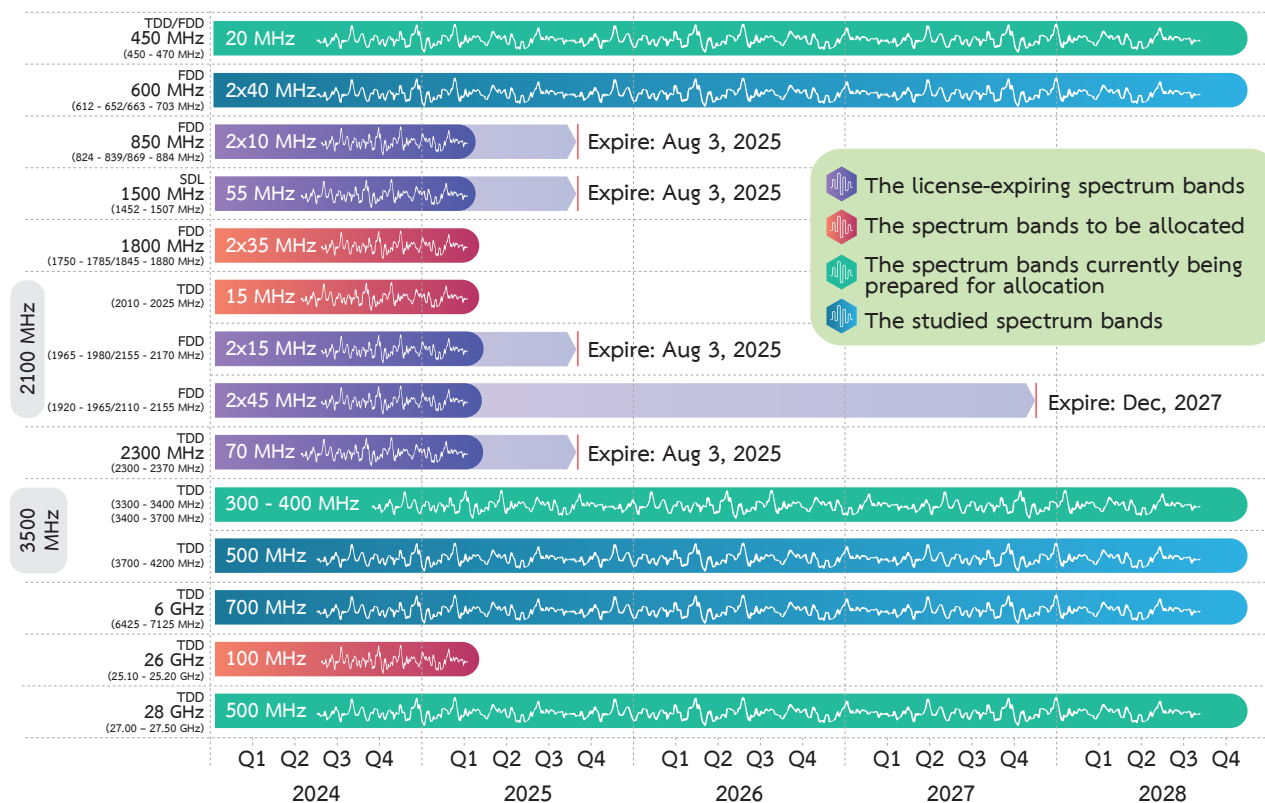
the NBTC Commission authorized publication of Thailand's Five-Year IMT Spectrum Roadmap B.E. 2567 - 2571 (2024-2028), establishing preliminary allocation timelines and serving as a strategic framework for spectrum management to accelerate 5G technology adoption and initiate Thailand's digital economy and society transformation.



The Focus Group Meeting for Thailand's Five-Year International Mobile Telecommunications (IMT) Spectrum allocation strategic plan (B.E. 2567 – 2571) (2024 – 2028)

2. Conduct Spectrum Management Feasibility Studies and Evaluate Adaptive Management Framework for Prevailing Condit.

Spectrum Roadmap for Mobile Communication in Thailand



2.1 Study and develop criteria for the licensing of fixed-satellite services (FSS) in the 27–27.5 GHz. The Office of the NBTC formulated a (draft) regulatory framework for Fixed Satellite Service authorization within the 27.0 – 27.5 GHz and submitted it to the 7th NBTC Commission meeting on March 27, 2024. The Commission acknowledged ongoing 28 GHz spectrum usage initiatives and endorsed the (draft) fixed satellite service authorization framework for the 27.0 - 27.5 GHz, incorporating the following regulatory provisions: 1) International Mobile Telecommunications (IMT) and Fixed Satellite Service (FSS) are established as co-primary services with shared spectrum access rights, 2) Fixed satellite service on earth stations shall function exclusively as network gateway facilities serving both geostationary orbit (GSO Gateway) and non-geostationary orbit (NGSO Gateway) satellite network configurations. 3) In the absence of IMT spectrum assignments, FSS spectrum authorization and earth station deployment requires mandatory coordination with adjacent band service operations. 4) In the case of an application for radiocommunication frequency usage for radiocommunication equipment for IMT, the NBTC shall prescribe conditions and guidelines for granting interference protection rights, along with additional technical requirements.

2.2 Assessment of Suitability and Policy Formulation for Spectrum Utilization in Transportation and Communication Systems, in response to the spectrum requirements of agencies under the jurisdiction of the Ministry of Transport and existing spectrum usage for automotive telematics, Mobile Network Operators and Digital Enhanced Cordless Telecommunications (DECT) equipment suppliers, a regulatory impact assessment was conducted to establish appropriate radio frequency spectrum policies for transportation systems.

On April 29, 2024, a meeting with the Ministry of Transport was scheduled to discuss the demand and feasibility of establishing spectrum usage policies for the transportation system, land transport, rail transport, and maritime mobile

services. The discussion results were discussed in the Focus Group meeting with the automotive industry on July 31, 2024, and the Focus Group meeting with mobile network operators, importers, and distributors of equipment utilizing Digital Enhanced Cordless Telecommunications (DECT) on September 4, 2024, to gather additional feedback and recommendations.

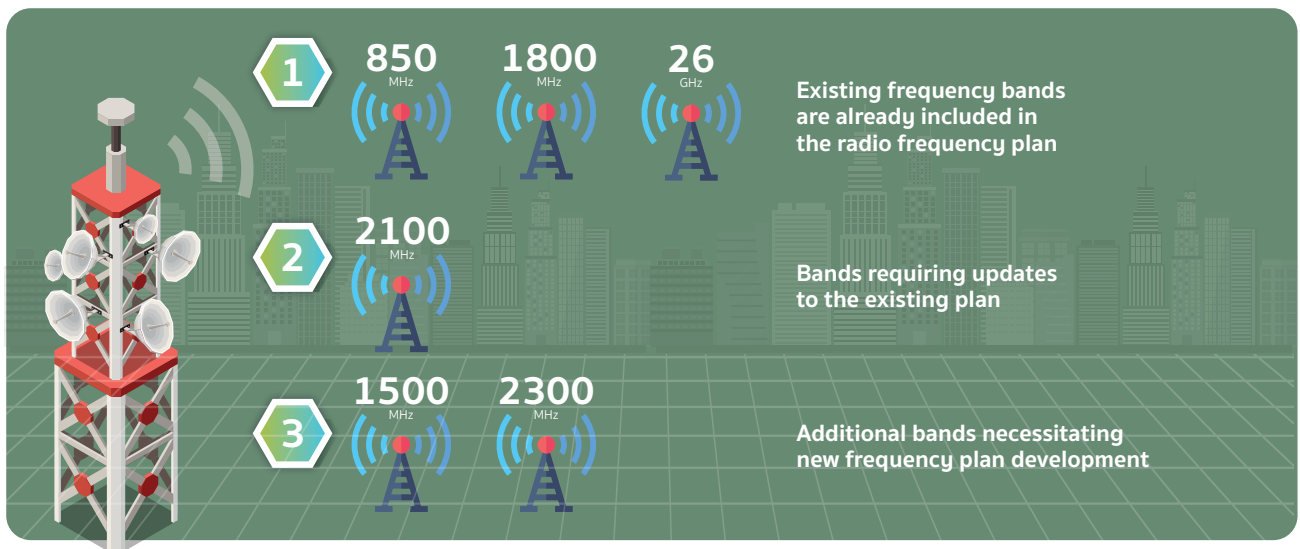
Currently, the Office of the NBTC has completed a comprehensive spectrum study report for transportation systems, incorporating: regulatory framework assessment, international technology deployment analysis, interference analysis, mitigation protocols, and policy recommendations with implementation roadmaps for national ITS spectrum governance. This technical assessment will support spectrum policy formulation for Thailand's transportation infrastructure.

2.3 Study on Radiocommunication Systems and Frequency Spectrum Management in the Maritime Mobile Service. The Office of the NBTC has completed a comprehensive regulatory study on radiocommunication systems and frequency spectrum management within the Maritime Mobile Service, presented to the 28th NBTC Commission Meeting on December 4, 2024. The NBTC endorsed the study findings and approved in principle the recommendations from the Subcommittee on Telecommunications and Radiocommunication Services Licensing and Regulation: 1) Regarding the regulation and spectrum utilization in maritime mobile services, the resolution for interoperability issues between Non-SOLAS vessels operating in Thai territorial waters and SOLAS-compliant merchant vessels utilizing different spectrum allocations, the NBTC shall establish coordination mechanisms with maritime regulatory authorities, including the Marine Department and the Department of Fisheries, for further spectrum usage. 2) In terms of regulation and spectrum of use in maritime mobile services, regulatory notifications require structured revision timelines and implementation schedules.

Technical standards and conformity assessment procedures for Vessel Monitoring System (VMS) radiocommunication equipment shall comply with relevant ITU-R Recommendations and international maritime standards. 3) Maritime Radiocommunication Training programs for radiocommunication operator certificates for Non-SOLAS vessel personnel require enhanced coordination with maritime authorities, including the Marine Department and Vessel Traffic Services (VTS) centers, to ensure regulatory compliance and competency development. 4) It is hereby recommended that the provisions concerning spectrum allocation for fishing vessel stations be duly amended so as to ensure full compliance with the submitted proposal.

3. Development of Radio Frequency Plans, Frequency Usage Criteria, Frequency Usage Improvement, and Monitoring of Radio Frequency Plan Implementation.

3.1 Formulate radio frequency plan for International Mobile Telecommunications (IMT) The radio frequency plan for IMT has been developed to facilitate the reallocation of frequency bands with expiring licenses in 2025 and 2027. The existing frequency bands already included in the radio frequency plan comprise 850 MHz, 1800 MHz, and 26 GHz. The bands requiring plan updates include 2100 MHz, while additional bands necessitating the development of a new frequency plan include 1500 MHz and 2300 MHz.



Therefore, to optimize spectrum utilization of radio frequency resources as national telecommunications assets for maximum public welfare and societal benefit, while ensuring alignment with governmental digital economy development policies and International Mobile Telecommunications (IMT) service operations, which will enhance Thailand's telecommunications infrastructure modernization following global technological evolution and serve as a critical enabler for national digital economy and society advancement, the Office of the NBTC

conducted focused stakeholder consultations through specialized working groups to deliberate on the revision of the (draft) Radio Frequency Plan for International Mobile Telecommunications in the 2100 MHz and the development of two additional (draft) Radio Frequency Plans for the 1500 MHz and 2300 MHz on August 14, 2024.

Currently under consideration are the fundamental principles for: the (draft) Radio Frequency Plan for International Mobile Telecommunications (IMT) in the 1427-1517 MHz; the (draft) Radio Frequency Plan

for International Mobile Telecommunications (IMT) in the 1920-1980/2110-2170 MHz and 2010-2025 MHz; and the (draft) Radio Frequency Plan for the 2300-2400 MHz, complemented by the (draft) Regulatory Framework and Licensing Procedures for Spectrum Authorization in International Mobile Telecommunications across the 850 MHz, 1500 MHz, 1800 MHz, 2100 MHz, 2300 MHz, and 26 GHz. This initiative includes contributions to auction design and preparation to guarantee that all stakeholders have a mutual and comprehensive understanding of the auction outcomes. This approach facilitates the development of the telecommunications market, infrastructure, and service provision of the nation, thereby increasing the capacity to meet future demand and fostering market competition. This leads to reduced service costs and enhanced service quality. The auction process generates government revenue by generating market-based proceeds that contribute to economic, social, and national growth.

The Office of the NBTC has released the four (draft) on the Notification¹ of the NBTC for public feedback from 20 January - 20 February 2025, with a subsequent submission to the 8th NBTC Commission Meeting of 2025 on March 18, 2025. The NBTC Board directed the Office of the NBTC to reissue these four (draft) on the Notification of the NBTC to receive comments from stakeholders and the general public. The Office of the NBTC is now conducting public discussions in compliance with the NBTC Board's resolution.



¹ According to the NBTC resolution at the 2nd NBTC meeting of 2025, held on January 14, 2025

3.2 Development of (Draft) NBTC Regulatory Announcement Concerning Aeronautical Spectrum Utilization Standards.

Aeronautical communication systems are essential for facilitating efficient and safe flight operations. These systems include several applications such as voice communication between pilots and air traffic control, data transfer among aircraft or between aircraft and ground stations, satellite communication systems, navigation aids, radar systems, and search and rescue operations. The NBTC presently evaluates aviation frequency allocations for applicants individually, as advised by the Office of the NBTC. Aeronautical frequency allocations for commercial aviation routes must adhere to the ITU Radio Regulations and ITU recommendations, as well as the International Civil Aviation Organization's 1944 Convention on International Civil Aviation (ICAO), whereas aeronautical frequency allocations for non-commercial aviation routes must follow the National Frequency Allocation Plan. Hence, The (draft) Notification of the NBTC on criteria for aviation frequency usage was created to enable efficient frequency allocation processes and clarity in frequency usage that is consistent with national and international frequency utilization regulations. This notification intends to ensure that frequency usage for aviation-related operations is clearly defined, efficient, and by international frequency usage standards while excluding frequency usage for unmanned aircraft. This issue was submitted to the NBTC Board during its 19th meeting of 2024 on September 4, 2024 for evaluation. The NBTC Board decided to accept the principles in question and directed the Office of the NBTC to conduct public engagement.



3.3 Development of (Draft) NBTC Regulatory Announcement Concerning Radio Frequency Spectrum Usage Standards in Radio Frequency Sensitive Zones (Radio Quiet Zones).

Current frequency usage demand is increasing significantly, accompanied by continuous expansion of urban areas characterized by high population density and intensive frequency utilization. However, radio astronomy measurements and observations need the receipt of low-level radio signals from outer space, which requires an interference-free radio frequency environment. This interference-free environment is critical for research into natural phenomena and celestial objects, studies of universal origins, and the development of radio astronomy and space technology, all of which contribute to the nation's pure and applied science research capabilities. Thailand currently lacks adequate regulatory frameworks for interference protection of radio astronomy signal reception, particularly for the National Radio Astronomy Observatory at the Huai Hong Khrai Royal Development Study Centre in Doi Saket District, Chiang Mai Province the country's only radio

astronomy facility. Consequently, the (draft) NBTC Notification on Criteria for Spectrum Usage in Radio Quiet Zones has been developed. This was presented to the NBTC Board at its 28th meeting of 2024 on December 4, 2024, so the Board resolved to approve the (draft) Notification and directed the Office of the NBTC to conduct stakeholder and public consultations."

3.4 Development of (Draft) NBTC Regulatory Announcement Concerning Radio Frequency Spectrum Utilization for Radio-communication Apparatus: Wireless Microphone Systems, Digital Radiocommunication Systems Employing Digital Enhanced Cordless Telecommunications (DECT) Technology, and Associated Technical Specifications.

Wireless microphones are widely used across all sectors of society, such as meetings, education, concerts, karaoke, sports, entertainment, or media production. The NBTC permits the use of radio frequencies for such purposes in the VHF band with two frequency ranges, namely 88 - 108 MHz and 165 - 210 MHz, and in the UHF band with three frequency ranges, namely; 694 - 703 MHz, 748 - 758 MHz, and 803 - 806 MHz. As the usage volume has

increased significantly, resulting in congestion and utilization under equipment using legacy technology, an analysis was conducted to identify additional frequency bands to enable the public to use them efficiently without requiring licensing in an unlicensed manner, or frequencies that the public can use freely with license exemption. This involved considering the appropriateness of existing regulations, including the readiness of such regulations for wireless microphone technology both currently and in the future.

In this respect, Subgroup meetings were organized with stakeholders to inform the consideration for improving the three (draft) on the Notifications of the NBTC related to frequency usage and technical standards for wireless microphones, such as: 1) The (Draft) Notification of the NBTC on Technical Standards for Telecommunications Equipment and Apparatus for Radiocommunications Equipment Type Wireless Microphones, 2) The (Draft) Notification of the NBTC on Criteria for the Use of Radio Frequencies and Radiocommunications Equipment Permitted for General Use, and 3) The (Draft) Notification of the NBTC on Technical Standards for Radiocommunications Equipment and Apparatus for Digital Radiocommunications Systems Using Digital Enhanced Cordless Telecommunications (DECT) Technology.

This is to accommodate the increasing use of wireless microphones, particularly for large-scale concerts and live broadcasting that require modern technology, for which appropriate frequencies and digital technology are currently unavailable, as well as to support Thailand's role as a hub for international conferences and global events. This has been presented to the 28th NBTC Meeting of 2024 on December 4, 2024 for consideration. The NBTC resolved to approve the principles of the three (draft) announcements and authorization to proceed with comprehensive stakeholder and public consultation processes.

3.5 Revision of Radio Frequency Utilization Standards for Automotive Radar Systems and General-Use Radar Applications.

A comprehensive study and review were conducted on the criteria governing frequency usage for automotive radar systems and radar systems authorized for general use. This initiative aims to ensure regulatory alignment with modern technological advancements and to accommodate emerging applications, including in-vehicle passenger detection radar systems and proximity/obstacle detection systems.

The Focus Group session was convened with relevant stakeholders on October 25, 2024, to deliberate on the review of frequency usage criteria for both automotive radar systems and generally permitted radar systems. Following the compilation of study findings and stakeholder discussions, revisions are currently underway for two key regulatory instruments: the Notification of the NBTC on Criteria for Authorizing the Use of Automotive Radar Radiocommunications Systems, and the Notification of NBTC on Criteria for Radio Frequency Usage and Radiocommunications Equipment Permitted for General Use. These revisions will enable the authorization of the 57 - 64 GHz for both general applications and automotive radar deployment.

3.6 Guidelines for Regulatory Improvement of Frequency Usage to Support Unmanned Aircraft Systems (UAS) and Associated Communication Networks.

Through comprehensive analysis of current-used unmanned aircraft systems technology, connectivity solutions for aircraft-to-external pilot communications, Thailand's existing regulatory framework, international regulatory methodologies, and feasibility assessment for expanding frequency usage scope to accommodate Beyond Visual Line of Sight (BVLOS) unmanned aircraft operations, along with potential integration of Communication Navigation and Surveillance (CNS) systems supporting unmanned aviation operations, specialized stakeholder

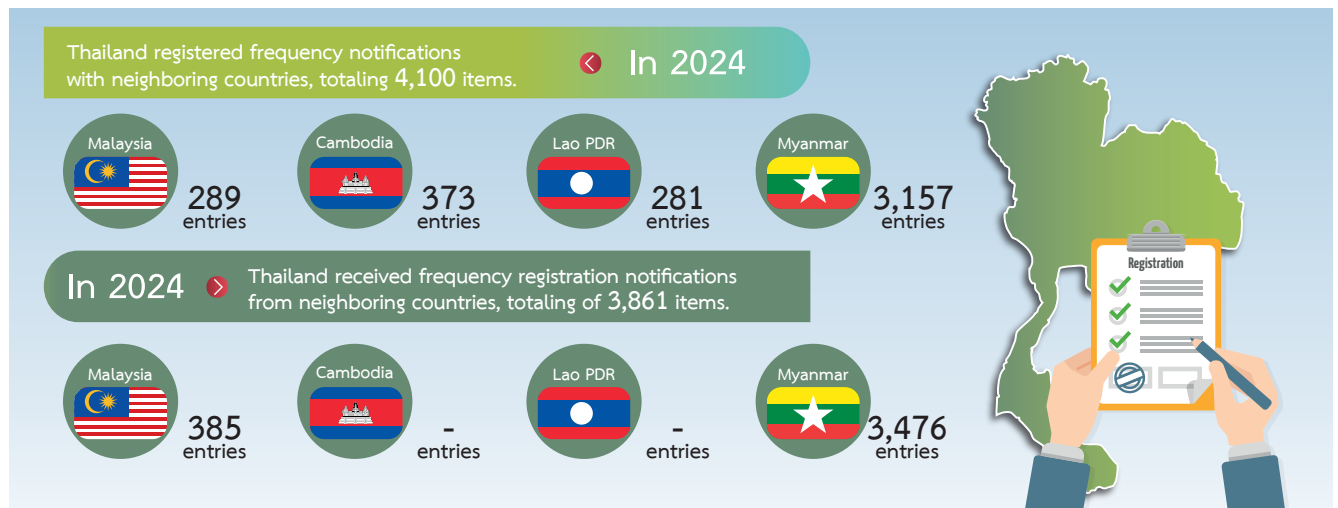
consultations were conducted with the Civil Aviation Authority of Thailand, telecommunications service providers, unmanned aircraft system manufacturers, importers and operators, and national security agencies on March 14, August 13, August 30, and October 21, 2024, respectively, to present research findings and solicit expert input.

Currently, the regulatory instrument drafting process is underway for subsequent submission to the NBTC Commission to obtain fundamental principle approval for the (draft) announcement and authorization to proceed with comprehensive stakeholder engagement and public consultation processes.

4. Radio Frequency Spectrum Coordination Framework for National and Cross-Border Spectrum Management.

4.1 Notification of Frequency Registration in Thai Border Areas and Neighboring Countries

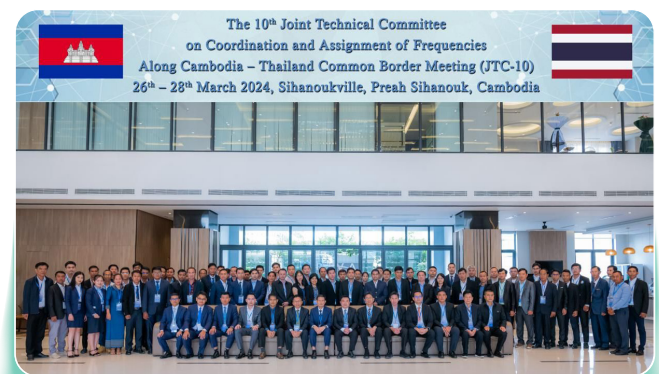
Thailand sent frequency registration notifications to its bordering nations in 2024, resulting in 4,100 entries, which were split as follows: Malaysia, 289 entries; Cambodia, 373 entries; Lao People's Democratic Republic, 281 entries; and Myanmar, 3,157 entries. Thailand obtained frequency registrations from adjacent nations, amounting to 3,861 entries, categorized as follows: Malaysia has 385 entries, whereas Myanmar has 3,476 entries.



4.2 Cross-Border Radio Frequency Spectrum Coordination and Assignment, as follows:

1) The 10th Meeting of the Joint Technical Committee on Coordination and Assignment of Frequencies along the Cambodia-Thailand Common Border (JTC) conducted March 26-28, 2024, where Thailand successfully achieved bilateral agreement on resolving 700 MHz frequency interference issues through Cambodia's commitment to cease terrestrial television operations on CH 50: 702-710 MHz and undertake collaborative field measurements with relevant authorities to mitigate interference from CH 51-55: 710-750 MHz, while establishing a bilateral framework for frequency registration notifications for broadcasting and television services, thereby enabling

both Thailand and Cambodia to initiate systematic frequency registration notification procedures for broadcasting and television operations.



The 10th Meeting of the Joint Technical Committee on Coordination and Assignment of Frequencies along Thailand – Cambodia Common Border

2) The 37th Meeting of the Joint Technical Committee on Coordination and Assignment of Frequencies along the Malaysia-Thailand Common Border (JTC) conducted July 2-4, 2024, resulted in Thailand successfully concluding deliberations on frequency utilization and associated technical parameter specifications for the 3.5 GHz on a provisional basis, with resumption scheduled following Thailand's deployment of frequency users in this band. Furthermore, bilateral agreement was achieved for Compilation Handbook enhancement through incorporation of CCTV (user terminal) operational annotations for the 4940-4990 MHz under unlicensed operation protocols. Nevertheless, interference mitigation measures and related technical parameter coordination for the 2600 MHz remain pending, with mobile network operators from both administrations endorsing the establishment of systematic guidelines for optimal and efficient frequency parameter validation procedures. Additionally, the Committee acknowledged the introduction of a new agenda item for subsequent JTC proceedings concerning FM Sound Broadcasting services to monitor implementation progress, particularly regarding Thailand's ongoing preparations for supplementary frequency allocation initiatives.



The 37th Meeting of the Joint Technical Committee on Coordination and Assignment of Frequencies along Thailand – Malaysia Common Border

3) The 6th Meeting of the Joint Technical Committee on Coordination and Assignment of Frequencies along the Thailand-Myanmar Common Border (JTC) convened from November 6-8, 2024. Thailand achieved a successful resolution of discussions concerning harmful interference in the 850 MHz occurring within the coordination area along the Thailand-Myanmar border region. The committee reached mutual agreement on frequency arrangements within the UHF band and IV/V, establishing geographic coordination zones sequentially ordered from northern to southern territories, and adopted comprehensive interference resolution guideline for broadcasting and television broadcasting services in accordance with ITU Radio Regulations. Nevertheless, concerning potential harmful interference in the 900 MHz attributed to Anti-Drone Jamming systems, Myanmar's telecommunications regulatory authority expressed security concerns regarding field measurements and frequency monitoring activities in the Koh Song-Ranong coordination zone, requesting deferment of technical field investigations pending improvement of security conditions.



The 6th Meeting of the Joint Technical Committee on Coordination and Assignment of Frequencies along Thailand – Myanmar Common Border

4) The 13th Joint Technical Committee on Coordination and Assignment of Frequencies along the Thailand-Lao PDR Common Border (JTC) was held on November 26-28, 2024. Thailand was able to reach an agreement with both countries on parameter configuration for frequency utilization in various bands, particularly on testing frequency utilization in the 700 MHz and 2600 MHz, including the configuration of GPS time synchronization and TDD frame structure for the 2600 MHz in TDD-TDD cases. If the testing results are positive, this will result in the resolution of interference and cross-border signal issues along the Thailand-Lao PDR border, as well as allowing mobile telephone service providers in both countries to utilize frequencies more efficiently.



The 13th Meeting of the Joint Technical Committee on Coordination and Assignment of Frequencies along Thailand – Lao PDR Common Border

4.3 Cross-border Frequency Coordination Procedures with the International Telecommunication Union (ITU). Thailand submitted frequency notifications and completed registration procedures for high-frequency radio broadcasting frequency utilization by 25 International Broadcasting Bureau (IBB) Voice of America transmission stations during 2024.

The administration also submitted the High Frequency Broadcasting (HFBC) schedule data for the B24 Season 2 (B24 T2) broadcasting schedule through the ITU's BR IFIC (International Frequency Information Circular) notification system by ITU Radio Regulations procedures.





Regulatory Oversight of Broadcasting, Television, Telecommunications, and Satellite Services

Regulatory Oversight of Broadcasting and Television Services.

The NBTC has exercised regulatory oversight and supervision of broadcasting and television services following the strategic objectives outlined in the Broadcasting and Television Services Master Plan. The regulatory framework aims to advance Thailand's broadcasting and television services to comply with international standards and align with digital transformation requirements. Key regulatory initiatives include the systematic transition of experimental FM broadcasting stations from provisional status to full legal licensing under the Broadcasting Act, enhancement of content regulation ensuring quality programming and content diversity, comprehensive consumer protection measures against unfair practices, and promotion of citizens' fundamental rights and freedoms for equitable access to, reception of, and utilization of information and broadcasting content. The NBTC has produced notable achievements and key performance indicators in 2024, including:

1. Regulatory Oversight of Radio Broadcasting Services.

1.1 FM Radio Broadcasting Service.

In 2024, strategic initiatives were implemented to drive Thailand's broadcasting industry toward international standardization, incorporating digital transformation dynamics that align with contemporary technological contexts, as follows:

1.1.1 Transitioning Experimental FM Radio Stations to Full Legal Licensing Systems
Relevant conducted a comprehensive review and revision of regulatory instruments governing

frequency authorization and FM broadcasting service² licensing to facilitate the systematic transition of FM radio broadcasting experimental operators, whose provisional broadcasting authorization expires on December 31, 2024, as well as new entrants seeking to establish broadcasting services under the formal licensing regime. The regulatory framework comprises: 1) The Notification of the NBTC on FM Broadcasting Radio Frequency Plan, 2) The Notification of the NBTC on Technical Standards for FM Radio Broadcasting Transmitters, 3) The Notification of the NBTC on Interference Protection Criteria for Radio Broadcasting Stations to Aeronautical Radio Services establishing coordination procedures and protection requirements. These three regulatory instruments were promulgated in the Royal Gazette on June 21, 2024. 4) The Notification of the NBTC on Criteria and Procedures for Frequency Usage Permits and Broadcasting Service Operations, which consolidates the consideration process for frequency usage permit applications for broadcasting service operations, license application submissions, and consideration of broadcasting service operation license applications and related radiocommunication law licenses into a single announcement, allowing license applicants to understand the procedures and This was published in the Royal Gazette on October 4, 2024, along with the Notification of the NBTC on the Criteria, Procedures, and Conditions for FM Frequency Auctions for Broadcasting Services in the Commercial Business Category at the Local Level (Spectrum Auction Regulation³).

² According to the 30th NBTC meeting of 2022, held on November 9, 2022

³ Published in the Royal Gazette on February 27, 2024

To ensure adequate preparation for FM broadcasting experimental operators facing authorization expiry on December 31, 2024, and prospective new broadcasting service providers, regarding regulatory compliance, operational procedures, and frequency utilization conditions for the transition from experimental FM broadcasting stations to authorized FM frequency license holders for commercial local broadcasting services through competitive auction procedures, the Office of the NBTC conducted four regional briefing sessions on FM broadcasting service licensing procedures and digital broadcasting service regulatory guidelines in Bangkok Metropolitan Area, Ubon Ratchathani Province, Songkhla Province, and Chiang Rai Province.

1.1.2 FM Frequency Authorization Procedures for Public Service Broadcasting and Community Broadcasting License Applications formulated licensing principles and promulgated a public invitation for FM frequency authorization applications for public service broadcasting and community broadcasting service⁴ categories. The regulatory announcement⁵ underwent formal publication procedures on the Office of the NBTC official website on October 15, 2024, to ensure that prospective frequency users for public service and community broadcasting services receive adequate notification, comprehension, and preparation time for license application procedures. The application submission period for FM frequency use authorization for public service broadcasting and community broadcasting services was established from November 1-30, 2024, utilizing the Electronic Broadcasting and Communications Services (e-BCS) licensing application system. To facilitate accurate and compliant license application submissions by prospective frequency users for broadcasting services, comprehensive briefing

sessions were conducted to explain application procedures under the public invitation for FM frequency use licenses for public service and community broadcasting categories during October 28-29, 2024, at Bangkok venues with simultaneous electronic conference system (Webex) and Facebook Live streaming capabilities. These sessions provided detailed information to interested broadcasting operators regarding regulatory requirements, technical criteria, procedural guidelines, and authorization conditions for frequency use in broadcasting service operations, including additional compliance requirements and preparation protocols for accurate license application submissions. Furthermore, system testing procedures for license applications through the electronic licensing application platform were implemented.



The meeting to clarify the licensing process according to the invitation announcement to use the FM frequency for broadcasting service provision, in the public service and community service categories.

1.1.3 Procedures for FM Frequency Usage License Applications for Local Commercial Broadcasting Service Applications implementing the Notification of the NBTC on Criteria and Procedures for Frequency Usage Permits and Broadcasting Service Operations, which determines the licensing method for frequency usage for Commercial Broadcasting Services through auction procedures according to the criteria, procedures, and conditions determined by

⁴ According to the 20th NBTC meeting of 2024, held on September 18, 2024

⁵ The invitation announcement was disseminated after the Notification of the NBTC on Licensing Criteria and Procedures for Frequency Usage and Broadcasting Business Operations was published in the Royal Gazette on October 4, 2024, and effective as of October 5, 2024.

the NBTC, and Article 11 requiring the NBTC to issue invitation announcements for public notification of such frequency auctions, the following actions were taken:

1) Developed the (draft) Notification of the NBTC on ning Criteria, Procedures, and Conditions for FM Frequency Auction for Commercial Broadcasting Services, Local Coverage Category. A comprehensive public consultation process was conducted on this (draft) Notification from August 7, 2024, through September 6, 2024, complemented by a formal public hearing session convened on August 27, 2024, at the Office off NBTC. During the 23rd NBTC Commission meeting held on October 16, 2024, the Commission adopted a resolution approving the public consultation summary report and the (draft) regulatory announcement, with directives to incorporate stakeholder feedback and meeting recommendations into the final regulatory instrument. The Commission further authorized the implementation of competitive FM frequency auctions for commercial broadcasting services under local coverage classification during 2025, encompassing 2,507 frequency assignments. This regulatory instrument has subsequently been promulgated through publication in the Royal Gazette on February 27, 2025.

2) Development of Invitation⁶ for Application Notice regarding FM Frequency Spectrum License Applications for Local Commercial Broadcasting Services. After careful consideration of the criteria outlined in the Notification of the NBTC on FM Broadcasting Frequency Plan and the NBTC Notification on Criteria and Procedures for Frequency Spectrum Licensing and Broadcasting Operations, the NBTC has issued an invitation for application notice for applications for FM frequency spectrum licenses for local commercial broadcasting services.

3) An invitation⁷ for application notice was released on the Office of the NBTC website on November 7, 2024, informing those interested in applying for FM frequency spectrum licenses for local commercial broadcasting activities, thus enabling them to obtain information and prepare for their applications. A meeting was held on November 19, 2024, to provide an explanation of the license applications under the invitation notice to interested parties, prior to the opening of the application period. The license application period was designated via the Electronic Broadcasting and Communication Services Application System.

1.2 Digital Broadcast Service.

To ensure tangible progress in digital broadcasting licensing agreements, the following activities have been implemented:

1.2.1 Comprehensive Study on Digital Radio Licensing Approaches and Frequency Planning Framework, Including Authorization Standards and Technical Regulatory Requirements based on deliverables from the consultant's feasibility study for the Thailand digital radio broadcasting service demand survey, economic assessment and network investment model development project, comprising: network deployment cost analysis report, digital radio broadcasting infrastructure design specifications, and regulatory framework for frequency allotment planning and assignment methodologies.

1.2.2 Development of Related the (Draft) Notifications of the NBTC to avoid disruption in driving the digital radio broadcasting business throughout the shift from trial or testing phases to definitive licensing arrangements, consider the following: 1) The (draft) Notification of the NBTC on Digital Radio Broadcasting Frequency Plan was presented to the NBTC at its 17th meeting

⁶ According to the 23rd NBTC meeting of 2024, held on October 16, 2024

⁷ According to the 23rd NBTC meeting of 2024, held on October 16, 2024

held on August 14, 2024, after being subjected to public consultation from May 15 - June 15, 2024. The NBTC authorized this (draft) notification, which was subsequently published in the Royal Gazette on October 11, 2024. 2) The (draft) NBTC Notification on Technical Standards for Digital Radio Broadcasting Transmitting Equipment. 3) The (draft) Notification of the NBTC on Technical Standards for Digital Radio Broadcasting Receiving Equipment. These two (draft) notifications were subject to public consultations from 15 May 2024 - 15 July 2024, including a public hearing in Bangkok on June 6, 2024 and an online format, and were presented to the 20th NBTC meeting held on September 18, 2024. The NBTC accepted both (draft) notifications, which appeared in the Royal Gazette on October 31, 2024.



In terms of network and service licensing, the NBTC has produced digital radio broadcasting licensing guidelines, as well as frequency plan notifications and related technical standards for licensing, and has held relevant Focus Group meetings. These are planned to be presented to the NBTC for consideration in the first quarter of 2025, with invitations for network license applications likely in the second to fourth quarters of 2025. The operations may commence in the first quarter of 2026. During the period while licensing-related notifications were still pending, the NBTC allowed individuals who were ready to broadcast digital radio broadcasting networks to file applications for experimental digital broadcasting network operations.

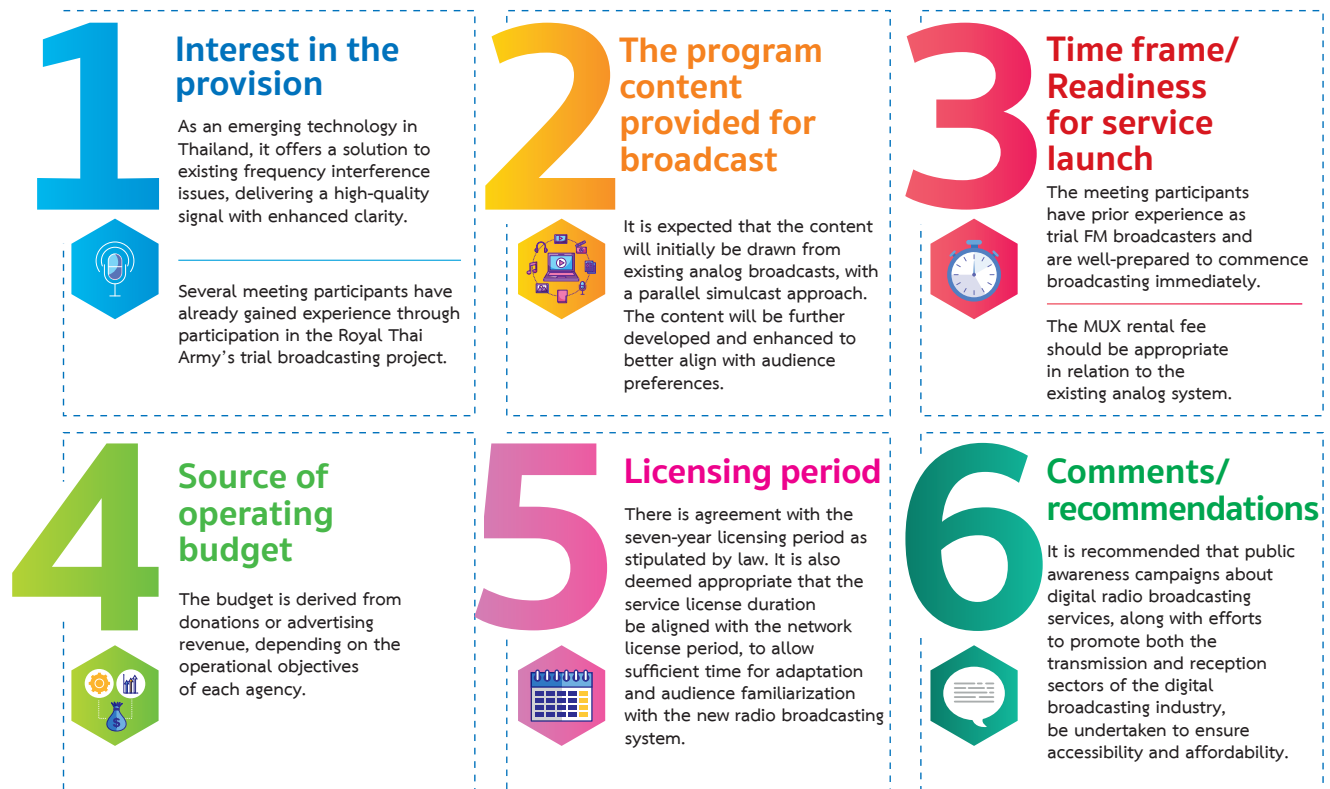


The public hearing on the Notification of the NBTC related to digital radio broadcasting

1.2.3 Digital Audio Broadcasting Plus (DAB+) Experimental Transmission Operations

executed a comprehensive digital radio broadcasting pilot deployment initiative, established as a strategic collaborative project under the formal Memorandum of Understanding between the Office of the NBTC and the Royal Thai Army, operationally implemented through the Army Radio and Television Broadcasting Station facilities. The experimental transmission program encompassed coverage testing within the Bangkok Metropolitan Area and adjacent regions, as well as strategic provincial deployment zones including Chiang Mai, Khon Kaen, Songkhla, and Chonburi provinces. The comprehensive operational data, technical performance metrics, and field trial results

from this pilot deployment will serve as critical regulatory input for policy consideration, thereby enhancing public information access alternatives and mitigating frequency interference issues within the national spectrum management framework. Additionally, a specialized Focus Group stakeholder consultation session was convened to facilitate comprehensive dialogue and recommendation exchange concerning Digital Audio Broadcasting Plus (DAB+) service implementation and regulatory requirements with prospective applicants seeking experimental authorization for digital broadcasting frequency utilization and service operation trials, conducted on October 18, 2024, addressing the following critical regulatory and technical policy considerations:



1.2.4 Preparatory Phase for Digital Audio Broadcasting (DAB) Licensing Framework - Development of comprehensive licensing procedures for broadcast service authorization to operate digital audio broadcasting network infrastructure, incorporating standardized timeframes for broadcast service licensing in accordance with ITU-R recommendations for digital sound broadcasting systems. The regulatory preparation encompasses detailed implementation roadmaps for the DAB licensing process scheduled for deployment in 2025. On October 11, 2024, a stakeholder consultation session was held, which attracted the participation of four authorized digital terrestrial television broadcasting (DTTB) network operators: (1) Public Relations Department, (2) Royal Thai Army Broadcasting Service, (3) CAT Telecom Public Company Limited, and (4) Thai Public Broadcasting Service. Additionally, two entities were conducting DAB+ digital audio broadcasting trials. The (draft) invitation for tender for digital audio broadcasting service authorization was informed by the technical knowledge exchange and regulatory feedback collection facilitated by this multi-stakeholder engagement. This ensured

that the regulatory framework followed the dynamic broadcast industry ecosystem and ITU standards.

2. Regulatory Oversight of Television Broadcasting Services.

2.1 Study and Improvement of Various Regulations with Emphasis on Necessary (Light Touch) Regulatory Oversight to Modernize and Align with the Current Television Industry Landscape, Including Support for Television Services, as follows:

2.1.1 The NBTC has promulgated regulatory measures to establish professional associations among broadcasting service licensees, content producers, and media professionals within the broadcasting and television professionals in the broadcasting and television sectors. This regulatory framework promotes the formation of industry self-regulatory organizations to develop professional codes of conduct and implement co-regulatory mechanisms, as outlined in Sections 39 and 40 of the Broadcasting and Television Services Act B.E. 2551 (2008).

The regulatory structure establishes a co-regulatory model whereby the NBTC facilitates media industry self-governance through capacity building support, professional development programs, and operational funding for compliant professional organizations. Certified professional organizations assume responsibility for enforcing ethical standards, supervising member compliance, adjudicating complaints, and implementing mechanisms for stakeholder remediation. Following public stakeholder consultation, the NBTC adopted this regulatory framework at the 23rd NBTC Commission Meeting held on October 16, 2024, with formal publication in the Government Gazette on January 10, 2025. Expected regulatory outcomes include enhanced content quality assurance through the

implementation of professional standards, mitigation of negative externalities, and improved public interest outcomes in broadcast media services. The Office of the NBTC has organized preparatory meetings for professional organizations in broadcasting and television operations in regional areas to establish ethical standards, complaint management processes concerning ethics, and self-regulation of professional practice under these ethical standards. This initiative aligns with the qualifications for registration as a professional organization as specified in the notification, which includes four sessions: 1) on February 1-2, 2024, in Chiang Mai; 2) on February 15-16, 2024, in Khon Kaen; 3) on March 7-8, 2024, in Songkhla; and 4) on March 21-22, 2024, in Chanthaburi.



2.1.2 The NBTC is Formulating a Comprehensive Regulatory Framework Through the (draft) Notification on “Criteria for Promoting Resilient Communities and Supporting Quality Community Service Providers.” This regulatory revision addresses scope limitations in the existing 2017 the Notification of the NBTC which governs community broadcasting services exclusively under Section 51 of Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services Act, B.E. 2553 (2010), and subsequent amendments, while excluding community television services.

The current regulatory framework creates operational constraints that impede community participation in television production and limit implementation of the Notification of the Broadcasting and Telecommunication Commission

Broadcasting Master Plan No. 2 B.E. 2563 - 2568 (2020-2025) Revised Edition, which mandates comprehensive support mechanisms for both sound broadcasting and television service providers. Community television development faces structural barriers, including limited human resource capacity, insufficient technical competencies, and inadequate media production expertise across diverse geographical communities. The proposed regulatory framework aims to establish incentive mechanisms and capacitybuilding support for community stakeholders pursuing television services for public service objectives. This comprehensive notification will supersede the 2017 regulatory framework, establishing unified criteria and support measures pursuant to Section 51 statutory requirements.

Following public stakeholder consultation, the 1st NBTC Commission Meeting of 2024 held on January 10, 2024 directed regulatory text refinement for legal precision and statutory compliance. The Office of the NBTC has consolidated stakeholder feedback, revised the draft regulatory framework, and updated consultation documentation. The proposal is currently under technical review by the Broadcasting and Telecommunications Research and Development Fund for Public Interest (BTFP) prior to Commission consideration for regulatory adoption

2.1.3 The NBTC has Formulated Regulatory Framework Through the (draft) Notification on “Criteria for Supporting Socially Beneficial Programs In Broadcasting and Television Sectors” This initiative addresses market disruption from technological convergence and broadband infrastructure expansion during the digital transformation period, which has intensified competition within television markets while economic contraction from pandemic-related disruptions has impacted broadcasting service providers, content producers, and media industry stakeholders. Market pressures have driven strategic reorientation toward commercially-focused programming strategies, constraining public service content production and reducing industry commitment to socially beneficial media content. To counteract this market failure and maintain public service broadcasting objectives, the Broadcasting and Telecommunications Research and Development Fund for Public Interest (BTFP) will implement targeted financial support mechanisms and production subsidies. The funding architecture provides comprehensive production cycle support encompassing pre-production development, content production, post-production services, and content distribution platforms. Strategic support prioritizes four content categories that are consistent with public service objectives: 1) Children’s and youth-oriented programming, 2) Local cultural heritage and identity content, 3) Social diversity and inclusion programming, and 4) International co-production initiatives with

export potential. This regulatory framework was endorsed by the NBTC at the 2nd Commission Meeting held on January 14, 2025, following stakeholder consultation procedures. The NBTC (draft) Notification establishes systematic public service content support mechanisms and enables industry resilience during market transition periods.

2.1.4 Development of (Draft) NBTC Notification regarding the Revocation of the NBTC Notification on Criteria for Important Television Programs Exclusively Available on Free-to-Air Television Services, B.E. 2555 (Must Have).

The NBTC Notification was revoked in principle by the Commission following the 7th NBTC special meeting held on March 23, 2023. The Commission also authorized the submission of the draft notification for public consultation. The consultation period, which extended from March 25, 2023, to April 23, 2023, culminated in a public hearing on April 20, 2023, which was conducted at the Office of the NBTC and via online participation. The draft notification was the subject of feedback from three inclusive groups during the public consultation process: consumer/citizen organizations, network service providers, and television service providers (broadcasting channels). The consultation results revealed that the majority of citizens and stakeholders opposed the revocation of the Must Have notification. Consequently, the Office of the NBTC developed alternative approaches for amending the Must Have notification, which were submitted to the Sub-committee on Television Broadcasting Licensing for review before presentation to the full Commission. On March 27, 2024, the Commission authorized amendments to the annex of the NBTC Notification on Criteria for Important Television Programs Exclusively Available on Free-to-Air Television Services B.E. 2555 (2012). In order to facilitate competition for sports broadcasting rights among the private sector and television industry through market-driven mechanisms, the Commission reached an agreement to eliminate item No. 7, “FIFA World Cup Final,” from the notification.

2.1.5 Strategic Assessment of Thailand's Broadcasting Industry Future Scenarios Under Dynamic Market Transformation.

This analytical framework includes comprehensive scenario modeling of Thailand's broadcasting ecosystem and ancillary service sectors, policy mechanism evaluation for sectoral development and regulatory governance, strategic resource optimization approaches for broadcasting and communications infrastructure,

and institutional recommendations for regulatory modernization and operational excellence standards. Moreover, the research program is intended to help Thai broadcasting companies improve their competitive posture in the face of changing market conditions. The consultation engagement was completed with strategic implementation routes based on the full industry scenario assessment, which is currently being evaluated by the NBTC institutions and policy integration.



The dissemination meeting on the study results of broadcasting business scenarios

2.1.6 Analysis of Spectrum Supply Requirements for Domestic Digital Terrestrial Television Service Demand. Comprehensive research was conducted to align with the Master Plan for Broadcasting and Television Services No. 2 B.E. 2563-2568 (2020 – 2025). Given that preparations are currently underway for licensing renewals of terrestrial digital television services set to expire between 2028 and 2030, comprehensive research has been undertaken to gather relevant data on frequency utilization for terrestrial television services both domestically and internationally. The research encompasses technical aspects, service delivery mechanisms, international agreements and regulations, and factors influencing radio frequency planning strategies for terrestrial digital television services. Additionally, the study analyzes future spectrum management approaches for terrestrial digital television operations. Thereby, on August 29, 2024, technical consultations were conducted to address critical implementation aspects, including 600 MHz

frequency utilization, DVB-T2 network parametric optimization, network operator and transmission facility capacity planning, and Television signal quality considerations. Television network operators and digital terrestrial channel service providers participated in these consultations.

2.1.7 Study on Feasible and Appropriate Approaches for Establishing Access Channels to Terrestrial Television Services on Digital Platforms and Their Implementation in Connected TV Devices and Other Equipment in Thailand.

The Office of the NBTC has formed a specialist working group to perform a thorough feasibility study of suitable approaches for developing access channels to terrestrial television broadcasting services via digital platforms. On August 19, 2024, the Office of the NBTC held a stakeholder consultation with domestic television equipment manufacturers and distributors to assess market dynamics, operational system architectures, technical challenges, implementation barriers, and institutional readiness for deploying

terrestrial television service access channels on digital platforms. The consultation results produced strategic proposals for enabling access channel integration within the Connected TV infrastructure. The findings urge for regulatory involvement by issuing or amending the NBTC technical notifications governing terrestrial digital television receiver specifications, with a focus on internet-enabled device types. To ensure that digital television content consumption is accessible, this regulatory framework mandates platform accessibility provisions while adhering to established broadcasting standards. The importance of adaptive regulatory mechanisms in enabling future technological advancements is further emphasized by the recommendations. They recommend the implementation of equipment conformance oversight measures that are in accordance with the latest industry advancements and emerging technological paradigms. The Office of the NBTC is currently preparing the comprehensive feasibility study findings for formal submission to the NBTC Commission for consideration and potential policy adoption while ensuring alignment with Thailand's digital broadcasting ecosystem development objectives and international telecommunications standards.

2.2 Competitive Framework and Regulatory Supervision of Tariff Structures and Service Fee Mechanisms in Broadcasting and Television Industries.

2.2.1 Development of Quarterly Analytical Reports on Competitive Behavior in Broadcasting, Television, and Related Services. These comprehensive quarterly reports employ economic theoretical frameworks to analyze competitive dynamics across multiple dimensions, including competitive behavioral patterns, strategic business planning, and technological adaptation strategies. The analysis tracks industry evolution and aligns with competitive trends in broadcasting, television, and associated sectors both within Thailand and internationally. The reports are systematically disseminated through the dedicated broadcasting portal at <https://broadcast.nbtc.go.th> and were

prominently featured during the NBTC Competition Forum 2024. This year's forum, themed "Content Creators in the Age of AI: Adapting to Change," was held on November 8, 2024 providing a platform for sharing insights on industry transformation and competitive landscape evolution.

2.2.2 Development of National Subscription Television Service Pricing Reports.

This on going initiative, established in 2021 and continuing through the present, systematically compiles service pricing data from subscription television providers who directly charge end users across cable TV, satellite television, and IPTV services. The comprehensive reports encompass provider profiles, service characteristics, product offerings, pricing structures for individual products and packages, and multi-dimensional analytical assessments. These reports serve as a foundational component for the Office of the NBTC's television service pricing data-base, supporting future policy development initiatives by the Commission. The findings are regularly published through the broadcasting information portal at [https:// broadcast.nbtc.go.th](https://broadcast.nbtc.go.th).

The 2024 thorough market assessment shows tariff stability within subscription television services, with minor fluctuations in both pricing methods and channel provisioning compared to previous years. According to the report, subscription television providers primarily use defensive business tactics, pursuing cost-cutting measures while prioritizing customer retention through greater service differentiation. Key strategic approaches include demand-responsive content acquisition, continuous 24-hour technical support infrastructure, and flexible payment mechanisms. Market intelligence suggests that there are substantial operator concerns regarding tariff adjustment strategies. This is due to the fact that rate increases are correlated with subscriber attrition and competitive migration, while tariff reductions endanger revenue sustainability and operational viability, potentially leading to business discontinuation scenarios.

2.2.3 Annual License Fee Reduction and Exemption Program. To encourage broadcasting and television operations that provide news programming and public interest content, the Office of the NBTC implements the NBTC Regulation on Reduction or Exemption of License Fees for Broadcasting or Television Services B.E. 2556 (2013). This regulatory framework enables qualifying broadcasting and television service licensees to apply for annual license fee reductions or exemptions based on established criteria, rates, and procedural requirements. The program specifically targets operators whose programming includes substantial proportions of news content and public service programming that benefits society. During 2024, the NBTC conducted comprehensive evaluations of channels meeting the public interest content requirements according to predetermined assessment criteria. At the 17th NBTC Meeting held on August 14, 2024, the Commission approved a 50 percent annual license fee reduction for National Broadcasting Services of Thailand (NBT2HD), recognizing the station's commitment to providing news and public service programming that serves the national interest.

2.2.4 The NBTC Conducted Regulatory Compliance Workshops on “Broadcasting Service Revenue Assessment and Annual License Fee Administration” to ensure broadcasting service licensees maintain comprehensive understanding of regulatory fee collection objectives and administrative procedures for sound broadcasting and television services. The capacity-building program addressed financial reporting requirements, documentation standards, and administrative procedures for annual license fee submission forms related to broadcasting and television service operations. A virtual stakeholder consultation session was convened for broadcasting service operators on March 27, 2024. Complementary technical resources included regulatory guidance documents detailing revenue calculation methodologies for annual license fee assessment,

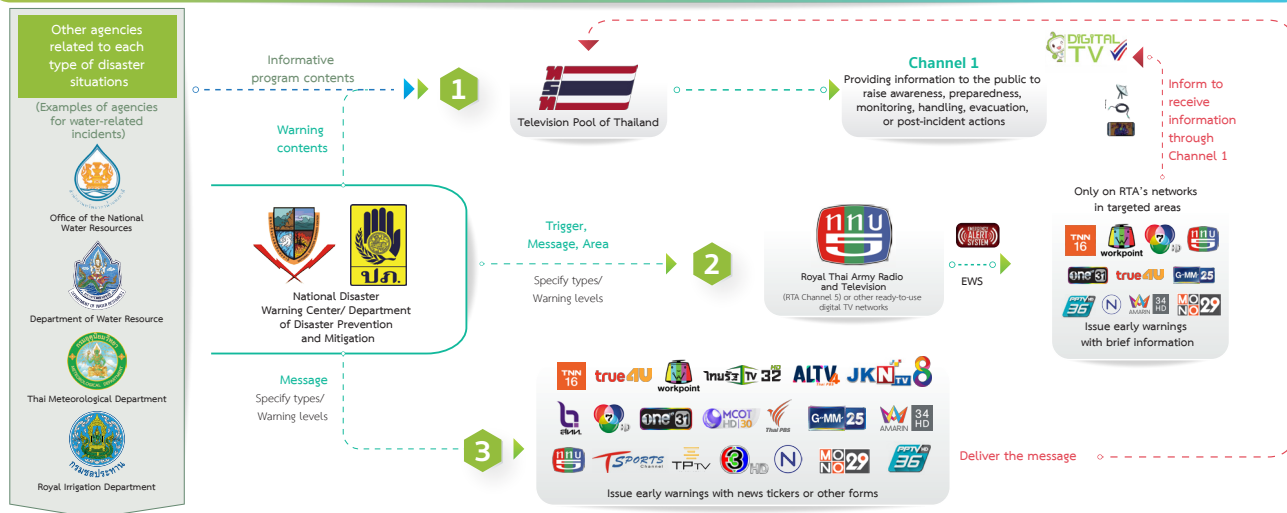
form completion protocols, and administrative submission procedures for license fee payments and associated regulatory documentation.

2.3 Enhancement of Emergency Warning System Development for Operational Efficiency.

In alignment with the NBTC's strategic policy priorities for emergency alert capabilities across mobile telecommunications and terrestrial digital television platforms, comprehensive studies have been conducted on Emergency Warning System (EWS) implementation approaches for terrestrial digital television networks. The initiative aims to establish rapid and effective natural disaster warning capabilities, enabling swift public access to critical information while mitigating potential impacts and minimizing losses during emergency events. On February 21 and September 9, 2024, the Office of the NBTC held consultation meetings with network service licensees, terrestrial digital television service licensees, and government agencies to discuss implementation approaches and assess each network's readiness, including approaches for testing and piloting the Emergency Warning System (EWS) for terrestrial digital television services. The consultations identified three viable emergency warning distribution channels through television services: 1) Warnings via the National Broadcasting Services of Thailand's special-purpose television on terrestrial digital television channel 1, 2) Warnings via terrestrial digital television networks, and 3) Text scrolling warnings via various terrestrial digital television channels.



3 Channels of emergency warning via television system



*The second channel (EWS) is a technically feasible channel that is currently in the preparation stage for testing conducted by RTA. A clear testing framework must be established and approved by all television channels that utilize the RTA's network for terrestrial broadcasting.

Diagram of disaster or emergency warning channels

2.4 Live Television Broadcast Coverage of Royal Celebration Activities in honor of His Majesty the King commemorating the Auspicious 6th Cycle Royal Birthday Anniversary on July 28, 2024, featuring the Royal Merit-Making Ceremony for the Royal Kathina Robe Offering conducted through the Royal Water Procession. The NBTC, in collaboration with the Television Pool of Thailand (TPT) and digital terrestrial television channels, broadcast live coverage of the Royal Kathina Ceremony on October 27, 2024, which included the traditional Royal Barge Procession. The National Live Broadcasting and News Center at the NBTC Regional Office 1 is the source of the broadcast. This facility is well-equipped to transmit significant national sporting events, state functions, and royal ceremonies.

His Majesty's gracious presence was witnessed by Thai citizens and international audiences during this significant regal ceremony, which also served as an exceptional opportunity to demonstrate their loyalty and bestow auspicious blessings. The broadcast exhibited the Royal Barge Procession, a cherished tradition that embodies Thailand's rich cultural heritage by combining ancient arts and sciences. The majestic ceremonial fleet, which boasts a centuries-old history, was presented with the proper dignity that befitted His Majesty's honor.

On December 3, 2024, the Royal Guard's Oath of Allegiance Ceremony and Military Parade were also live-streamed through the broadcasting infrastructure.



The official visit to the Live Broadcast an infrastructure and News Reporting Center for Major Events in Thailand



“A Decade of Digital TV” event

2.5 Institutional Support for the “One Decade of Digital Television” Commemorative Conference under the Strategic Theme “Beyond the Next Step.” organized by the Digital Television Association (Thailand) on August 28, 2024, in Bangkok. Chairman of the NBTC, Clinical Professor Sarana Boonbaichaiyapruk, delivered the opening address and participated in a special panel discussion titled “Digital TV: National Television.” Additionally, NBTC Commissioner, Professor Emeritus Pirongron Ramasoota, presented insights on “The Future Direction of Digital Television Post-License Expiration in 2029.”

The conference aimed to enhance public understanding of the NBTC’s role and responsibilities in digital television development over the past decade, while exploring future strategic directions for both pre- and post-license renewal periods, considering that commercial digital TV licenses are scheduled to expire in April 2029.



3. Regulatory Consumer Protection in Broadcasting and Television Industries.

In 2024, comprehensive consumer protection measures were implemented for broadcasting and television services, encompassing regulatory oversight of exploitative practices, consumer empowerment initiatives, media literacy enhancement programs, accessibility rights protection for persons with disabilities and disadvantaged groups to ensure equitable access to news and information, and improved complaint resolution procedures, as follows:

3.1 Regulatory Oversight of Exploitative Practices Against Consumers in Broadcasting and Television Services.

3.1.1 Broadcasting surveillance of programs and advertisements that may cause the public to receive inaccurate health information, resulting in financial loss, missed medical treatment opportunities, and potential health and life-threatening consequences. This includes monitoring advertisements for food, pharmaceuticals, health products, and goods lacking scientific or rational evidence (such as supernatural artifacts and protective talismans) in accordance with The Notification of the NBTC on Consumer Exploitative Practices in Broadcasting and Television Services, B.E. 2012, as detailed provided in Table 1.

Table 1: Supervising the Actions that Exploit Consumers in Broadcasting and Television Sectors in 2024

Service	Number of Licensees in 2024	Number of Cases under Monitoring	Misconduct Found, and Temporary Suspension Order Issued (Cases)	Order Issued to Halt Exploitative Practices (Cases)	Administrative Order (cases)
Digital TV	25	25	-	2	2
Satellite TV	464	310	20	-	-
Broadcasting	3,738	3,584	67	136	69

Remark: data as of December 31, 2024

Source: Broadcasting Consumer Protection Bureau, Office of the NBTC

3.1.2 The Office of the NBTC Conducted Comprehensive Data Collection, Fact-Finding Investigations, Problem Analysis, and Formulation of Administrative Enforcement Measures and Penalties Against Broadcasting and Television Operators Engaging in Consumer Exploitation Practices⁸. These Findings were Presented to the Consumer Protection Subcommittee for Broadcasting and Television Services at the 9th Meeting held during June 23-24, 2024. The meeting resolved to enhance operational procedures to ensure consistent and effective implementation of administrative enforcement measures and penalties. Additionally, a workshop was organized to develop improved administrative measures targeting broadcasting and television operators involved in illegal health product advertising, while establishing standardized guidelines for calculating advertising time allowances for licensed operators and trial broadcasters.

3.1.3 The NBTC executed a Multi-Agency Memorandum of Understanding⁹ on “Regulatory Coordination for Advertising Standards and Consumer Protection in Broadcasting, Television, and Telecommunications Services” with nine government agencies on December 3, 2024. Ministry of Digital Economy and Society, Ministry of Public Health, Royal Thai Police, Department of Internal Trade,

Department of Disease Control, Department of Health Service Support, Department of Health, Food and Drug Administration, and Office of the Consumer Protection Board. This inter-agency framework establishes coordinated enforcement mechanisms and operational efficiency standards among telecommunications and broadcasting regulatory authorities. Compliance monitoring findings through systematic surveillance of broadcasting and television services indicate persistent non-compliance by service licensees and experimental service providers regarding consumer protection standards, specifically through unlawful pharmaceutical advertising, health product misrepresentation, and deceptive commercial communications containing exaggerated claims and material misstatements regarding service or product specifications.

Therefore, regulatory response included developing a comprehensive manual in 2024 titled “Guidelines for Advertising Without Consumer Exploitation in Broadcasting and Television Services,” providing practical guidance for operators to ensure compliant programming and advertising practices. This initiative supports enhanced business operation supervision and consumer protection within broadcasting and television services. The manual content is currently undergoing final review, with completion expected by the first quarter of 2025.

⁸ According to the Notification of the NBTC on the Action which may Exploit Consumers in Broadcasting and Television Businesses, B.E. 2555 (2012)

⁹ According to the 22nd NBTC meeting of 2023, held on November 23, 2023

3.2 Research and Development of Complaint Resolution Procedures for Service Users in Broadcasting, Television, and Telecommunications Services through the following implementation:

3.2.1 The NBTC has constituted a specialized Subcommittee for Consumer Complaint Resolution System Development and Procedural Enhancement across sound broadcasting, television, and telecommunications services¹⁰. This technical working group was mandated to conduct a comprehensive regulatory gap analysis, identify procedural inefficiencies in complaint adjudication mechanisms, and formulate regulatory amendments to existing normative instruments within the NBTC's statutory jurisdiction. The Subcommittee has completed a systematic assessment of operational constraints and procedural bottlenecks in complaint reception, processing, and resolution workflows across convergent communication services, along with regulatory framework development through the (draft) Notification of the NBTC on "Consumer Complaint Adjudication Standards for Broadcasting, television, and Telecommunications Services B.E." The technical objectives include optimizing complaint management infrastructure, procedural mechanisms, conceptual frameworks, and operational workflows to ensure regulatory authority operations maintain comprehensive oversight, operational efficiency, and accelerated dispute resolution for service consumers. Implementation protocols incorporate adaptive regulatory approaches consistent with technological convergence and digital transformation requirements. The technical assessment findings and regulatory recommendations are currently under Commission review for formal consideration and regulatory adoption within the NBTC's meeting for further consideration.

3.2.2 The NBTC executed a systematic international regulatory benchmarking initiative examining complaint adjudication frameworks, procedural methodologies, and performance metrics from foreign broadcasting and telecommunications

regulatory authorities to establish comparative regulatory baselines for Thailand's consumer protection regime. This analytical study assessed legal instruments, regulatory mechanisms, and enforcement protocols deployed by international regulators for consumer exploitation complaint resolution within the broadcasting and television services sectors. The comparative regulatory analysis examined diversified complaint management architectures across convergent communication service categories, including traditional broadcasting services, technological convergence platforms, bundled service configurations, and over-the-top content distribution networks. The benchmarking study evaluated regulatory frameworks from six jurisdictions, analyzing critical operational parameters including complaint intake mechanisms, procedural workflows, resolution timelines, transparency protocols, adjudication outcomes, and underlying legal instruments. These comparative findings establish regulatory enhancement benchmarks for Thailand and identify best practice frameworks for broadcasting and television complaint resolution systems.

Additionally, complementing the international regulatory analysis, comprehensive stakeholder consultation processes were implemented through structured focus group methodologies across four regional jurisdictions encompassing Northern, Southern, Central, and Northeastern Thailand. These consultation sessions engaged 241 stakeholders representing diverse interest categories including consumer representatives and institutional stakeholders such as Thailand Consumers Council (TCC), Public Health Office, Radio Thailand, Damrongdhama Center, Consumer Association, The National Broadcasting Services of Thailand (NBT), Food and Drug Administration, Public Relations Department, the National Radio and Television Broadcasting Frequency Management Committee, and broadcasting and television service provider.

¹⁰ The 8th NBTC Order of 2024, dated February 9, 2024

3.3 Consumer Empowerment and Public Media Literacy Enhancement. Throughout 2024, comprehensive initiatives were implemented to strengthen consumer empowerment while building knowledge, understanding, and critical awareness to enable consumers to effectively protect and safeguard their rights through the following measures:

3.3.1 The NBTC implemented regional training programs on “Media Literacy and Consumer Rights” that were designed to improve the analytical capabilities and critical media awareness of consumer networks and gender and social diversity groups. These capacity-building initiatives were designed to enhance the quality of life and media literacy competencies of participants by enhancing their ability to critically evaluate, select, and utilize information through analytical reasoning processes.

The training programs have equipped participants with the necessary skills to engage in active civic activities, including the ability to monitor and supervise, participate in collaborative learning exchanges, convey their opinions, and participate in significant social events. In addition, participants achieved the capacity to create media in order to effectively communicate and advocate for social and gender diversity issues in a constructive and contextually appropriate manner within their respective communities. The implementation of four regional training sessions in Thailand’s primary geographical regions-Northern, Southern, Northeastern, and Central-ensured comprehensive coverage and localized approaches to media literacy development.



3.3.2 Conducting Learning Forums



Organize a forum for learning and assessing the state of cooperation of the consumer networks in the broadcasting and television sectors, on April 4, 2024, in Bangkok, and via online channel to 13 Provinces

To enhance learning and assessing the state of cooperation of the consumer networks in the broadcasting and television sectors, under the cooperation development project for consumer protection in the broadcasting and television sectors.



Organize learning forums for advocacy and public outreach through creative media, along with hosting a competition for projects under the theme “Roo Kid Roo Tan Sue” (Think Smart and Media Literacy), from May 11 to 12, 2024, at Nonthaburi Province.

To unite network partners and foster the exchange of knowledge and experiences in teaching and media literacy, while organizing advocacy activities for disseminating the knowledge through creative media. This initiative aimed to cultivate media literacy among the public in the digital age, integrating local arts and culture to promote an inclusive and culturally grounded understanding, involving various educational institutions and organizations across five regions.



Organize a forum for learning and assessing the state of cooperation among the consumer networks of gender diversity and social diversity groups, on May 14, 2024, in Bangkok.

To acknowledge the operational results, exchange field-level experiences, and approaches for improving operations and evaluation, to build on existing successes and establish key participatory mechanisms for sustained engagement.

3.3.3 The NBTC organized a

ceremonial signing of Multi-Institutional Memorandum of Understanding (MoU) on “Cooperation in Promoting Diverse, Equitable, and Media-Literate Digital Access and Utilization” on October 1, 2024, in Bangkok. This collaborative initiative brought together 21 educational institutions and civil society organizations including Silpakorn University, Srinakharinwirot University, Sripatum University, Stamford International University, Suan Sunandha Rajabhat University, Suan Dusit University, Phranakorn Rajabhat University, Chandrakasem Rajabhat University, Valaya Alongkorn Rajabhat University under the Royal Patronage, Muban Chombueng Rajabhat University, Kanchanaburi Rajabhat University, Lampang Rajabhat University, Mahasarakham Rajabhat University, Rajamangala University of Technology Isan Khon Kaen Campus, Nakhon Phanom University, Suratthani Rajabhat University, Thaksin University, Thai Netizen Network Foundation, Anjaree Foundation for Human Rights, Foundation of Indigenous Peoples’ Wisdom, and Association for Peace in Southern Border Provinces.



The Memorandum of Understanding Signing Ceremony with the 21 agencies

This collaboration establishes integrated cooperation mechanisms for advancing digital media instruction, enhancing critical media literacy competencies, and facilitating equitable digital access and utilization capabilities across diverse demographic segments with comprehensive media literacy proficiency. The partnership promotes collaborative knowledge transfer in digital media literacy education and enables systematic scaling of educational interventions across institutional networks.

Subsequent to the MoU signing, a comprehensive strategic planning workshop was convened on December 18-19, 2024, to establish operational frameworks and develop implementation roadmaps for the cooperation period (2024-2029). This multi-stakeholder planning session engaged representatives from all 21 partner institutions in collaborative strategic development to define unified implementation approaches and formulate concrete operational plans for advancing equitable digital inclusion and media literacy development with coordinated objectives and enhanced implementation specificity.

4. Accessibility Rights Promotion and Protection for Persons¹¹ with Disabilities and Underserved Communities in Broadcasting and Television Services

Throughout 2024, comprehensive initiatives were implemented to advance and protect accessibility rights of persons with disabilities and underserved populations for equitable access, content perception, and service utilization within broadcasting and television services, ensuring parity with general user populations through the following strategic initiatives:

4.1 The NBTC executed regulatory amendments to its Notification on “The Module Development Project for Persons with Disabilities to Promote Their Rights of Accessibility and Utilization of Information on Broadcasting Services and Telecommunications” modifying Articles 4, 5, 6, 23, and 28 to enhance regulatory oversight

capabilities and ensure regulatory alignment with the transforming television industry environment. The amended regulatory was promulgated in the Government Gazette on May 28, 2024, with regulatory implementation commencing May 29, 2024.

4.2 The NBTC facilitated Digital Inclusion Seminars on “Digital Rights Advancement and Community Capacity Building through Broadcasting, Television, and Telecommunications Services” to promote equitable digital access across diverse demographic segments. In an effort to enhance sectoral comprehension and facilitate knowledge transfer mechanisms for universal access to broadcasting, television, and telecommunications services within digital inclusion frameworks, these multi-stakeholder capacity development events were attended by individuals with disabilities, senior citizens, academic researchers, consumer advocacy networks, students, the NBTC regulatory staff, and pertinent stakeholders. Two seminar sessions were conducted: the initial session convened May 10-11, 2024, in Bangkok, with the second session held on September 22-23, 2024, in Prachuap Khiri Khan Province. The curriculum incorporated specialized modules addressing deaf cultural identity and sociocultural distinctions between deaf and hearing communities, designed to catalyze collaborative advocacy initiatives for advancing accessibility rights of persons with disabilities in accessing, perceiving, and utilizing television content services.



Public Seminar on the Promotion of Freedom of Expression and Access to Information

¹¹ Persons with disabilities include individuals with limitations in vision and hearing.

4.3 Developing accessibility awareness and comprehension regarding information access rights and media utilization entitlements for persons with disabilities.

4.3.1 In strategic partnership with the National Association of the Deaf in Thailand, the NBTC implemented accessibility rights training on “Communication Access Entitlements for Persons with Hearing Disabilities in Television Services” during March 27-29, 2024, in Bangkok. This capacity development initiative promoted and protected accessibility rights of persons with hearing disabilities through enhanced awareness of communication access entitlements in television content consumption, while building critical media literacy competencies and technical understanding of accessible content delivery mechanisms including audio description services and sign language interpretation services.

4.3.2 In strategic collaboration with the National Association of the Deaf in Thailand, the NBTC implemented Thai Sign Language competency training for the NBTC regulatory personnel engaged in disability accessibility rights promotion and protection during June 12-14, 2024, at the Office of the NBTC in Bangkok. This professional development program equipped participants with functional Thai Sign Language communication competencies for operational interactions, while developing cultural competency regarding deaf community identity and sociocultural distinctions between deaf and hearing populations. The training facilitated enhanced collaborative capacity for advancing accessibility rights of persons with disabilities in accessing, perceiving, and utilizing television content services.

4.3.3 In strategic partnership with the National Association of the Deaf in Thailand, the NBTC implemented the “Training for Television Sign Language Interpreter” for 2024, delivering 72 hours of specialized competency training across two intensive sessions. Session 1 was conducted from June 29 – July 4, 2024 while Session 2 was conducted from August 5 – 9, 2024, in Bangkok, engaging 32 professional



Creating knowledge and understanding of the rights to access and utilize news and information for persons with disabilities

interpreters in comprehensive skills development. The curriculum focused on advanced sign language interpretation competencies across diverse broadcast scenarios through multimedia learning methodologies, preparing certified interpreters for professional television accessibility service delivery.

4.3.4 The NBTC conducted an Accessibility Excellence Awards Ceremony recognizing broadcasting and television services that advance accessibility rights and digital inclusion for people with disabilities on August 30, 2024, at Office of the NBTC in Bangkok. This recognition promoted awareness and incentivized digital terrestrial television service providers, radio content producers, and television content creators to develop inclusive programming that advances disability rights and supports underserved communities, while ensuring equitable information access and media utilization for persons with disabilities. Award recipients included two main categories: 1) ThaiPBS (Thai Public Broadcasting Service) received commendation for “Television Broadcasting Service Promoting Accessibility Infrastructure for Persons with Disabilities (Digital Terrestrial Television Broadcasting).” 2) Three organizations received recognition for “Television Content Programming Advancing Disability Rights and Social Inclusion Awareness”, which are (1) Excellence awards were conferred upon “Puean Kan Khon Phan D or Kind Hearted Companions” (produced by

Kidson Plus Company Limited) distributed via ONE 31 broadcasting service, (2) “Kiang Ba Kiang Lai or Side by Side” (produced by Phra Maha Trai Foundation for the Development of Persons with Disabilities) distributed via National Broadcasting of Thailand (NBT), and (3) commendation recognition was awarded to “Pen Gun Eng or Friendly Talk” (produced by Thailand Council for Independent Living distributed via National Broadcasting of Thailand (NBT).



The award ceremony for the broadcasting and television services that promote and protect the rights of persons with disabilities

4.3.5 The NBTC conducted educational and awareness training activities on “Communication Rights for Parents and Persons with Intellectual Disabilities in Television Access and Utilization” on November 1, 2024, in Phetchaburi Province. This capacity-building program aimed to develop knowledge regarding consumer rights in broadcasting and television services while enhancing media literacy competencies through diverse interactive activities for participants and their families.

4.3.6 The NBTC conducted regulatory oversight of accessibility service compliance for 25 television broadcasting service licensees utilizing assigned frequency during the first semester of 2024. These service providers were mandated to implement sign language interpretation services, audio description services, and audio narration capabilities in accordance with technical

specifications and deployment timelines prescribed in Article 23 of the NBTC Regulatory Framework on “The Module Development Project for Persons with Disabilities to Promote Their Rights of Accessibility and Utilization of Information on Broadcasting Services and Telecommunications.”

4.3.7 The NBTC implemented systematic accessibility service quality assessments through strategic partnerships with specialized disability stakeholder organizations, encompassing three primary accessibility service categories. (1) These technical evaluations comprised sign language interpretation service quality assessment conducted in collaboration with the National Association of the Deaf in Thailand, (2) audio description service quality evaluation undertaken with the National Association of the Deaf in Thailand, and (3) audio narration service quality assessment executed with the Thailand Association of the Blind.

These regulatory assessments fulfill requirements under Article 24 of the NBTC Regulatory Framework on “Accessibility Rights Protection for Persons with Disabilities in Television Broadcasting Services,” mandating the NBTC regulatory oversight of accessibility service quality based on licensee compliance reporting while ensuring participatory evaluation processes involving relevant disability community organizations as prescribed by Commission directives.

The assessment framework promotes continuous accessibility service enhancement, facilitating equitable access, content perception, and service utilization for persons with disabilities within television broadcasting services comparable to general user populations. Quality assessment outcomes from 25 licensed television broadcasting channels will inform regulatory guidance for systematic accessibility service improvement and elevated quality assurance standards within the broadcasting accessibility compliance framework.

5. Universal Access to Basic Broadcasting and Television Services and Public Interest Broadcasting.

The NBTC has developed the “Universal Service Supply for Basic Telecommunications Services and Social Service B.E. 2566-2568 (2023-2025), known as Universal Service Obligation (USO) to establish comprehensive guidelines for delivering universal access to basic broadcasting and television services. This strategic framework supports technology advancement, innovation development, and infrastructure expansion across all geographical areas to ensure equitable access to broadcasting and television services for all population segments, including persons with disabilities and socially disadvantaged communities.

The plan encourages the equitable and comprehensive distribution of high-quality, diversified content production and information services that enhance the daily lives of target populations. It involves the development of sustainable management mechanisms that facilitate the access and utilization of services by developing the capacity of broadcasting and television managers, community groups, and relevant personnel in designated areas. Furthermore, the framework promotes and safeguards the rights of individuals with disabilities to have access to, perceive, and utilize information through television and broadcasting services.

Regulatory implementation proceeds according to NBTC Commission directives to develop the (Draft) Implementation Plan for Universal Service Supply for Basic Telecommunications Services and Social Service B.E. 2566-2568 (2023-2025) or USO within the overarching regulatory framework, incorporating technical specifications and financial allocation parameters. The Draft Implementation Plan was submitted to the Subcommittee on Universal and Equitable Basic Broadcasting, Television, and Telecommunications Services for Persons with Disabilities, Persons with Diverse Requirements, and Socially Disadvantaged Populations at the 4th Session 2024 on July 16, 2024. The regulatory proposal currently undergoes review by the Broadcasting and

Telecommunications Development Fund Management Committee prior to the NBTC consideration for regulatory adoption.

6. Human Resource Development in Broadcasting and Television Services.

6.1 The NBTC Organized a Seminar Series on “Sensationalized News Programming: Does it ‘Reflecting’ or ‘Exacerbate’ Social Problems?” aimed at addressing issues in sensationalized news reporting and preventing the amplification of social problems.



The seminar on “Sensational News Programs: Does it Reflecting or Exacerbate Social Problems?”

The objectives of the program were to increase awareness of the detrimental effects of emotionally exploitative news coverage and to foster comprehension of socially responsible, professional, and constructive news presentation practices. The seminar brought together television broadcasting licensees, professional media associations, government and private sector representatives, and other stakeholders. The initial session was held on May 9, 2024, in Bangkok, designed to ensure participants could properly and comprehensively access legal information and regulatory guidelines for broadcasting operations supervision.

6.2 Building Knowledge and Understanding of Broadcasting Regulatory Laws and Oversight criteria for service operators, government agencies, the general public, and relevant stakeholders across all sectors, designed to ensure participants could properly and comprehensively access legal

information and regulatory guidelines for broadcasting operations supervision. The program expanded to five regional sessions: Udon Thani on June 7, 2024, Songkhla on June 28, 2024, Rayong on July 5, 2024, Roi Et on August 2, 2024, and Chiang Rai on August 15, 2024, respectively.

6.3 The NBTC Raised Public Awareness and Understanding of Content Regulation in Broadcasting and Television Services in Order to Educate Civil Society and encourage their participation in monitoring, reviewing, and overseeing program content compliance with relevant notifications, regulatory criteria, and applicable laws. Training sessions were conducted through hybrid online and onsite formats at The Regional Office of the NBTC 1-4, with sessions held in Songkhla on October 4, 2024, Khon Kaen on October 25, 2024, Chiang Mai on October 29, 2024, and Bangkok on November 15, 2024, respectively.

6.4 The NBTC enhanced knowledge and understanding of broadcasting and television services regarding annual fee collection for Broadcasting and Telecommunications Research and Development Fund for the Public Interest (BTFP). Following the 2024 transition from the PSO system to the e-BCS system for annual fee collection, the NBTC identified that some licensees had not registered for the new system or were experiencing operational difficulties, necessitating comprehensive education on payment obligations while addressing implementation challenges.

Moreover, The program included stakeholder engagement with experimental radio operator networks to gather operational feedback and address concerns. The NBTC provided preliminary guidance for experimental radio groups transitioning to the licensing system through auction processes, explaining annual fund contribution procedures post-licensing. Additionally, the sessions covered participation opportunities in professional organizations through network partnerships to enhance cooperation under

group formation promotion measures. Stakeholder feedback and inquiries will inform future fee collection supervision planning and problem identification for developing appropriate oversight approaches, serving as case studies for subsequent years. Field consultations were conducted November 13-15, 2024, in Phetchabun Province.

6.5 Conducted Training Programs for Broadcasting and Television Industry Personnel, Including

1) The NBTC conducted training programs for broadcasting and television industry personnel through hybrid online and onsite delivery formats to promote and support professional capacity development. These programs aimed to enhance personnel standards and quality in professional practice, while fostering awareness of neutrality and social responsibility. Four training sessions were conducted during March-August 2024.

2) The NBTC implemented drone training programs to improve the capabilities of mass communication professionals, program producers, and television operators. The purpose of these thorough training sessions is to enhance the knowledge and comprehension of drone operations among participants in order to facilitate the production of high-quality and efficient television programs in a variety of genres. The program emphasizes the practical application of learned skills while emphasizing safety regulations and professional ethics requirements. In 2024, two intensive training sessions were conducted: one in Phang Nga Province on March 27-29 and another in Nakhon Phanom Province on June 5-7.

3) The NBTC conducted practical workshops on “Media Ethics Promotion and Development in Broadcasting and Television” for television, radio, cable TV, and online media professionals. Three workshop sessions were held during May-September 2024 to enhance awareness and professional capacity among media practitioners, enabling them to perform with comprehensive

knowledge and skills encompassing both legal compliance and media ethics for quality and valuable content delivery according to professional codes of conduct and ethics.

Moreover, the sessions also included stakeholder consultation on the (draft) guidelines for promoting quality program content under professional ethics to refine and enhance the (draft) guidelines for comprehensive coverage of all dimensions of quality content presentation grounded in ethical principles and professional codes of conduct, ensuring the guidelines remain current with the evolving media landscape.

4) The NBTC implemented comprehensive training programs for television service providers, digital terrestrial television network operators, and the Office of the NBTC personnel from both central and regional offices. In addition, these capacity-building initiatives were to possess expertise in engineering or other relevant disciplines, cultivate analytical and engineering thinking abilities to anticipate future technological advancements, and then apply this knowledge to elevate Thailand's television industry to international standards. The following programs were implemented:

- Internet Television Management Techniques and Modern Television Technology Trends course (The Internet TV Techniques and New Trends of TV Technology) conducted on July 11, 2024, in Bangkok for the Office of the NBTC staff

- The 2024 Television Engineering Training Course was held from July 9-12, 2024, and specifically addressed emergent technologies that will have a substantial impact on television services. The curriculum encompassed case studies on technology applications in television broadcasting, artificial intelligence (AI) technology, and innovative developments that are anticipated to surface in the near future.

- Technical workshop on “AI & Future Trends in Broadcast a Media Industry” conducted October 30-31, 2024, covering new technologies relevant to television services with particular emphasis on Artificial Intelligence (AI) technology and hands-on applications of related technologies in television broadcasting operations.



The workshop on engineering or other related fields

5) Certification Testing for Broadcasting and Television Announcers in 2024. The goal was to formally support and promote the Notification of the NBTC on Training and Testing for a Broadcasting License B.E. 2556 (2013), as well as to provide professional support to personnel in the roles of announcers, hosts, and program presenters in broadcasting and television services and to enhance personnel capabilities in broadcasting and television services as professional announcers, hosts, and program presenters. Therefore, two assessment

sessions were conducted in Bangkok in 2024: on July 11-12, 2024, with 57 applicants and 42 passing candidates, and on October 30-31, 2024, with 79 applicants and 54 passing candidates. Furthermore, Professional development training focused on advancing participants toward becoming professional announcers with strong ethical foundations and professional conduct standards, encompassing both theoretical knowledge and practical skills. These programs also aimed to establish collaborative networks between the Office of the NBTC and stakeholders. Training sessions were implemented in three provinces: Songkhla on May 30 - June 1, 2024, Nakhon Phanom on August 1-3, 2024, and Lampang on September 19-21, 2024.

6.6 The “NBTC Competition Forum 2024: Content Creators in the Age of AI: Adapting to Change” was held on November 8, 2024, in Bangkok. The event was designed to provide a platform for the exchange of views and experiences from all sectors regarding competition in broadcasting services, television services,

and other related services. The forum also included perspectives on industry overview with technological changes, adaptation when Artificial Intelligence (AI) technology and modern technologies play a significant role in the media industry, and problems, obstacles, limitations, or legal precautions associated with the use of technology. This seminar featured individuals who were academics in information technology, scriptwriters, copyright law experts, and broadcasting and television service administrators.



The NBTC Competition Forum 2024

Regulatory Oversight of Telecommunications Services.

During the reporting period, the NBTC has sustained inter-agency coordination and collaborative frameworks to prevent and combat cybercrime across all technological platforms, consistent with government policy directives for online crime mitigation. Initiatives encompass promotion of emergency alert systems via mobile communications networks integrated with government command and control infrastructure, alongside continuous support for research and development in 5G technology implementation. In 2024, the NBTC deployed strategic policy frameworks supporting telecommunications sector advancement to facilitate economic and social development. the NBTC has produced notable achievements and key performance indicators, including:

1. Development of the National Telecommunications Master Plan No. 3 B.E. 2567- 2571 (2024-2028).

The National Telecommunications Master Plan No. 3 B.E. 2567- 2571 (2024-2028) has been formulated to establish strategic development frameworks for Thailand’s telecommunications sector advancement, promulgated in the Government Gazette on July 31, 2024. This strategic planning instrument addresses dynamic sectoral transformation through multiple priority domains: facilitating market entry mechanisms for emerging telecommunications service providers, enhancing telecommunications service accessibility for underserved demographic segments including geographically isolated communities, persons with disabilities, and senior populations,

promoting cross-sectoral telecommunications technology integration within industrial ecosystems, implementing cybersecurity threat management protocols via telecommunications infrastructure to mitigate economic vulnerability, and optimizing telecommunications resource allocation through balanced demand-supply resource management frameworks.

The strategic framework targets sustainable telecommunications sector development while establishing competitive market environments characterized by fair and open competition, ensuring universal population access to quality telecommunications services through affordable, equitable, and secure service delivery mechanisms, and facilitating comprehensive industrial telecommunications technology deployment to accelerate digital economic transformation and social development initiatives. The Master Plan articulates the strategic vision: “Advancing Thailand’s telecommunications sector to achieve universal digital telecommunications service access and utilization for sustainable digital economic and social transformation” through five strategic development frameworks:

Strategy 1: Establishing regulatory environments that enhance market competition and facilitate new service provider market entry mechanisms.

Strategy 2: Mitigating digital divides while promoting equitable access to diversified telecommunications service portfolios

Strategy 3: Implementing efficient telecommunications resource management with cost-optimization and demand-responsive capacity allocation.

Strategy 4: Deploying licensing and regulatory oversight frameworks aligned with digital industry ecosystem requirements

Strategy 5: Enhancing consumer protection frameworks and digital empowerment capabilities.



The public hearing for the draft Notification of the NBTC on the Telecommunications Master Plan, No. 3, B.E. 2567 - 2571 (2024 - 2028)

2. Implementing the Cell Broadcasting System/Mobile Alert System, in Line with the Government Policy Priorities, on the Side of Wireless Telecom Operators, to Support Command from the Designated Government Agencies The Key Achievements are as follows:

2.1 Conducted collaborative feasibility testing with Advanced Wireless Network Company Limited for the emergency alert system via mobile telephone networks (Cell Broadcast) on March 5, 2024, at the Office of the NBTC.



The collaborative test of the cell broadcast system

2.2 The regulatory proposal was presented to the NBTC at 3rd meeting of 2024 on April 9, 2024, requesting policy endorsement for emergency alert system deployment via mobile communications networks (Cell Broadcast Technology), encompassing financial frameworks, funding mechanisms, regulatory fee concessions, enhanced licensing provisions, and system interconnection protocols.

The Cell Broadcast infrastructure represents a priority the NBTC policy initiative for emergency communications system modernization and integration with government command and control networks to facilitate public emergency notifications during life and death scenarios including flood events, seismic activities, and tsunami warnings, thereby mitigating human casualties and economic losses from disaster incidents. This deployment constitutes telecommunications services for public security and national interest pursuant to Section 17 (5) of the Telecommunications Business Act B.E. 2544

(2001) and subsequent amendments, qualifying as public benefit telecommunications missions under the Notification of the NBTC on Criteria for operational expense deductions from universal service obligation revenue allocations.

Additionally, the Cell Broadcast system constitutes social welfare infrastructure through government provision of social services addressing societal risk mitigation, social problem resolution, and social development advancement while enhancing social security frameworks to ensure citizen welfare standards. The system delivers critical emergency information during urgent threat scenarios, natural disaster events, and widespread risk situations, enabling citizen awareness and facilitating evacuation preparedness or risk mitigation responses, consequently reducing human casualties and property damage from emergency incidents. **The NBTC authorized emergency alert system deployment via mobile communications networks (Cell Broadcast) and endorsed the financial framework for Cell Broadcast infrastructure implementation** through revenue offset mechanisms from universal service obligation allocations designated for basic telecommunications services and social service provisions, consistent with the Notification of the NBTC on “Public Benefit Telecommunications Mission Expense Deduction Criteria and Methodologies from Universal Service and Social Service Revenue Allocations.”

The financial mechanism authorizes actual expenditure deductions subject to certified public accountant verification, with supplementary regulatory conditions appended to mobile communications service provider licensing instruments regarding Cell Broadcast system deployment obligations. The NBTC regulatory authority has transmitted Cell Broadcast system licensing condition amendments to all mobile communications service providers for implementation compliance.

2.3 At the 17th NBTC meeting of 2024 on August 14, 2024, the regulatory authority acknowledged the inter-agency implementation framework the Ministry of Digital Economy and Society (MDES) for Cloud Server infrastructure management and Cell Broadcast Entity (CBE) to Cell Broadcast Center (CBC) interconnection protocols, while establishing the Department of Disaster Prevention and Mitigation (DDPM) as the primary operational authority for Cell Broadcast Entity (CBE) deployment.

The NBTC endorsed the technical architecture for emergency alert infrastructure via mobile communications networks (Cell Broadcast) and associated equipment components, approving a comprehensive budget allocation of 1,030,961,235.54 baht (inclusive of value-added tax) for Cell Broadcast system deployment. The funding specifically addresses Cell Broadcast Center (CBC), Core Network infrastructure, Radio Network support systems, and three-year maintenance service agreements, allocated as follows: Advanced Wireless Network Company Limited in total of 377.457 million baht (VAT inclusive), and True Move H Universal Communication Company Limited (NT) in total of 375.264 million baht (VAT inclusive).

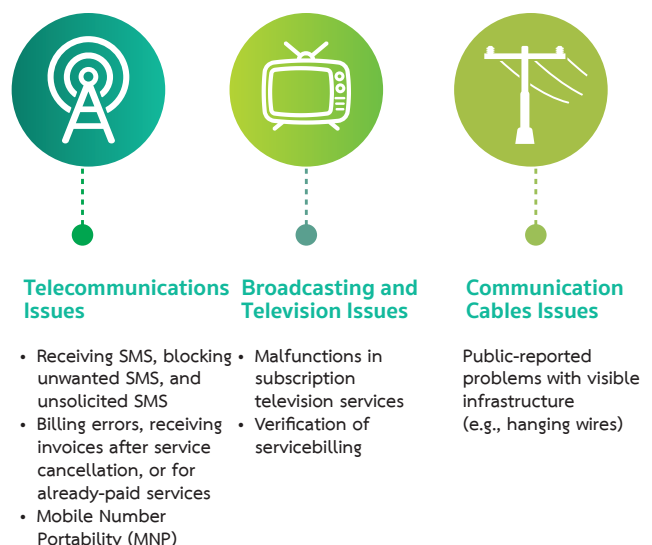
Concerning National Telecom Public Company Limited, the Commission mandated maintenance service and agreement (MA) cost reassessment to ensure proportional alignment with subscriber base metrics and base station infrastructure coverage, requiring revised submission for Commission evaluation. Subsequently, at the NBTC 4th Meeting of 2025 on January 30, 2025, the NBTC approved in total of 261 million baht funding from the Broadcasting and

Telecommunications Research and Development Fund for Public Interest (BTFP) for National Telecom Public Company Limited (NT) to implement Cell Broadcast system infrastructure, facilitating emergency alert distribution to National Telecom Public Company Limited (NT) mobile communications subscribers during disaster events and critical emergency scenarios.

2.4 Implemented Proof of Concept (POC) testing for emergency alert infrastructure via mobile communications networks (Cell Broadcast Technology) through multi-stakeholder collaboration involving the Ministry of Digital Economy and Society (MDES), Department of Disaster Prevention and Mitigation (DDPM), Advanced Wireless Network Company Limited, True Move H Universal Communication Company Limited, and National Telecom Public Company Limited on November 19, 2024, at Phuket Provincial Administrative Center.



The Proof of Concept (POC) of the cell broadcast system



3. Advancing Operational Transparency of the Office of NBTC's Workflows and Facilitating Stakeholder Engagement Through Digital Participation Platforms and Multi-Channel Outreach Initiatives.

Through deployment of the Traffy Fondue digital platform for the Office of the NBTC and cybersecurity incident reporting, establishing supplementary public complaint reception channels for telecommunications services, broadcasting and television services, and communications infrastructure issues. This digital service enhancement facilitates public accessibility, optimizes operational efficiency, and accelerates incident response protocols for timely issue resolution, with service commencement on August 12, 2024.



The Press conference was held to officially launch the Traffy Fondue system.

4. Deploying Comprehensive Cybersecurity Protection Protocols and Establishing Inter-Agency Collaborative Frameworks to Prevent and Confront Cybercrime Across All Technological Platforms, while Maintaining Adaptive Threat Response Capabilities and Promoting Advanced Technology Integration to Enhance Public Confidence and Ensure Telecommunications Service Security within National Infrastructure. This Encompasses Supporting Cybersecurity Detection, Monitoring, and Prevention Tools within Telecommunications Infrastructure through Public-Private Partnerships with Service Providers to Mitigate Data Breach Risks and Prevent Telecommunications System Exploitation for Cybercriminal Activities, as Follows:

4.1 Establishing the Memorandum of Understanding (MoU) with the National Cyber Security Agency (NCSA), in the area of cybersecurity operations to prevent, respond to, and mitigate risks from cyberthreats, for the mission related to the Cybersecurity Act, B.E. 2562 (2019). The MoU aims to collaboratively enhance knowledge and understanding of cybersecurity, raise awareness of cyber threats, and ensure the implementation of up-to-date, integrated operations. Additionally, it provides knowledge to enhance skills and expertise in executing responsibilities related to cybersecurity.



The Memorandum of Understanding (MoU) with the National Cyber Security Agency (NCSA)

4.2 Implemented the “Cybersecurity Awareness and Prevention” public education initiative through 2,184 the Public Internet Access Centers or Universal Service Obligation Network (USO Net) Centers nationwide, functioning as cybersecurity capacity-building venues. During 2024, six regional training sessions were deployed across Phitsanulok, Chiang Mai, Roi Et, Chumphon, Nakhon Phanom, and Rayong provinces, with simultaneous live streaming distribution to USO Net Centers throughout all geographical regions. The program leveraged the National Cyber Security Agency Massive Open Online Course (NCSA MOOC) platform to facilitate universal public access and continuous learning capabilities. The Comprehensive cybersecurity capacity building implements experiential learning methodologies integrating practical training protocols with theoretical cybersecurity foundations, designed to develop

accessible cybersecurity competencies for general population, youth demographics, and educational stakeholders. The systematic program emphasizes user-directed vulnerability assessment through simulated threat scenarios and realistic cyber incident environments, incorporating hands-on technical experimentation across diverse operating system

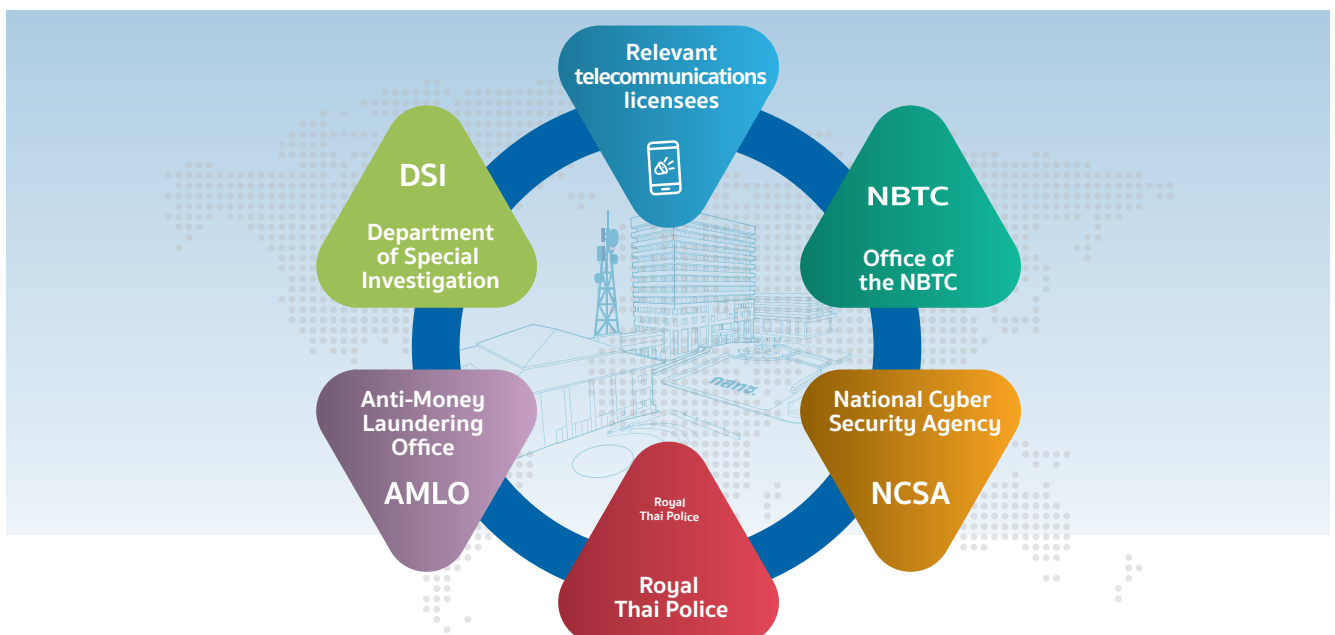
platforms. The curriculum encompasses content specifically designed for information technology personnel seeking cybersecurity competency development initiation, providing comprehensive professional development opportunities through the Cybersecurity Practical Training Platform.



The educational activity for the public via the NCSA MOOC platform, at the USO Net

4.3 Through strategic collaboration with the Cyber Crime Investigation Bureau Thailand, encompassing six institutional partners, conducting surveillance and verification of telecommunications service data disclosure or exchange protocols pursuant to Prevention Measures Royal Decree provisions. The pedagogical approach prioritizes vulnerability assessment through scenario-based simulations and hands-on operating system experimentation, featuring specialized content for information technology

professionals pursuing cybersecurity skill development via the Royal Decree on Measures for Prevention and Suppression of Technology Crimes B.E. 2566 (2023). Operational activities encompass telecommunications routing surveillance and verification for telephonic or SMS-based advertising fraud or public deception through communication pathway tracing from perpetrator mobile identifiers to service subscriber endpoints.



5. Deployment of Regulatory Measures to Prevent Cross-Border Mobile Communications Signal Exploitation for Criminal Purposes, Including:

5.1 Requiring radiocommunication station antenna infrastructure removal or directional reconfiguration for installations with direct orientation toward neighboring countries to constrain signal coverage areas exclusively within Thailand's territorial jurisdiction, prohibiting transborder signal transmission to prevent criminal organization exploitation and telecommunications signal misuse. For transmission infrastructure positioned 200 meters from international boundary demarcations but maintaining orientation toward neighboring territories, base station antenna power output reduction is mandated to ensure service area coverage remains confined to Thailand's telecommunications jurisdiction, with radio frequency propagation modeling simulations submitted to the Office of the NBTC regulatory authority for technical assessment.



The on-site inspection and detection of mobile phone signals

5.2 Requiring all mobile communications service providers to conduct repeater infrastructure assessments to verify unauthorized Thai signal reception for retransmission purposes, implementing signal input suspension protocols for non-compliant repeater installations.

5.3 Requiring internet service providers to conduct customer surveillance for subscribers maintaining multiple leased line connections (exceeding 1 line) or demonstrating anomalous traffic patterns within designated geographical zones, submitting intelligence reports to the Office of the NBTC authority for coordinated investigation with Royal Thai Police to assess potential criminal exploitation. This intervention targets signal misuse prevention and technology crime network disruption through pilot deployment across strategic border corridor locations encompassing Chiang Khong, Mae Sai, and Chiang Saen districts in Chiang Rai province; Aranyaprathet District in Sa Kaeo; Pong Nam Ron District in Chanthaburi province; Mae Sot District in Tak Province; Mueang District in Ranong province; Mae Ramat and Phop Phra districts in Tak province; Ban Kruat District in Buriram province; and Kap Choeng District in Surin province.

6. Comprehensive Field Deployment for Mobile Communications Signal Monitoring, Inspection, and Detection Along International Border Corridors Through Integrated Inter-Agency Cooperation with Royal Thai Police and Relevant Security Authorities to neutralize call center criminal enterprise operations. These sustained operational measures extend infrastructure disruption protocols targeting critical technology crime enablers including telecommunications tower infrastructure, transmission networks, and subscriber identity module (SIM) resources, addressing threats to national economic stability, social welfare, and security frameworks requiring urgent and continuous intervention, including:

6.1 Chairman of NBTC, Clinical Professor Sarana Boonbaichaiyapruck and NBTC Commissioner, Police General Nathathorn Prosoontorn executed field assessments in Mae Sai District international border zones, Chiang Rai, on January 9, 2024. Field investigations identified unauthorized telecommunications infrastructure and transmission tower installations conducting illegal high-power radio frequency transmission across international boundaries to neighbor countries at ranges exceeding 40 kilometers. Expanded investigative operations revealed operational linkages to call center criminal operation, prompting law enforcement actions against clandestine telecommunications installations conducting unauthorized transborder high-power signal transmission.



The field inspection at the border of Mae Sai District and seized unauthorized telecommunications stations illicitly transmitting high-power signals cross the border, as well as urgently prescribing measures to govern the signal towers in border areas.

6.2 NBTC Commissioner, Police General Nathathorn Prosoontorn executed field operations in Ranong Province and neighbor territories on February 28, 2024, reporting successful enforcement outcomes from comprehensive suppression operations targeting call center criminal enterprises and financial support networks. This resulted from expanded inter-agency coordination between the NBTC, Department of Special Investigation, and Royal Thai Police, incorporating signal intelligence analysis and

telecommunications traffic assessment revealing call center criminal operations from neighboring territories (Son Island, Song Island, and Khu Island). Intelligence findings facilitated integrated enforcement actions culminating in arrests of perpetrators operating clandestine radiocommunication installations for internet connectivity and mobile communications infrastructure supporting call center criminal network operations.



The field inspection at Ranong Province and the press briefing to announce the results of the crackdown on call center scam networks and their financiers

6.3 NBTC Commissioner, Police General Nathathorn Prosoontorn, and Deputy Secretary-General, Acting Secretary-General of the NBTC, Mr. Trairat Viriyasirikul, executed enforcement operations in Nakhon Si Thammarat Province and



The field inspection at Nakhon Si Thammarat Province and nearby areas, and the press briefing to announce the results of the crackdown on the foreign call center scam gang.

adjacent jurisdictions on March 29, 2024, reporting successful apprehension of call center criminal enterprises comprising 90 suspects: 55 foreign nationals and 35 Thai nationals. This coordinated enforcement action involved integrated inter-agency collaboration with the Royal Thai Police and the Department of Special Investigation through intelligence exchange protocols and surveillance operations targeting call center criminal networks within the Nakhon Si Thammarat provincial. Intelligence operations facilitated evidence compilation and concurrent search warrant execution across three locations in Chandi Sub-district, Chawang District, identifying three proximate and operationally connected foreign call center installations utilizing hotel and residential infrastructure. Investigative expansion encompassed a second-hand Japanese merchandise warehouse facility in Na Bon District, Nakhon Si Thammarat.

6.4 Chairman of the NBTC, Clinical Professor Sarana Boonbaichaiyapruck and NBTC Commissioner, Police General Nathathorn Prosoontorn executed regulatory oversight operations in Pong Nam Ron District, Chanthaburi Province on April 23, 2024, to supervise telecommunications service operations with potential transborder signal transmission capabilities from Thailand territory. Inspection protocols encompassed mobile communications infrastructure monitoring and signal tower reconfiguration verification by service providers along Thai-Cambodia international border zones to prevent criminal network signal connectivity exploitation. Concurrent regulatory assessments evaluated subscriber identity module (SIM) registration and activation compliance protocols among retail distribution channels to ensure stringent adherence to the Notification of NBTC regulatory preventing unauthorized activation of and proxy SIM cards and account structures.

6.5 The NBTC Commissioner, Police General Nathathorn Prosoontorn executed border telecommunications security operations in Chiang Saen District, Chiang Rai on July 23, 2024. Proactive reconnaissance identified unauthorized Thai mobile



The field inspection to monitor mobile antenna reorientation of the operators along the Thai-Cambodian borders, in Pong Nam Ron District, Chanthaburi Province



The field inspection to inspect illicit mobile signal cables, and mobile signal transmission to the neighboring country

communications and broadband internet signal exploitation within adjacent territory, specifically proximate to Kings Romans Casino infrastructure, with verified intelligence confirming this location as a principal call center criminal enterprise operational facility. Through coordinated inter-agency collaboration with Royal Thai Police, Office of the National Security Council, and comprehensive telecommunications operator networks, they deployed “**Operation Bridge Infrastructure Disruption**” enforcement protocols to terminate unauthorized telecommunications signal utilization within Golden Triangle Special Economic Zone perimeters surrounding Kings Romans Casino installations. Operations utilized specialized signal detection equipment deployed via unmanned aerial vehicle (UAV) platforms for systematic border corridor surveillance throughout Chiang Saen District territories to eliminate transborder communication

signal transmission across Mekong River boundaries through comprehensive transmission vector interdiction. Concurrent cooperation with Pha Muang Forces encompassed fiber optic cable infrastructure destruction targeting internet connectivity transmission to call center criminal networks operating within neighboring jurisdiction around Mae Chan District, Chiang Rai province.

6.6 NBTC Commissioner, Police General Nathathorn Prosoontorn and Deputy Secretary-General, Acting Secretary-General of the NBTC, Mr. Trairat Viriyasirikul executed coordinated in field operations with police personnel at the 2nd Thai-Lao Friendship Bridge corridor in Mukdahan on October 20, 2024, conducting inspection and apprehension of unauthorized cross-border internet signal transmission operators. Investigative findings identified the perpetrator as an NBTC-licensed telecommunications service provider with operational authorization restricted to Thai territorial jurisdiction, who had deployed internet distribution infrastructure proximate to international boundaries and installed high-speed transmission cables across the 2nd Thai-Lao Friendship Bridge (Mukdahan-Savannakhet) for clandestine signal distribution to adjacent territory. The NBTC specialized detection equipment revealed transmission infrastructure extending over five kilometers into neighboring territories, enabling network coverage

encompassing substantial economic development zones with concurrent user capacity exceeding ten thousand subscribers, facilitating call center criminal enterprise operations targeting Thai citizen deception through enhanced connectivity infrastructure.

6.7 NBTC Commission, Police General Nathathorn Prosoontorn executed enforcement operations in Mae Sot District, Tak Province on December 2, 2024, targeting unauthorized transborder signal transmission cable installations and clandestine internet signal distribution infrastructure deployment within adjacent territory. Investigative findings identified illegal installation of 16 high-capacity broadband transmission cables across the 1st Thai-Myanmar Friendship Bridge (Mae Sot District), encompassing two fiber optic cables with 216-core specifications, two cables with 96-core specifications, and remaining infrastructure utilizing 24-core configurations. Optical Time Domain Reflectometer (OTDR) technical assessment revealed network cable infrastructure penetration extending multiple kilometers into neighboring territorial jurisdiction, with aggregate transmission capacity enabling signal distribution across four economic development centers encompassing hundreds of square kilometers, providing telecommunications connectivity to extensive call center criminal enterprises that had relocated operational bases to the regional corridor.



The field inspection in the area of the Second Thai-Lao Friendship Bridge in Mukdahan Province, to inspect illicitly installed data cables for distributing signals into the neighboring country



The field inspection at Mae Sot District, Tak Province, and the press briefing to announce the arrest for the illicit extension of cross-border signal transmission cables, and illegal establishment of internet distribution bases extending into the neighboring country

6.8 NBTC Commission, Police General Nathathorn Prosoontorn executed border telecommunications surveillance operations in Aranyaprathet District, Sa Kaeo on December 28, 2024, conducting signal analysis proximate to a 25-story infrastructure and major casino facility within the adjacent territorial jurisdiction, identified as a suspected principal call center criminal enterprise operational facility. Operations deployed specialized analytical instrumentation while facilitating inter-agency security coordination meetings with military and law enforcement personnel across border corridor zones to formulate enhanced cross-border transit control protocols, preventing call center criminal organizations from exploiting seasonal migration patterns to facilitate illegal labor trafficking operations.



The field inspection at Aranyaprathet District, Sa Kaeo Province, to inspect telecommunications signal, in the border areas near a 25-storey building, and a large-scale casino in the neighboring country, presumed to be a significant operational base for the call center scam syndicate.

7. Sustained Support for Research and Development Initiatives in 5G Technology Deployment and Application Frameworks, Encompassing 5G Use Case Development and 5G Private Network Infrastructure

7.1 Implementation Pursuant to the Academic Collaboration Framework with the Bank of Thailand (BOT) facilitates sustained academic operations, educational initiatives, and research programs in telecommunications service regulatory oversight and associated services to achieve

regulatory coherence and integrated supervision encompassing comprehensive development paradigms covering all relevant stakeholder factors. During 2024, a comprehensive industry readiness assessment for 5G & Beyond technology deployment in Thailand was executed to establish preparedness for technological transformation while ensuring alignment with socioeconomic and environmental contexts and providing strategic frameworks for appropriate technology adoption across diverse sectoral applications. Following spectrum allocation for International Mobile Telecommunications (IMT) services, this initiative advances efficient digital infrastructure development supporting Thailand's economic digitalization and enhanced socioeconomic value creation.

Principal research outcomes encompass:

- 1) Development of comprehensive readiness indicators for 5G technology deployment in Thailand through economic impact assessment methodologies measuring anticipated benefits via direct and indirect economic value generation, coupled with 5G readiness evaluation frameworks. These dual-dimensional indicator systems enable government support prioritization across multiple strategic frameworks aligned with policy objectives, generating recommendations for enhanced 5G technology utilization by Thailand's high-potential industrial sectors.
- 2) Industry-specific readiness assessment for 5G technology implementation across 19 primary industrial classifications and 25 manufacturing sub-sector categories identified manufacturing as the highest value-added sector, healthcare as providing maximum population-wide benefits, while professional services and administrative functions enhance crosssectoral efficiency through 5G technology integration.

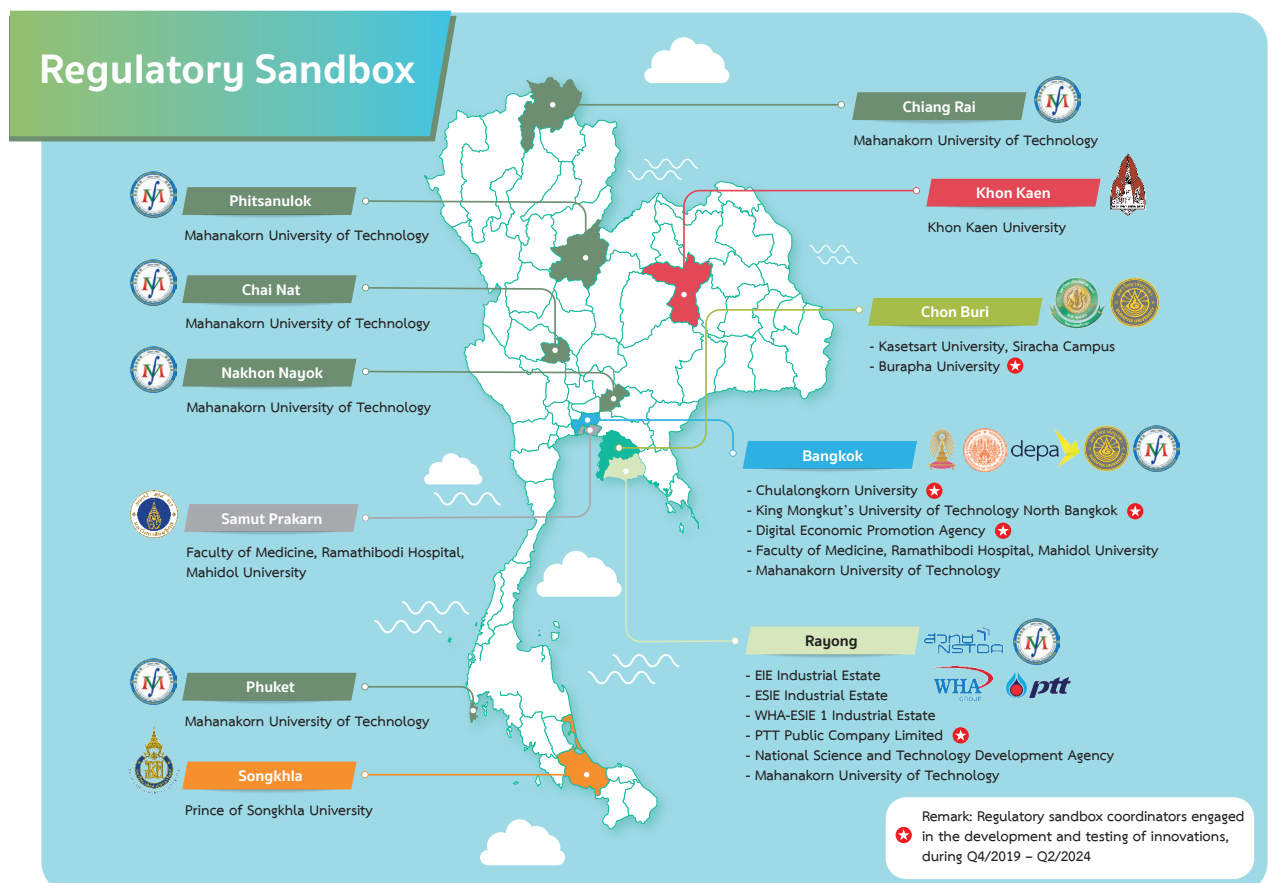
Stakeholder consultation through Focus Group methodology with relevant industry representatives on November 13, 2024, identified critical implementation as follows:

1) Primary constraints for organizational 5G adoption include inadequate return on investment paradigms, with numerous organizations considering existing mobile broadband infrastructure sufficient for operational requirements while perceiving 5G implementation as cost-prohibitive. Elevated deployment costs constrain comprehensive private sector 5G advancement, while government entities face annual budgetary allocation limitations preventing full-scale technology implementation. Furthermore, human capital development for advanced technology competencies may lag innovation deployment requirements. Government facilitation should encompass budgetary support, knowledge transfer mechanisms, human resource capacity building, and comprehensive end-to-end industrial process coordination.

2) The dual-dimensional indicator framework enables multi-faceted government support prioritization strategies, including healthcare, education, and agricultural technology support for enhanced quality of life outcomes, while emphasizing

manufacturing and wholesale & retail trade sectors for economic growth acceleration. These indicators inform strategic recommendations for enhanced 5G technology utilization, enabling Thailand's high-potential industrial sectors to optimize technological benefits realization.

7.2 Authorization of Regional Coordination Entities under Specialized Regulatory Oversight Framework (Regulatory Sandbox). Since 2019, the Office of the NBTC has systematically advanced innovation development and testing initiatives across broadcasting, television, and telecommunications services through 14 authorized regional coordination entities operating within specialized regulatory supervision frameworks. Among these entities, five coordination liaisons have executed innovation development and testing programs encompassing frequencies sharing trials between 5G International Mobile Telecommunications (IMT) services and diverse sectoral applications including healthcare and agricultural technology implementations, as documented in the referenced technical diagram.



During 2024, Regulatory Sandbox participants submitted innovation development and testing progress assessments to the Office of the NBTC regulatory authority, encompassing:

1) Eastern Economic Corridor Innovation Initiative executed by PTT Public Company Limited, which has designated RV Connex Company Limited as the authorized entity for frequency utilization in innovation trial operations within designated Sandbox regulatory frameworks utilizing 420 MHz. The initiative currently undergoes trial testing authorization procedures with the Civil Aviation Authority of Thailand, as the technology under development and testing requires operational integration with unmanned aerial vehicle (UAV) platforms.

2) The Faculty of Medicine at Ramathibodi Hospital, Mahidol University, executed experimental trials for 6 GHz utilization in medical education applications employing Augmented Reality (AR) and Virtual Reality (VR) technologies through WiFi Alliance collaboration. The initiative received institutional support from the United States Embassy in Thailand and the United States Trade and Development Agency (USTDA), with technical trials conducted at the Chakri Naruebodindra Medical Institute, Faculty of Medicine, Ramathibodi Hospital, Mahidol University. Technical testing parameters encompassed: 1) Access Point deployment with 160 MHz channel bandwidth configuration within 6 GHz (500 MHz allocation) achieving data throughput rates speed below 650 Mbps and network latency exceeding 100 ms. This configuration generated co-channel interference phenomena resulting in video streaming degradation, VR content casting disruption, and latency-induced motion sickness during operational testing. 2) Access Point implementation with 160 MHz channel bandwidth configuration within 6 GHz (1200 MHz allocation) achieving data throughput rates exceeding 1.2 Gbps and network latency below 30 ms.

3) Mahanakorn University of Technology executed satellite internet operational validation through connectivity protocol trials, integrating internet services from Thai telecommunications operators with gateway infrastructure and establishing uplink transmission to Galaxy Space-3A satellite constellation for subsequent downlink relay to terrestrial user terminal infrastructure. Research teams established mobile communications internet connectivity via wireless access point integration at user terminal installations, enabling internet service utilization equivalent to terrestrial network infrastructure encompassing online video streaming and video telephony applications. Performance assessment achieved maximum downlink throughput of 251 Mbps, upload throughput of 213 Mbps, and network latency of 32 ms, with supplementary mobile user terminal deployment trials on vehicular platforms.

Primary validation trials operated exclusively within Mahanakorn University of Technology facilities in Nong Chok District, Bangkok. To assess operational performance in geographical areas remote from gateway infrastructure, extended validation was conducted within additional specialized regulatory sandbox, where research teams deployed P40K and T45K model user terminal configurations for operational trials within Rayong Province specialized regulatory sandbox. Therefore, the validation results demonstrated effective satellite internet connectivity between Bangkok and Rayong, province supporting diverse applications including video call for telemedicine implementations, online video content consumption, video streaming services, and virtual conferencing capabilities.

8. Preparation for Multi-Band Concurrent Spectrum Auction Administration.

Thailand maintains over 100 million mobile communications subscribers utilizing nationwide 4G and 5G network infrastructure with deployment coverage of 99.15 percent and 91 percent respectively. Forecasting models project domestic mobile

broadband traffic demand reaching 1,156 GB per capita annually by 2029, with Smart 5G implementations expanding across vertical sectors, including agricultural technology, precision transportation systems, educational infrastructure, and advanced high-speed communications networks addressing evolving societal requirements, particularly healthcare service delivery and medical accessibility frameworks.



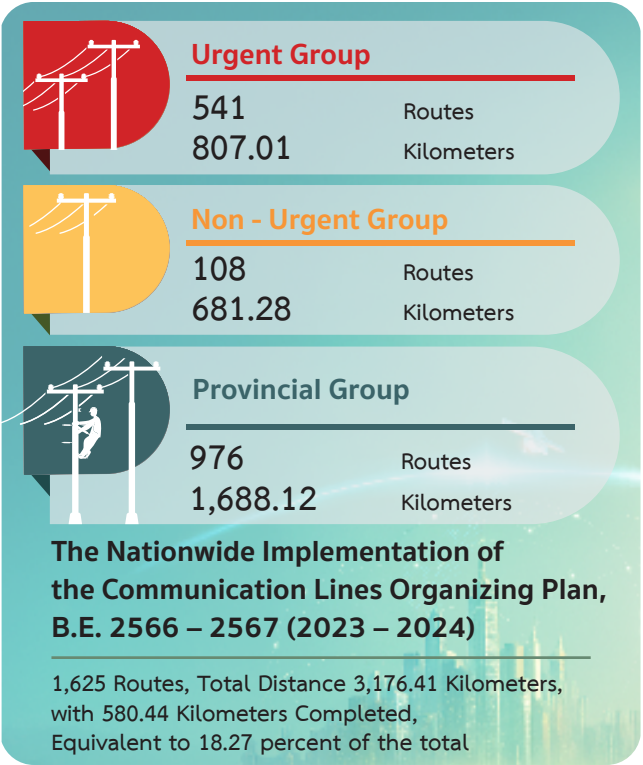
The preparatory meeting for the multi-band auction

Universal sectoral access to high-speed internet connectivity with real-time data transmission capabilities and instantaneous connectivity protocols is ensured by the NBTC’s comprehensive 5G network deployment. Through telecommunications infrastructure, this strategic initiative enables the public to access advanced technology fairly and comprehensively, thereby supporting vertical applications in the fields of healthcare, financial services, transportation systems, and manufacturing operations.

The forthcoming spectrum auction incorporates enhanced methodologies for optimized spectrum allocation efficiency, consistent with key spectrum management performance indicators. Multi-band spectrum auction deployment is projected for the second quarter of 2025, providing adequate spectrum resources for public and industrial stakeholders to support operational requirements while ensuring sustained service continuity and network expansion capabilities.

9. Organization of Telecommunication Cables and Underground Cable Deployment.

9.1 Organization of Telecommunication Cables classified into three deployment categories pursuant to the The Nationwide of Implementation of Communication Line Organization Plan, B.E. 2566-2567 (2023 – 2024), amended Version effective August 23, 2024 which are: 1) Priority Deployment Category: 541 routes covering 807.01 kilometers, 2) Secondary Deployment Category: 108 routes covering 681.28 kilometers; and 3) Provincial Deployment Category: 976 routes covering 1,688.12 kilometers.



9.2 Telecommunications Cable Underground Deployment

Formulated the Underground Communication Line Deployment Plan B.E. 2567 (2024) for Bangkok and Metropolitan regions encompassing 32 routes covering 67.02 kilometers, and the provincial underground cable installation implementation covering 89 routes covering 122.16 kilometers, for a national total of 121 routes covering 189.18 kilometers. Underground cable deployment results achieved 35 completed routes covering 40.94 kilometers, as presented in Table 2.

Table 2: Plan - Results of Underground Communication Lines Deployment in 2024

Details of Relocating Communication Lines Underground	Underground Communication Lines Deployment Plan		Results of Underground Communication Lines Deployment	
	No. of Route	Distance (km.)	No. of Route	Distance (km.)
Areas in Bangkok and Its Vicinity	32	67.02	8	13.20
Areas in Other Provinces	89	122.16	27	27.74
Total	121	189.18	35	40.94

Remark: Data as of November 2024.

Source: Telecommunications Policy and Resources Management Bureau, Office of the NBTC

Due to current telecommunications industry conditions, public and business sector demand for telecommunications services has increased substantially, driving extensive network expansion. Managing communication infrastructure through underground cable deployment serves as a mechanism advancing communication technology development while enhancing telecommunications system efficiency and stability. Ultimately, citizens benefit from underground cable systems through improved urban aesthetics and enhanced safety with modern technology. Nevertheless, underground communication cable deployment remains costly, particularly regarding conduit infrastructure construction, resulting in correspondingly high conduit rental rates. Consequently, careful selection of cost-effective areas for underground cable installation is essential. **The NBTC has established assessment principles for appropriateness and cost-effectiveness in determining underground communication cable deployment plans and communication infrastructure organization strategies, including:**

1) Infrastructure proprietor and territorial jurisdiction authority requirements encompassing aerial-to-underground electrical distributionsystem conversion programs, major metropolitan electrical infrastructure modernization initiatives, urban landscape enhancement projects, and Bangkok metropolitan road and sidewalk infrastructure improvement programs, among other municipal urban requirements.

2) Environmental feasibility considerations encompassing primary roads and encompassing roads with existing conduit infrastructure, electric train line corridors for current and future planned routes, sidewalk width requirements $\geq$ (equal or greater than) 3.5 - 5.5 meters, among other factors.

3) Social and Economic Feasibility Assessment encompassing area saturation levels, government policy framework alignment, Eastern Economic Corridor (EEC) zones development zones, tourism destination areas, electric train and double-track railway development, 5G network coverage areas supporting Bangkok Central Business district and provincial commercial centers, Net Present Value (NPV), Return on Investment (ROI), investment return rates, and Cost-Benefit Analysis (CBA), among other considerations.

10. Universal Service Obligation (USO) for Basic Telecommunications and Public Interest Services.

10.1 Implementation According to the Universal Service Obligation Plan No. 3 B.E. 2565 (2022) for Basic Telecommunications Services and Public Interest Services Development and Deployment Across Designated Coverage Areas and USO Beneficiary Demographics Nationwide. The NBTC has endorsed the strategic framework for the Broadcasting and Telecommunications Research and Development Fund for Public Interest (BTFRF) initiative, aiming to establish universal basic

telecommunications services and public interest services in underserved geographical areas with inadequate comprehensive service provisioning. This deployment operates under the Universal Service Supply for Basic Telecommunications Services and Social Service No. 3 B.E. 2565 (2022), under the Universal Service Obligation No.3 B.E. 2565 (2022) utilizing a comprehensive budget allocation of 8,000.00 million baht distributed across the following strategic components: Strategy 1: Basic telecommunications infrastructure for social service dimensions, budget allocation 5,000 million baht, encompassing Strategic Component 1: Public health telecommunications infrastructure in total of 4,000 million baht and Strategic Component 2: Thai Telecommunications Relay Service (TTRs) accessibility infrastructure for persons with disabilities and socially disadvantaged populations in total of 1,000 million baht; and Strategy 2: Government policy facilitation for basic telecommunications mission support, budget allocation 3,000.00 million baht, encompassing Strategic Component 1: Public health telecommunications systems totaling 2,000.00 million baht and Strategic Component 2: National security telecommunications infrastructure totaling 1,000.00 million baht.

10.2 Development of Universal Service Obligation Plan No. 4 B.E. 2566 (2023) for Basic Telecommunications and Public Interest Services (First Amendment). has been ratified by the NBTC and has been promulgated in the Government Gazette. Regulatory implementation is scheduled to commence on May 29, 2024. Structured through five strategic implementation components, the framework includes revised USO strategic budget allocations within a comprehensive 24,000 million baht allocation over a three-year deployment cycle: Strategy 1: Basic telecommunications infrastructure supporting educational service delivery totaling 6,312 million baht; Strategy 2: Basic telecommunications infrastructure supporting healthcare service delivery totaling 3,162 million baht; Strategy 3: Basic telecommunications accessibility infrastructure for persons with disabilities and socially disadvantaged totaling 3,162 million baht;

Strategy 4: Basic telecommunications infrastructure for public interest applications totaling 6,312 million baht; Strategy 5: Basic Telecommunications Infrastructure for National Security totaling 5,052 million baht.

Hence, this regulatory framework addresses fundamental obligations in advancing and facilitating basic telecommunications service provision to mitigate digital divide disparities in telecommunications access while ensuring consumer protection across all geographical jurisdictions, particularly underserved regions. The initiative enhances citizen welfare across educational, healthcare, disability support, and security domains through improved telecommunications accessibility. The (draft) Implementation Plan under USO Plan No. 4 is currently under development to facilitate continued basic telecommunications service expansion across designated coverage areas and USO beneficiary demographics nationwide.

10.3 Broadband Internet Infrastructure Deployment Across 115 National Park Facilities Nationwide. On October 3, 2024, the Office of the NBTC and Department of National Parks, Wildlife and Plant Conservation (DNP) executed a Memorandum of Understanding (MoU) establishing technical standards for telecommunications tower infrastructure deployment within national park territorial jurisdictions. The implementation encompasses telecommunications tower installation providing public Free Wi-Fi access services to optimize operational efficiency for park administration personnel and authorized residents within designated park zones, complemented by Universal Service Obligation (USO) container facilities equipped with computing infrastructure and technological peripherals, provisioned without user charges for 60 month operational periods and strategically positioned within public service zones and vehicular parking facilities proximate to camping infrastructure.

Furthermore, this telecommunications infrastructure addresses critical connectivity gaps where numerous national park operational territories remain geographically isolated without adequate

cellular or broadband internet access. Multiple locations experience absent telecommunications service provision or suboptimal coverage inadequacy, substantially degrading operational efficiency in mission-critical functions and public service delivery capabilities. Operational workflows consequently lack contemporary information technology integration, with communication protocols and information accessibility experiencing significant constraints.

The deployment receives programmatic support through Service Obligation (USO) initiatives, utilizing 161.75 million baht allocation from the Broadcasting and Telecommunications Research and Development Fund for Public Interest (BTFRP) across 115 park installations, subsequent to National Broadcasting and Telecommunications Commission (NBTC) regulatory approval. Strategic objectives prioritize digital technology capability enhancement within geographically remote areas, particularly national parks experiencing insufficient broadband connectivity access, while facilitating optimized service utilization by citizens, tourism demographics, and park administrative personnel.

10.4 Free Wi-Fi Infrastructure Development Program for Community Areas within Bangkok Metropolitan Region. The strategic objective prioritizes public accessibility enhancement to Free Wi-Fi connectivity services through deployment of 10 pilot project implementations within Bangkok Metropolitan territorial boundaries, with phased expansion to metropolitan peripheral areas and provincial jurisdictions. The program establishes Wi-Fi service provisioning for citizens through distributed access points (access point only) eliminating requirements for container facilities or auxiliary equipment installations.

10.5 Digital Learning Ecosystem Advancement Initiative for Bangkok Metropolitan Educational Institutions. On January 18, 2024, NBTC Commissioners, Associate Professor Suphat Suphachalasai and Associate Professor Somphob Purivigraipong executed strategic consultation with Deputy Governor of Bangkok, Mr. Sanon Wangsrangboon

and educational administrative principal at Thai Niyom Songkroa School, Bang Khen District, to collaboratively advance the Digital Learning Ecosystem Development Initiative for Bangkok Metropolitan educational institutions while formulating continuity strategies for the nationwide Universal Service Obligation (USO) telecommunications and social services program approaching implementation completion.



The meeting with the Deputy Governor of Bangkok and school executives, at Thai Niyom Songkroa School

Thus, Thai Niyom Songkroa School operates as both pilot implementation facility and best-practice model for cultivating students' 21st century digital competency frameworks through Active Learning pedagogical methodologies. The institution has transformed internet connectivity and computing infrastructure into integrated digital classroom environments managed via Google Workspace for Education platforms, implementing pedagogical transition from conventional lecture-based instructional delivery to active-based learning engagement across seven core curricular learning areas: Mathematics, English Language, Computer Science, Natural Sciences, Thai Language Arts, Historical Studies, and Musical Arts. The curriculum prioritizes experiential learning

methodologies to enhance student engagement and facilitate effective knowledge application through educator-designed instructional frameworks utilizing Google Classroom educational technology platforms. Instructional content aligns with digital technology integration protocols, enabling students to conduct research from diverse internet-based information sources, promoting autonomous learning capability development and self-directed content review competencies.

Consequently, Strategic meeting outcomes endorsed Learning Hub infrastructure development concepts as scalable institutional models for broader educational deployment, establishing centralized learning centers with integrated database systems accessible to educational institutions within the nationwide USO project infrastructure. This technological framework facilitates educational information accessibility for sustained development and educational opportunity expansion targeting student populations across diverse geographical territories throughout Thailand.

10.6 Development of Learning Centers Based on Case Studies of Autistic Individuals: Potential Development and Quality of Life Enhancement. NBTC Commissioners, Associate Professor Suphat Suphachalasai and Associate Professor Somphob Purivigraipong executed an onsite visit to the Autistic Thai Foundation on November 29, 2024. This organization is committed to providing assistance to disabled and vulnerable populations, including autistic family networks, throughout Thailand. The purpose of the visit was to investigate the integration of technology to improve the learning process and cultivate social integration skills. This will allow autistic individuals to interact effectively with the general population, while also promoting their unique talents and creating employment opportunities for independent living.

Additionally, the foundation's comprehensive development approach encompasses three-dimensional development framework:

1) Educational and life skills development, prioritizing educational quality enhancement with particular emphasis on speech development competencies, demonstrating maximum technology integration utilization. Application development testing demonstrates positive developmental outcomes for autistic populations, including applications for daily routine learning processes such as dental hygiene protocols and Virtual Reality (VR) technology applications for real-world scenario simulation experiences.

2) Vocational Skills Development, emphasizing revenue-generating skill cultivation enabling sustainable self-sufficiency for autistic individuals, primarily through artistic competency development, handicraft production capabilities, and independent career pathway establishment, complemented by specialized community financial services for autistic demographic populations.

3) Public Awareness Enhancement, prioritizing autism-related information dissemination for societal autism awareness advancement, fostering comprehensive social understanding and acceptance frameworks.

Hence, Education and life skills represent the most critical development aspect for autistic individuals, with technology playing an essential role. The foundation's developed applications have achieved international recognition through worldwide downloads across multiple countries, highlighting the critical importance of telecommunications infrastructure access, electronic device availability, and parental technical competency for future quality of life improvements for autistic populations.





The Autistic Thai Foundation Visit

10.7 Universal Service Obligation (USO) Program Support and Expansion Initiative for Urban Disadvantaged Demographics with Provincial Low Income Community Extension. The NBTC Commissioners, Air Marshal Thanapant Raicharoen, Emeritus Professor Pirongrong Ramasoota, and Associate Professor Somphob Purivigraipong executed comprehensive field research assessments within Khlong Toei informal settlement and informal settlement infrastructure beneath Rama IX Bridge. The research objectives encompassed internet connectivity demand evaluation among urban informal settlement

populations while conducting socioeconomic data collection from community stakeholders and resident demographics to formulate comprehensive case studies examining digital divide phenomena in internet accessibility among economically disadvantaged population segments, particularly within metropolitan areas. Research outcomes will inform policy framework development initiatives addressing Digital Connectivity infrastructure enhancement, constituting fundamental infrastructure for digital economy facilitation and strategic hub development programs within current government advancement initiatives.



Field survey documentation in Klong Toey high-density community and high-density residential area under Rama IX Bridge.

11. Telecommunications Market Competition through Regulatory Criteria Optimization and Regulatory Framework Development to Facilitate Market Access and Competitive Dynamics among Telecommunications Service Providers.

11.1 Study and Development of Last Mile Network Service Regulatory Framework. During 2024, comprehensive studies and development of regulatory criteria for Last Mile network service oversight were conducted, encompassing coordination initiatives with user access network service providers,

right-of-way proprietors, and relevant government agencies including Providing Public Services of a Special Local Government Organization, Provincial Administrative Organization, Department of Highways, Expressway Authority of Thailand, and State Railway of Thailand (SRT). These collaborative efforts aim to facilitate Open Access to Last Mile networks for alternative operators, promoting non-discriminatory access to Last Mile infrastructure for all operators regarding both pricing structures and service quality standards.

Currently, the analytical report examining regulatory approaches and shared Last Mile network service promotion is undergoing revision to establish clear telecommunications infrastructure sharing frameworks for subsequent presentation to the Subcommittee for Licensing and Regulation of Telecommunications and Radio Communications.

11.2 Promotion of Mobile Virtual Network Operator (MVNO) Services. A specialized technical working group was established to advance Mobile Virtual Network Operator¹² service development through comprehensive analysis of MVNO service models compatible with contemporary telecommunications technology and supportive operational frameworks enhancing MVNO service provisioning capabilities. The initiative encompasses systematic analysis of operational components and regulatory factors across diverse service provisioning domains to optimize service delivery efficiency and market penetration.

Throughout 2024, comprehensive studies and regulatory guideline development for MVNO service regulatory oversight and market facilitation were executed, incorporating comparative analysis of domestic and international MVNO service implementation models. The evaluation addressed the systematic operational challenges within Thailand's MVNO service ecosystem across multiple regulatory phases, including licensing procedures, negotiation processes, service provision implementation, post-license termination procedures, and operator promotion measures for MVNO service development.

The regulatory methodologies, policy principles, and legal frameworks that govern MVNO service competition dynamics and regulatory supervision approaches were synthesized through strategic regulatory consultations with international telecommunications regulatory entities, specifically Japan's Ministry of Internal Affairs and Communications

(MIC) and Malaysian Communications and Multimedia Commission (MCMC). These insights serve to inform the development of Thailand's MVNO regulatory and promotional framework, while simultaneously encouraging the entry of new market entrants into the mobile service provider sector. The regulatory methodology study outcomes will provide foundational guidance the (draft) Notification of the NBTC on Mobile Virtual Network Operator service supervision and market promotion, including comprehensive revisions to existing the NBTC Notification on Mobile Virtual Network Operator service operations.

11.3 Analysis of Over-the-Top (OTT) Service Impact on Mobile Telecommunications Tariff Structures. Comprehensive Rate per Minute (RPM) and Rate per Data (RPD)¹³ index calculations were conducted using promotional data encompassing service tariffs and usage entitlements to establish monitoring mechanisms for service rate trends and inform regulatory decision-making regarding mobile telecommunications tariff oversight improvements alongside OTT service regulation frameworks. When RPM indices demonstrate declining trends while RPD indices exhibit increases, comprehensive service usage behavior analysis becomes essential to evaluate substitution dynamics between traditional telecommunications services (Voice) and OTT communications platforms through demand elasticity calculations relative to service pricing and tariff impact assessment.

Domestic mobile telecommunications tariff data has been systematically compiled following standardized methodologies for monitoring over-the-top (OTT) service impacts on national mobile telecommunications pricing structures. The analysis encompasses five comprehensive categories: 1) Payment methodologies 2) Service provision duration 3) Service operational status 4) Tariff

¹² According to the Office of the NBTC Order No. 194.02/2567, dated February 15, 2024

¹³ Based on service rate data from 3 Mobile Network Operators, which are NT, AWN, and TUC (True Move H and dtac brands), reported to the Office of the NBTC

calculation frameworks 5) Additional consideration factors. Subsequent verification processes will ensure accuracy and completeness of voice and internet service usage entitlements. RPM and RPD index calculations for the second quarter 2024 have been successfully completed.

11.4 Establishment of the Competition and Pricing Subcommittee with NBTC Commissioner, Associate Professor Suphat Suphachalasai serving as Chairman of the Competition and Pricing Subcommittee. The subcommittee possesses comprehensive authority and responsibilities encompassing recommendation development, analytical review, evaluation screening, and expert opinions regarding policy formulation, regulatory frameworks, implementation measures, official announcements, operational criteria, methodological approaches, and conditional requirements for competition and pricing oversight, spectrum management valuation, operational licensing fees, market situation assessment and forecasting of competitive dynamics and related issues, systematic monitoring, regulatory examination, and advisory opinions to the NBTC, including recommendation preparation for regulatory improvements, announcement revisions, and criteria enhancements related to the Notification of the NBTC mandates and assigned responsibilities. During 2024, significant operational achievements included:

1) Development of improvement guidelines for the Notification of the NBTC regarding Criteria and Methods for Preparing Separated Accounting Reports in Telecommunications Business by the Office of the NBTC. The Competition and Pricing Subcommittee established a comprehensive study framework for enhancing the Notification of the NBTC on Criteria and Methods for Preparing Separated Accounting Reports in Telecommunications Business utilizing evidence-based analytical methodologies,

encompassing account separation significance assessment, international comparative analysis of Account Separation implementation challenges and enforcement practices, and regulatory data collection authority examination through comprehensive reference to EU Directive 2018/2972 (European Electronic Communications Code), particularly Articles 17 and 71, data collection provisions under Articles 20 - 28, EU Directive 2006/43/EC, and comparative legal frameworks from the UK (OFCOM), Australia (ACCC), Singapore, and other jurisdictions. The framework includes identification and analysis of separated accounting challenges in Thailand including data collection protocols, data utilization frameworks, and data accuracy verification processes, comprehensive analysis of separated accounting's regulatory and competitive enhancement potential, the Office of the NBTC data collection authority adequacy assessment, and improvement guidelines for the Office of the NBTC on Criteria and Methods for Preparing Separated Accounting Reports in Telecommunications Business to facilitate efficient competition, alongside additional strategic recommendations.

2) Development of Spectrum Usage Fee Calculation Criteria and Annual Collection Methodologies of the office on the NBTC on the Competition and Pricing Subcommittee delegated a specialized working group to establish comprehensive criteria for spectrum usage fee calculations, conduct comparative studies, develop methodological guidelines for reviewing International Telecommunication Union (ITU) spectrum fee collection approaches, and analyze case studies from 11 credible countries across four global continents. The initiative encompasses the enhancement of spectrum regulatory cost definitions and components, as well as a comprehensive review of spectrum regulatory activities within the Office of the NBTC.

The analysis examined impacts from spectrum usage fee calculation formula improvements across two critical areas: (1) Assessment of spectrum usage fee calculation outcomes from new criteria and methodological frameworks for spectrum usage fee determination, and (2) Impact evaluation of calculation formula improvements on payment obligors categorized by service sectors. These findings were presented to the Competition and Pricing Subcommittee for expert review regarding spectrum usage fee calculation criteria and methodological development.

The Competition and Pricing Subcommittee recommended comprehensive additional analysis encompassing advantages and disadvantages of current formula impacts on spectrum fee payment obligors, development of spectrum user structural data, and fee payment analysis by business sector, cost allocation frameworks for spectrum regulatory expenses, ITU spectrum usage fee calculation methodology analysis with comparative assessment against current collection methods. The initiative currently undergoes continued study and criteria enhancement according to subcommittee recommendations, with spectrum usage fee calculation improvement proposals aligned with relevant regulatory contexts for submission to the NBTC Secretary-General and the NBTC consideration. Additional accomplishments included comprehensive reports addressing the Notification of the the NBTC for Thailand regulates Mobile Virtual Network Operator (MVNO) services B.E. 2563, (2020) spectrum valuation assessments for 1800 MHz and 3.5 GHz, FM radio spectrum valuation for commercial operations through auction methodologies pursuant to the (draft) Notification of NBTC on Radio Frequency Plan annex B, domestic mobile telephone service rate structure determination and regulatory guidelines, telecommunications service pricing index analysis, and monitoring and evaluation assessment of Telecommunications Master Plan No. 2 B.E. 2562 - 2566 (2019 - 2023) covering the 4 - year implementation period.

12. Premium Mobile Number Allocation Auction. On December 1, 2024, a comprehensive auction was executed for 310 premium mobile telephone number allocations, encompassing high-value numerical sequences with elevated reserve pricing, including 9-digit consecutive identical patterns, 8-digit consecutive identical patterns, and comparable premium numerical configurations. The auction inventory additionally comprised premium number allocations from previous auction cycles where successful bidders failed to fulfill payment obligations according to specified contractual terms and conditions.

The competitive bidding process was administered at the Office of the NBTC regulatory facilities utilizing a dedicated application platform, implementing identical auction methodologies employed in previous auction cycles from 2016 - 2019, featuring ascending bid protocols. Auction outcomes demonstrated market participation for 99 of the 310 available premium number allocations, generating aggregate auction revenue totaling 119.173 million baht. Net auction proceeds, after operational expense deductions, will be remitted as state revenue for national development initiatives.



13. Telecommunications Consumer Protection

13.1 Comprehensive Suspension of Telephone Numbers Associated with Fraudulent Voice Calls and Deceptive SMS Messaging Targeting the Public was Executed, complemented by collaborative meetings with relevant stakeholders including Technology Crime Investigation Command (TCIC), Royal Thai Police, mobile telecommunications service providers, and SMS service providers to

establish cooperative frameworks for addressing technology-enabled criminal activities. By December 31, 2024, enforcement actions resulted in blocking 453,025 fraudulent voice call numbers and 124,030 sender names for SMS messages violating legal provisions or potentially facilitating criminal activities, with comprehensive, as presented in Table 3.

Table 3: Statistics of Voice Calls and SMS Blocked, Categorized by Service Providers

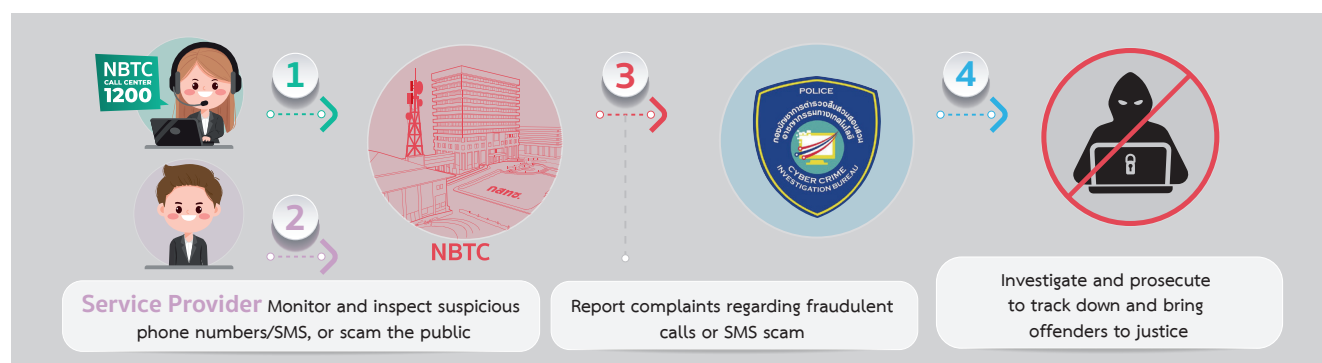
Statistics of Call Center Scams	Data from Operators				Total
	AWN	DTN	TUC	NT	
SMS	60,878	49,474	12,429	1,249	124,030
Voice Call	234,826	85,442	126,132	6,625	453,025
Total	295,704	134,916	138,561	7,874	577,055

Remark: Data as of December 31, 2024

Source: Telecommunications Enforcement Bureau, Office of the NBTC

Furthermore, the Office of the NBTC established strategic collaboration with the Cyber Crime Investigation Bureau (CCIB) to combat criminal activities involving public deception through malicious applications designed for financial exploitation. The initiative encompasses blocking fraudulent links embedded within SMS messages, mandating

service providers to submit complaint data regarding fraudulent SMS reception and deceptive phone calls from call center criminal organizations to the Office of the NBTC, with subsequent data transmission to the Cyber Crime Investigation Bureau (CCIB) for continued procedural implementation.



13.2 The Notification of the NBTC Regarding Identity Verification and Service Usage Data for Mobile Telephone Users¹⁴ was developed to address SIM mule operational challenges identified as facilitating call center criminal enterprise activities. The regulatory framework requires

mobile telecommunications service providers to execute identity authentication protocols for service users/individual registrants maintaining six or more mobile telephone number allocations per service provider within specified regulatory timeframes as follows:

¹⁴ Effective as of January 16, 2024

1) Number allocation category 6-100 registrations: Implementation mandate within a 180-day period from the regulatory announcement effective date (deadline July 13, 2024).

2) Number allocation category 101+ registrations: Implementation mandate within a 30-day period from the regulatory announcement effective date (deadline February 14, 2024).

As of December 31, 2024, identity authentication completion metrics demonstrate: number allocation groups within 6 - 100 registration parameters achieved authentication for 2,345,005 number allocations, and number allocation groups within 101+ registration parameters achieved authentication for 4,203,388 number allocations, with comprehensive operational, as presented in Table 4.

Table 4: Identity Verification Information for Mobile Numbers Registered by Individuals with Each Service Provider

Details	Mobile Numbers Registered by Individuals with Each Service Provider	
	6 – 100 Numbers	101 or More Numbers
Number of mobile numbers requiring identity verification	3,981,251	5,078,283
Number of mobile numbers that have completed identity verification	2,345,005	4,203,388
Number of mobile numbers pending identity verification	1,636,246	874,895

Remark: Data as of December 31, 2024
 Source: Numbering Management Bureau, Office of the NBTC

13.3 Multi-agency coordination to monitor and investigate Mobile Banking accounts suspected of being mule accounts through the Anti-Money Laundering Office Thailand (AMLO)¹⁵, involving mobile telephone number data potentially associated with mule accounts received from banking institutions. AMLO forwards this data to the Office of the NBTC for compilation and categorization, subsequently distributing to respective telecommunications service providers for data verification procedures. Verification results are transmitted back to AMLO and banking institutions to confirm data accuracy and consistency with information provided during mobile banking service registration processes, implemented pursuant to authority under Sections 4, 5, and 6 of the Emergency Decree on Measures for the Prevention and Suppression of Technological Crimes, B.E. 2566 (2023).

13.4 Mobile ID Implementation for Mobile Number Ownership Verification and Authentication of Mobile Banking Account Linkage with Mobile Service Providers through Mobile ID Platform executed through stakeholder consultation meetings with mobile telecommunications service providers and Electronic Transactions Development Agency (ETDA) to establish comprehensive Mobile ID service specifications encompassing technical implementation requirements and commercial service delivery frameworks. The implementation currently undergoes technical process optimization and service tariff framework development for banking sector deployment supporting government policy initiatives in mitigating mule account operational challenges utilized for public deception schemes.

¹⁵ According to the meeting resolution of the Technology Crime Prevention and Suppression Commission, in the 6th/NBTC meeting of 2023 held on December 20, 2023

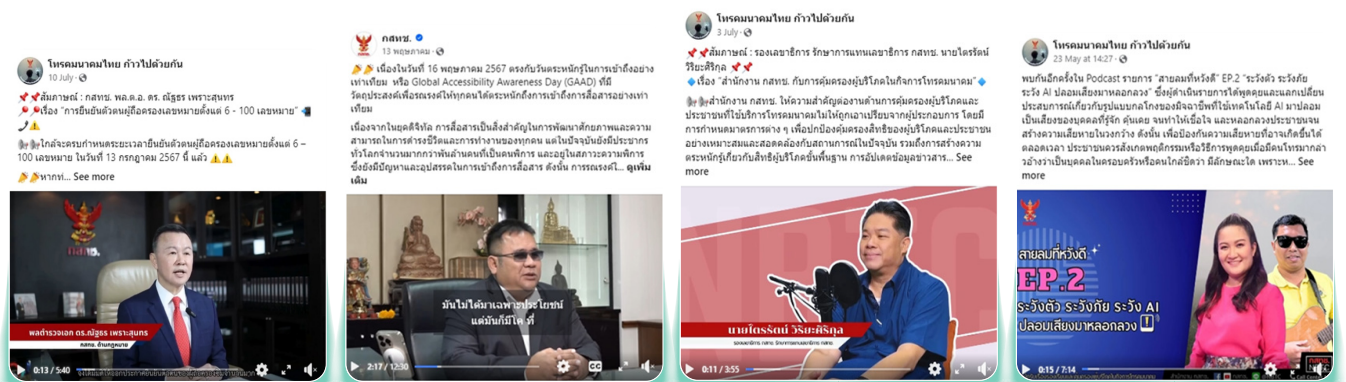
13.5 Development of educational media for public awareness and cybersecurity warnings regarding telecommunications consumer protection through

comprehensive dissemination of information and knowledge with cybercrime alerts beneficial to the public in the digital age, facilitating convenient and rapid information tracking, searching, and accessibility via the Office of the NBTC’s website and Facebook platforms, including public sector network leader groups for community-level outreach, with the following publicity media initiatives:

- Execute media production initiatives to enhance public awareness and anti-scam threat recognition capabilities enabling public constituencies to develop comprehensive awareness, understanding, vigilance and threat identification competencies against cybercriminal operations conducted by criminal enterprises, disseminated through diversified publicity distribution channels of the Office of the NBTC’s authority and associated governmental entities.
- NBTC Sign Talk program: Sign language communication protocols for telecommunications service accessibility providing comprehensive education to hearing-impaired demographics regarding intelligent mobile telecommunications and internet utilization, fundamental consumer protection rights within telecommunications services frameworks during the digital transformation era, encompassing situational updates on relevant telecommunications developments, with content

dissemination through Facebook platform “Thai Telecommunications Moving Forward Together” and the Office of the NBTC’s regulatory authority YouTube channel (NBTC Channel).

- Podcast series “Sai Lom Thi Wang Dee” (Well-Wishing Wind) featuring knowledge and information regarding telecommunications service utilization in the digital transformation era and criminal activity warnings across various formats. Additionally, special interview episodes featuring the Office of the NBTC’s executives addressing critical issues emerging from contemporary developments were produced, with content distribution through the Office of the NBTC’s Facebook page “Thai Telecommunications Moving Forward Together” and the Office of the NBTC’s YouTube channel (NBTC Channel).
- Infographic content in image and video formats providing warnings and education regarding criminal deception schemes (Scam Alert) disseminated through Facebook platform “Thai Telecommunications Moving Forward Together” of the Office of the NBTC covering diverse topics including “Beware of Numbers Resembling Bank Call Centers,” “Stay Vigilant Against AI Voice Impersonation Criminals” in both Thai and English languages, “Mobile Phone Number Verification Against Mobile Banking Account Names,” “Mobile Phone Package Promotion for People with Disabilities to Enhance Equal Telecommunications Service Access,” and “Free Complaint Channels for Telecommunications Service Provider Issues.”



14. Development of Consumer Protection Standards and Regulatory Measures

14.1 Amendment and enhancement of the Notification of the NBTC regarding Complaint Reception and Review Processes for Telecommunications Business Act B.E. 2559 (2016). During 2024, a Subcommittee for Study and Development of Complaint Resolution Procedures for Service Users in National Broadcasting and Telecommunications Commissions¹⁶ was appointed to analyze, compile operational challenges and procedural obstacles in complaint reception and review processes, while developing improvement recommendations for the Notification of the NBTC, and criteria governing operational mandates.

The study encompassed comprehensive analysis of complaint reception and review methodologies employed by Thai regulatory agencies and complaint-handling entities including Office of Insurance Commission (OIC), Financial Consumer Protection Center (FCPC) by Bank of Thailand, The Securities and Exchange Commission, Thailand (SEC), Food and Drug Administration (FDA), Office of The Consumer Protection Board (OCPB), Royal Thai Police, and international regulatory authorities from Australia, United Kingdom, Japan, and Malaysia. The initiative included stakeholder consultation processes gathering information, factual data, and perspectives from relevant the Office of the NBTC internal departments and broadcasting, television, and telecommunications licensees to inform complaint resolution procedure improvements and related legal framework enhancements.

Subsequently, the (draft) Notification of the NBTC on Complaint Reception and Review Criteria for Broadcasting, Television, and Telecommunications Act of the Office of the NBTC B.E. ... and corresponding flow chart outlining complaint reception and review processes pursuant to the draft regulation have been finalized. The documentation currently awaits presentation to the NBTC meetings for continued deliberation.

14.2 Consumer Protection Measures in Telecommunications Business “Promoting Mobile Phone Packages for Persons with Disabilities to Enhance Equitable Telecommunications Service through collaborative meetings with telecommunications service licensees on March 22, 2024, establishing service provision guidelines for mobile telecommunications, internet services, and promotional offerings specifically designed for persons with disabilities to ensure appropriate telecommunications service accessibility.

Subsequently, on April 27, 2024, a collaborative press conference was conducted with three mobile telecommunications service providers: Advanced Wireless Network Company Limited (AWN), National Telecom Public Company Limited (NT), and True Move H Universal Communication Company Limited (TUC) at The Emerald Hotel, Bangkok, announcing mobile phone packages and service discounts for persons with disabilities. This initiative promotes and encourages mobile telecommunications providers to develop comprehensive supplementary packages and service discounts across both prepaid and postpaid systems in diverse formats, supporting all categories of persons with disabilities, including state welfare cardholders, in accessing telecommunications services at affordable rates.



Press releases for advocating mobile phone packages for persons with disabilities to enhance equal access to telecommunications services

¹⁶ The 8th NBTC order of 2024, dated February 9, 2024

Additional cooperation was secured from the Association of the Physically Handicapped of Thailand and digital television operators to ensure comprehensive information dissemination regarding these supplementary packages and mobile phone service discounts to all disability categories, including state welfare cardholders, through appropriate organizational communication channels.

15. Supporting public access to government digital services through personal mobile devices at no cost without service charges, including driver's licenses, Mor Prom (Doctor Ready), Digital Wallet, and Mobile ID applications.

A (draft) Notification of NBTC concerning service fee reduction or exemption for information and knowledge services supporting public knowledge enhancement was developed to facilitate fee reduction or exemption for information and knowledge services benefiting public education through government agency applications. This constitutes an additional amendment as Chapter 3 of the (draft) Notification of the NBTC on Fee Reduction or Exemption (No. 2). Following public consultation processes, the proposal was presented to the NBTC during the 13th meeting of 2024 on June 19, 2024.

The NBTC approved the (draft) Notification of the NBTC on Service Fee Reduction or Exemption for Information and Knowledge Services Supporting Public Knowledge Enhancement, enabling service providers classified as government departments, state agencies, or non-profit legal entities with statutory authority to provide information and knowledge services for public education benefit and nationwide service coverage objectives to apply for voice telephone service fee exemptions for calls to 3-digit and 4-digit short telephone numbers through the NBTC, subject to compliance with criteria established in the Notification.

16. Citizen Rights Awareness Enhancement and Consumer Network Capacity Development encompassing:

16.1 Throughout 2024, executing practical training workshops for knowledge transfer and exchange on telecommunications consumer protection with the development of cooperation mechanisms involving telecommunications consumer protection network leader groups (Train the Trainer), implemented twice: first session on February 19, 2024, in Prachinburi province, and second session on March 8, 2024, in Chai Nat province. Participants included relevant the Office of the NBTC personnel from head office and regional offices and representatives of public sector network leaders from all regions to integrate and establish participatory mechanisms with public sector network leader groups, promoting positive interaction while enabling effective public knowledge communication and comprehensive outreach to local area populations and communities.



The workshop for knowledge sharing and collaborative mechanism development with network leaders in telecommunications consumer protection

16.2 Executing practical training workshops for public sector network leaders on telecommunications consumer rights protection during 2024, implemented 5 sessions from August through November 2024, to enhance capacity building of public sector networks regarding telecommunications consumer rights protection, developing understanding of the Office of the NBTC

roles and responsibilities, establishing comprehensive knowledge of telecommunications consumer rights, and promoting public sector network participation in knowledge dissemination through organizing diverse community-based activities to effectively develop community capacity.

16.3 Executing practical training workshops to establish telecommunications consumer networks within disability communities, implemented twice on April 27, 2024, and May 18, 2024, to develop knowledge and understanding regarding telecommunications consumer rights and related issues among persons with disabilities, enabling them to transfer acquired knowledge to their communities while promoting disability community participation and facilitating opinion exchanges including recommendations for telecommunications consumer protection operations to inform future operational planning, with over 60 persons with disabilities participating in each session.

16.4 Executing training for community capacity development and public sector network participation promotion in Surin Province on December 9, 2024, to enhance capacity building of public sector consumer network leaders regarding telecommunications consumer rights protection in Surin Province and surrounding areas, developing understanding of the Office of the NBTC roles and responsibilities while establishing current knowledge of telecommunications consumer rights relevant to contemporary situations, promoting network leader group participation in telecommunications consumer protection, and monitoring network leader performance in disseminating knowledge and understanding received from the Office of the NBTC to communities, contributing to stronger community development, with 50 participants including public sector network leaders and community leaders.

16.5 Executing training programs for community capacity development and public sector network participatory engagement enhancement in Pai District, Mae Hong Son Province on December

14, 2024, to facilitate capacity building of public sector consumer network leadership concerning telecommunications consumer rights protection frameworks, establishing substantive knowledge bases regarding telecommunications consumer rights aligned with current situational contexts while promoting network leadership group participatory engagement, with 40 participants encompassing community leadership and public sector network leadership representatives.



The training for enhancing the capacity of local communities and promoting participation in public networks

17. Telecommunications Sector Human Capital Development through strategic initiatives executed throughout 2024 for telecommunications industry workforce development, encompassing:

17.1 Maritime radio operator training and certification examination delivery encompassing 4 specialized certification programs from January 1 - October 31, 2024: 1) General Maritime Radio Operator Certification Program (General Operator's Certificate: GOC) executed across 10 training cycles with 159 successful certification candidates; 2) General Maritime Radio Operator Competency Refresher Program (General Operator's Certificate: R-GOC) executed across 17 training cycles with 281 successful certification candidates; 3) Restricted Maritime Navigation Radio Operator Certification and Competency Refresher Program (Restricted Operator's Certificate: ROC) executed across

two training cycles with 18 certification recipients; and 4) Restricted Maritime Navigation Radio Operator Competency Refresher Program (Restricted Operator's Certificate: R-ROC) executed across one training cycle with 7 certification recipients.

17.2 Training and examination programs for amateur radio operator certification conducted in collaboration with provincial amateur radio associations to organize training and examination sessions for amateur radio operator certificates, providing trainees with comprehensive knowledge regarding amateur radio operations, applicable rules and regulations, operating procedures, and licensing application processes to establish guidelines for practicing as responsible amateur radio operators who contribute to social benefit and community assistance at appropriate opportunities, implemented 12 sessions from January 1 - October 31, 2024, with 929 certificate recipients.

17.3 Synthesizer radio communication equipment operational training programs designed to ensure government entities utilize radio communication systems appropriately without generating radio frequency interference or compromising communication network security within government communication infrastructure, established upon efficient spectrum utilization principles for public welfare and national interest, while ensuring operational personnel possess comprehensive technical knowledge and operational understanding of radio communication equipment and maintain regulatory compliance with applicable legal frameworks and operational procedures. Throughout 2024, synthesizer radio communication equipment operational training programs were executed across three training cycles with 256 successful certification candidates.

Regulatory Oversight of Satellite Services

The NBTC has formulated the Satellite Orbital Slot Access Rights Management Plan B.E. 2563 (2020) to ensure regulatory compliance with the Act in Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) and subsequent amendments, while establishing comprehensive regulatory criteria and authorization procedures for satellite orbital rights utilization and foreign satellite transponder authorization for domestic service provisioning, encompassing spectrum coordination protocols in satellite operations with domestic regulatory entities, international organizations, and multilateral institutions to ensure adherence with the International Telecommunication Union (ITU) Radio Regulations framework. This regulatory infrastructure critically facilitates acquisition and maintenance of satellite orbital rights, with significant operational performance outcomes and regulatory achievements documented throughout 2024 as follows:

1. Development of the Notification of the NBTC Concerning Satellite Services.

1.1 **Announcement of the Notification of the NBTC on the Satellite Orbital Rights Management Plan B.E. 2563 (2020).** The NBTC promulgated the Notification of the NBTC on the Satellite Orbital Rights Management Plan B.E. 2563 (2020) with regulatory effectiveness commencing February 19, 2020, establishing comprehensive guidelines for national satellite orbital rights administration and efficient maintenance of satellite orbital access entitlements, harmonized with national digital transformation policies and strategic frameworks for economic and social development, while ensuring regulatory compliance with ITU Radio Regulations, international treaty obligations, and satellite industry market dynamics.

Contemporary satellite industry competitive market conditions and satellite technology advancement demonstrate accelerated evolution, precipitating increased market participation of

emerging stakeholders encompassing both Geostationary Orbit (GSO) and Non-Geostationary Orbit (NGSO) satellite operators deploying mega-constellation satellite service provisioning within global satellite communications markets. Acknowledging the NBTC's fundamental regulatory authority and statutory responsibility for preserving Thailand's satellite orbital rights entitlements and establishing regulatory frameworks for rights allocation through diversified methodological approaches, the NBTC published the Notification of the NBTC on the Satellite Orbital Rights Management Plan B.E. 2563 (2020) (First Amendment) on July 26, 2024, promulgated in Royal Gazette Volume 141, Special Issue 216 D on August 9, 2024, with regulatory effectiveness commencing August 10, 2024. This regulatory announcement promulgation adhered to prescribed legal procedural requirements pursuant to Section 28 and Section 50/1 of the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) and subsequent statutory amendments.

1.2 The Notification of the NBTC regarding Authorization for Satellite Orbital Rights Utilization at Geostationary Orbital Positions 50.5, 51, and 142 Degree East through Consolidated Package Allocation Framework. The NBTC formulated the Notification of the NBTC on Authorization for Satellite Orbital Rights Utilization at Geostationary Orbital (GEO) Positions 50.5, 51, and 142 degrees east through Consolidated Package Allocation Framework dated May 27, 2024, promulgated in Royal Gazette Volume 141, Special Issue 149 D on May 30, 2024, with regulatory effectiveness commencing May 31, 2024. This Regulatory Announcement mandates that the NBTC shall consolidate unutilized Geostationary Satellite Orbit (GSO) satellite network allocations at orbital positions 50.5, 51, and 142 degrees east into integrated packages based on technical feasibility and commercial viability assessments, incorporating competitive selection mechanisms through auction procedures offering state revenue contributions for satellite orbital rights authorization evaluation.

The NBTC endorsed the Office of the NBTC publish the Notification of the NBTC concerning Satellite Orbital Rights Authorization at Geostationary Orbital Positions 50.5, 51, and 142 degrees east through Consolidated Package Allocation Framework on May 27, 2024, specifying application procedures and regulatory processes for such authorization requests. The Office of the NBTC regulatory authority initiated the application submission period on July 23, 2024; however, no prospective applicants submitted authorization requests for satellite orbital rights utilization at the designated geostationary orbital positions. Subsequently, during the 16th NBTC regulatory meeting of 2024 on July 31, 2024, the NBTC acknowledged application submission outcomes for satellite orbital rights authorization at geostationary orbital positions 50.5, 51, and 142 degrees east, confirming absence of applicant interest pursuant to announcement provisions, and endorsed cancellation of the competitive selection process under the NBTC Regulatory Announcement regarding Authorization Criteria and Procedures for Satellite Orbital Rights Utilization at Geostationary Orbital Positions 50.5, 51, and 142 degrees east through Consolidated Package Allocation Framework dated May 27, 2024. The Office of the NBTC's Notification subsequently promulgated a cancellation announcement for the competitive selection process concerning satellite orbital rights authorization at 50.5, 51, and 142 degrees east through Consolidated Package Allocation Framework dated August 1, 2024.

1.3 Development of The Notification of the NBTC concerning Criteria and Procedures for Satellite Orbital Rights Authorization at Orbital Positions 50.5, 51, and 142 degrees east.

The NBTC formulated the Notification of the NBTC regarding Authorization Criteria and Procedures for Satellite Orbital Rights Utilization at Geostationary Orbital Positions 50.5, 51, and 142 degrees east on September 23, 2024, promulgated in Royal Gazette Volume 141, Special Issue 268 D on September 26, 2024, with regulatory effectiveness commencing September 27, 2024, establishing

regulatory objectives to define comprehensive authorization criteria, procedural frameworks, and conditional requirements for satellite orbital rights utilization through designation of unutilized Geostationary Satellite Orbit (GSO) network allocations at orbital positions 50.5, 51, and 142 degrees east for appropriate authorization assessment, while implementing comparative evaluation methodologies for licensee selection based on comprehensive applicant proposal analysis.

1.4 Amendment of the Notification of the NBTC on Criteria and Procedures for Foreign Satellite Transponder Authorization.

The NBTC mandated the Office of the NBTC to execute stakeholder and public consultation procedures concerning the (draft) Notification of NBTC on Regulatory Announcement regarding Authorization Criteria and Procedures for Foreign Satellite Utilization in Domestic Service Provisioning from December 6, 2023, to January 22, 2024, with formal consultation proceedings conducted on January 12, 2024, at The Berkeley Hotel Pratunam. The Office of the NBTC regulatory authority subsequently refined the (draft) announcement, incorporating stakeholder consultation input, and submitted the revised framework to the Satellite Services Subcommittee for comprehensive review and completion. The regulatory proposal currently undergoes the NBTC consideration for final regulatory endorsement.



The public hearing for stakeholders and the public for the (draft) Notification of the NBTC on Licensing Criteria and Procedures for Domestic Service Provision through Foreign Satellites

2. Satellite Orbital Access Rights Authorization/Foreign Satellite Transponder Utilization Authorization for Domestic Service Provisioning.

The NBTC has authorized related rights for satellite orbital position access according to institutional duties and authorities that must comply with relevant national primary legislation and according to the satellite orbital position access rights management plan as follows:

2.1 Satellite Orbital Access Rights Authorization.

1) Licensing Authorization under the Notification of the NBTC for Satellite Orbital Slot Utilization Rights at Geostationary Arc Positions 50.5, 51, and 142 Degrees East.

During 21st Meeting of 2024, September 25, 2024, establishing an Evaluation Committee for Geostationary Satellite Orbital Slot Position 50.5, 51, and 142 degrees east positions. The Committee was formally constituted under the Office of the NBTC Order 1010/2024 on October 2, 2024 with the following technical mandate: qualification assessment of orbital slot operators, technical submission validation, comparative analysis of network deployment proposals, and competitive negotiation procedures with qualified candidates.

The licensing framework was operationalized through the Office of the NBTC's Notification on September 27, 2024, implementing the regulatory provisions established under the primary the Notification of the NBTC on September 23, 2024 governing satellite orbital resource allocation procedures. The notification specified October 7, 2024, as the filing deadline for orbital slot utilization applications.

Following technical evaluation procedures, the 5th NBTC Special Session of 2024, October 21, 2024 resulted in the assignment of the 50.5 degrees east orbital slot to Tc Space Connect Company Limited under national satellite orbital resource management protocols.

The 51 and 142 degrees east positions remained unassigned due to absence of qualified applicants meeting technical and financial criteria. The NBTC subsequently mandated the commencement of a supplementary assignment process for the remaining geostationary arc positions in accordance with the established regulatory framework of September 27, 2024.



TC Space Connect Company Limited submitted regulatory documentation for collaborative authorization to access satellite orbital positions.

2) Satellite Orbital Access Rights Authorization under the Notification of the NBTC Principles and Procedures for Satellite Orbital Utilization.

The NBTC has issued orbital slot assignments for Non-Geostationary Satellite Orbit (NGSO) constellation operations pursuant to the Notification of the NBTC on Satellite Orbital Resource Authorization Framework, effective February 13, 2024. The following NGSO network authorizations have been granted:

- The 17th NBTC Meeting of 2024 held on August 14, 2024, adopted authorizing King Mongkut's University of Technology North Bangkok as the preliminary orbital resource assignee for the KNACKSAT-2 NGSO constellation deployment. the NBTC mandated the Office of NBTC to file Advance Publication Information (API) documentation for procedures with the International Telecommunication Union (ITU).

- The 19th NBTC Meeting of 2024 held on September 4, 2024, adopted designating the National Astronomical Research Institute of Thailand (Public Organization) as the preliminary orbital resource assignee for the NARITCUBE-1 NGSO constellation deployment. Moreover, The NBTC mandated the Office of the NBTC to file Advance Publication Information (API) documentation procedures with the International Telecommunication Union (ITU), establishing Thailand's priority date for the NARITCUBE-1 NGSO satellite network coordination process.

2.2 Foreign Satellite Transponder Licensing for Domestic Telecommunications Service Provision

1) The NBTC has authorized foreign satellite channel utilization for domestic services under the OneWeb satellite constellation encom-passing telecommunications service expansion and comprehensive authorization for spectrum use, radiocommunication station establishment, and equipment deployment by National Telecom Public Company Limited. Following the 11th NBTC Meeting of 2024 held on May 23-27, 2024 (extended session), the NBTC approved National Telecom Public Company Limited application for foreign satellite channel landing rights specifically for the OneWeb constellation, enabling the company to expand its services to include satellite network capacity sales.

Subsequently, at the 27th NBTC Meeting of 2024 on November 28, 2024, the NBTC reviewed and amended the authorization conditions for OneWeb foreign satellite channel utilization and the corresponding terms of Type 3 Telecommunications Business License No. TEL3/2021/001 to ensure regulatory alignment with the previous resolution.

2) Foreign Satellite System Access under Article 16: The Notification of the NBTC on Provisions for Cross-Border Satellite Transponder Licensing. The NBTC has processed foreign satellite system access applications filed under Article 16 of the Notification of the NBTC on governing cross-border satellite transponder utilization for domestic telecommunications service provision, resulting in the following licensing decisions:

- Spectrum assignment authorization to the Ministry of Transport via the Search and Rescue Unit (SRU) for calibration beacon radiocommunication equipment deployment in support of ground segment infrastructure migration from Low Earth Orbit (LEO) to Medium Earth Orbit (MEO) satellite constellation. This authorization operates under Article 16(1)(1.2) provisions governing radiocommunication links for International Search and Rescue Satellite System (SAR) emergency beacon networks, including Emergency Position Indicating Radio Beacon (EPIRB), Personal Location Beacon (PLB), and ELT (Emergency Locator Transmitter).

- Spectrum authorization to the GeoInformatics and Space Technology Development Agency (Public Organization) for radiocommunication spectrum assignments supporting research operations under the Unmanned Aircraft System Traffic Management (UAS-TM) development program. The project leverages Iridium NGSO constellation under Article 16(2)(2.4) regulatory provisions governing public health and scientific research experimental applications.

- Experimental spectrum assignment extension for Prince of Songkla University enabling continued foreign satellite system access via Starlink constellation for temporary radiocommunication service trials. The 24th NBTC Meeting of 2024 held on October 24, 2024 extending the institution's Ku-Band experimental authorization (14.0-14.5 GHz uplink / 10.7-12.7 GHz downlink) for STEAM-1 constellation access under Norwegian administration.

This temporary authorization supports satellite internet connectivity trials for critical public service missions including maritime search and rescue operations, remote area distance education programs, and telemedicine services in remote and maritime locations. The extension period runs from September 27, 2024, through December 26, 2024, maintaining the total authorization period within the 270-day regulatory limit.

3. Regulatory Oversight of Satellite Services.

The NBTC conducts compliance assessment under licensing conditions under national telecommunications legislation and radiocommunication regulatory frameworks, with specific emphasis on geostationary and non-geostationary orbital resource assignment authorization criteria.

Under the Spectrum Management Master Plan B.E. 2562 (2019) and amendments, Thailand is implementing a National Spectrum Monitoring Center (NSMC) integrating spectrum surveillance data across all the NBTC operational units. This consolidated monitoring infrastructure supports spectrum usage analysis for evidence-based spectrum policy formulation and optimal national spectrum resource allocation for maximum socioeconomic benefit.

Satellite spectrum governance presents critical regulatory complexity requiring specialized monitoring capabilities. The NBTC currently experiences monitoring infrastructure gaps for comprehensive satellite spectrum surveillance and orbital resource compliance verification. To align satellite regulatory supervision with advancing satellite technology deployment, the NBTC has launched a research initiative for the establishment of a Satellite Monitoring System, supporting its spectrum management mandate under the ITU Radio Regulations.

Therefore, the Broadcasting and Telecommunications Research and Development Fund for Public Interest (BTFP) is evaluating Phase 1 research deliverables requiring a comprehensive analysis of regulatory authority structures, institutional frameworks, monitoring instrumentation, technical equipment specifications, and integrated spectrum monitoring architectures for space segment and earth segment operations. The research incorporates International Telecommunication Union (ITU) recommendations and international regulatory best practices to develop policy frameworks for enhanced satellite system oversight capabilities.

4. Research on National Satellite System Regulatory Governance Framework for Thailand.

Thailand has executed a strategic research initiative on “NGSO Satellite Constellation Regulatory Policy Development for National Space Economy Ecosystem Enhancement.” The Geo Informatics and Space Technology Development Agency (Public Organization) functions as the primary research institution under the Broadcasting and Telecommunications Research and Development Fund for Public Interest (BTFP) grant funding mechanisms. The comprehensive research program addresses multiple technical and policy domains: space industry market analysis and satellite sector assessment, NGSO constellation technology trajectory evaluation and deployment forecasting, satellite application scenario modeling and utilization optimization studies, and comparative regulatory framework analysis across eight reference jurisdictions (United States, United Kingdom, Luxembourg, New Zealand, United Arab Emirates, People’s Republic of China, India, and Japan) with Thailand baseline assessment.

The research is based on systematic impact evaluation methodologies for the deployment of NGSO satellite systems, and it examines the positive and negative sectoral effects on national satellite infrastructure and telecommunications service provision. Within Thailand’s economic framework, the research encompasses macroeconomic impact modeling, social benefit analysis, national security

implications assessment, and cross-sector industrial impact evaluation.

A comprehensive impact appraisal of NGSO satellite services is included in the research, which evaluates the positive and negative effects on Thailand’s telecommunications and satellite industries. Additionally, the investigation assesses the broader economic, social, and security implications, as well as the effects on related industrial sectors. The licensing and regulatory supervision of NGSO satellite services, as well as investment promotion strategies, are the primary focus of key policy recommendations. A particular emphasis is placed on critical areas, including technology development, legal frameworks, and economic considerations. The final technical documentation and knowledge dissemination products of Phase 4 research is scheduled for publication on the NBTC and BTFP digital platforms.

5. Conference and Collaborative Testing of Starlink Satellite Constellation Communications.

The NBTC participated in technical collaboration with Prince of Songkla University Faculty of Engineering for utilizing Starlink satellite constellation. The research program focused on satellite earth station terminal validation for critical infrastructure applications including emergency communications for search and rescue operations, distance learning telecommunications delivery, and telemedical service provision in underserved geographical regions targeting socioeconomically disadvantaged populations.

The technical demonstration encompasses Low Earth Orbit (LEO) satellite system feasibility assessment with comprehensive public dissemination of communications performance metrics and operational deployment frameworks for educational telecommunications, e-health service delivery, and emergency response communications systems. Technical documentation will be distributed to telecommunications stakeholders and regulatory authorities to support evidence-based policy formulation.



The meeting and participation in experimental testing of signal transmission via the Starlink satellite constellation

These collaborative meetings and testing initiatives represent significant opportunities for knowledge exchange regarding emerging communication technologies that can address internet connectivity challenges, particularly for underserved populations in remote areas and vulnerable communities. These technologies aim to enhance quality of life for disadvantaged groups as society transitions toward comprehensive digital technology integration.

The initiatives provide essential forums for comprehensive discussion and opinion exchange regarding technology benefits and limitations, encompassing application potential assessment, citizen opportunity evaluation from technology deployment, and regulatory oversight concerns across multiple dimensions including security considerations. These deliberations will inform the NBTC’s strategic policy decision-making processes for emerging technology governance.

Regulatory Framework Enchantment for the Near Term

1. Comprehensive AI Technology Promotion and Integration for Thai Telecommunications Enhancement: Leveraging Digital Technologies and Knowledge Systems for Advanced Regulatory Oversight.

Digital transformation is underway in Thailand’s national telecommunications infrastructure, with an emphasis on the integration and deployment of artificial intelligence (AI) systems. While promoting technological innovation for improved user experience, reduced latency, and enhanced performance, emerging AI technologies will assume critical roles in human-machine collaboration, autonomous system operations, and complex problem-solving capabilities. The NBTC, the national telecommunications regulatory

authority, has established comprehensive AI governance frameworks that encompass regulatory supervision and the promotion of strategic AI technology deployment across all economic sectors. Through the implementation of advanced telecommunications networks, including universal service provisioning for remote and underserved geographical regions, the regulatory strategy is intended to guarantee national digital readiness and facilitate the acquisition of comprehensive digital skills. Additionally, it endeavors to advance digital equity and universal AI system accessibility across the nation.

The NBTC has already implemented computer and internet promotion initiatives that have reached over 20,000 villages and The Ministry of Digital



‘THAILAND 2025: Opportunity-Aspiration-Truth’ on the topic of “AI: New Opportunities.” As artificial intelligence, or AI, becomes increasingly influential, how can we harness the opportunities it presents? And the seminar, ‘The Power of AI: New Game, Global Shift,’

Economy and Society (DEs) has provided support for an additional 40,000 villages, bringing the total number of villages nationwide to 60,000. and In the future, the objective is to ensure that all Thai villages have access to universal AI. The Thai telecommunications sector is undergoing significant expansion, with a 91 percent 5G adoption rate, 99.15 percent 4G network coverage, and over 100 million mobile subscribers. Currently, data utilization is increasing annually, and approximately 90 percent of the population has access to high-speed internet and 5G services. The integration of Smart 5G into a variety of industrial sectors, including agricultural production, smart city safety systems, precision mass transit scheduling, and educational advancement, is anticipated to be facilitated by the anticipated expansion of domestic broadband demand to more than 1,156 gigabytes per person annually by 2029.

In order to advance the strategic telecommunications infrastructure, it is necessary to expand Universal Service Obligation (USO) centers and provide comprehensive 5G network densification to meet critical public service requirements, particularly for e-health and distance learning applications. Telecommunications operator collaboration will be facilitated by future regulatory frameworks that utilize AI algorithms for traffic optimization, latency reduction, and improved quality of citizen experiences.

The NBTC’s regulatory modernization strategy encompasses the incorporation of competitive market facilitation, innovation ecosystem development, and Regulatory Sandbox implementation. This strategy facilitates the implementation of controlled AI technology demonstrations for the purposes of autonomous network optimization, predictive network maintenance, and data-driven service analytics. This all-encompassing approach guarantees the establishment of a resilient Aleco system by implementing next-generation infrastructure, including the standardization of Wi-Fi 6E and the integration of Low Earth Orbit (LEO) satellites to accelerate the expansion of ultra-high-speed connectivity. Across all economic sectors, multilateral cooperation frameworks will establish AI governance standards that guarantee the responsible deployment of technology while maximizing societal benefits. International coordination mechanisms, infrastructure and resource development, and cybersecurity and risk management are the three strategic domains through which risk mitigation must be implemented. Comprehensive safeguards against AI system misuse, such as ethical compliance violations, personal data protection breaches, cybercriminal exploitation, and societal security threats. Potential challenges arising from AI technology must be addressed through a comprehensive three-pillar approach: Risk and Security Management, Infrastructure and Resource

Development, and International Collaboration. This framework includes proactive preparation to prevent AI technology misuse, encompassing ethical violations, personal data breaches, criminal exploitation, and broader societal and public safety threats.

2. Technology Knowledge Development and Digital Technology Integration for Enhanced Regulatory Oversight.

2.1 The Office of the NBTC has implemented comprehensive digital readiness initiatives addressing Artificial Intelligence (AI) technology integration and its transformative impact on broadcast media and television services sectors. Strategic capacity development programs encompass technical training and knowledge transfer seminars designed to enhance regulatory personnel competencies and industry stakeholder capabilities in emerging broadcast technologies, facilitating national broadcasting industry alignment with international technical standards and best practices.

Technical capacity building encompasses specialized Broadcast Engineering certification programs addressing AI system integration in television production workflows, technology deployment case studies, and next-generation broadcast innovation frameworks. The “AI & Future Trends in Broadcast & Media Industry” practical implementation seminars offer practical technical training in intelligent media processing applications, automated content production systems, and AI-enhanced broadcast technologies.

The NBTC Competition Forum 2024, themed “Content Creators in the Age of AI: Adapting to Change,” served as a comprehensive platform for multi-stakeholder dialogue. This forum facilitated experience sharing across all industry sectors regarding

competitive dynamics in broadcasting, television, and related businesses. Participants explored industry transformation perspectives, adaptation strategies for AI and modern technology integration in media industries, and addressed challenges including regulatory obstacles, operational limitations, and legal considerations for technology deployment.

Concurrently, the Office of the NBTC is conducting ongoing research to implement advanced technologies for enhanced operational efficiency in content monitoring and regulatory oversight of broadcasting and television services, strengthening the regulatory framework through digital transformation.



The AI governance workshop

2.2 AI Governance Workshop for Establishing Responsible AI Oversight Framework in Telecommunications Sector, conducted in collaboration with the AI Governance Center under the Electronic Transactions Development Agency (ETDA). This workshop focused on developing comprehensive guidelines for responsible artificial intelligence implementation across telecommunications industries, featuring expert lectures and knowledge-sharing sessions designed to enhance understanding of AI governance principles, AI capabilities assessment, telecommunications-specific AI use cases, and risk management strategies for AI deployment in telecommunications operations. The workshop was held on August 13, 2024, at Sailom 5011 Conference Hall, the Office of the NBTC.





Throughout 2024, the NBTC maintained a strategic focus on the advancement of the Office of the NBTC as a premier international telecommunications regulatory authority that encompasses broadcasting, television, telecommunications, and satellite system services. The organization operated under the principles of technical excellence, institutional impartiality, and regulatory transparency. The regulatory framework prioritizes the development of technical personnel's capacity to advance their academic proficiency and participate in scholastic research initiatives in national and multilateral international forums. Academic and technical activities encompass comprehensive policy impact analysis and regulatory assessment studies evaluating economic implications of telecommunications governance measures, conducting market analysis and competitive dynamics research in broadcasting, television, and telecommunications sectors utilizing evidence-based regulatory methodologies. The Office of the NBTC develops technical databases and regulatory performance metrics for public transparency while establishing academic partnerships with international telecommunications organizations and regulatory authorities, resulting in the following strategic achievements:

1. Academic Policy Recommendations Development for Broadcasting, Television, Telecommunications, and Satellite Services Regulatory Framework.

1.1 Regulatory Impact Assessment (RIA) Framework Development to establish systematic guidelines for evaluating potential impacts before regulatory decision-making and post-implementation assessment of regulatory mechanisms under standardized methodologies. This framework operates on evidence-based practice principles to provide policy alternatives supporting executive decision-making processes.

International regulatory best practices from world-renowned institutions, such as the Organization for Economic Cooperation and Development (OECD), United Kingdom (Ofcom), United States (FCC), Australia (ACMA), Japan (MIC), and Korean (KCC) regulatory frameworks, are integrated into the methodological development. NBTC's telecommunications, broadcasting, and satellite sector regulatory mandate are satisfied.

The RIA framework is a comprehensive framework that includes systematic impact assessment protocols, such as the definition and objective specification of regulatory problems, the identification of alternative regulatory interventions, the analysis of quantitative and qualitative impacts, the methods of cost-benefit analysis, the consultation of multiple stakeholders, the development of regulatory implementation strategies, and the implementation of continuous monitoring and evaluation mechanisms. Throughout the development of telecommunications regulatory policy, market analysis, and competition assessment initiatives, this structured approach facilitates their systematic application.

1.2 Technology Foresight Research Study.

Aligned with international technology assessment, Thailand executed comprehensive satellite and space technology foresight analysis spanning a 10-year strategic planning horizon. The systematic foresight methodology identified five transformative technology domains: 1) NGSO constellation connectivity systems incorporating LEO satellite networks and hybrid multi-orbit network architectures; 2) Earth Stations in Motion (ESIMs) enabling mobile satellite service provisioning; 3) Inter-satellite link communications utilizing radio frequency spectrum and optical laser transmission technologies; 4) Satellite direct-to-device connectivity and Non-Terrestrial Network (NTN); and 5) Satellite-based IoT connectivity supporting massive machine-type communications.

This anticipatory regulatory intelligence framework supports proactive technology governance and evidence-based telecommunications sector regulation for strategic policy formulation and regulatory modernization initiatives. The research encompassed strategic foresight analysis of Thailand’s space economy ecosystem under the technical paper “Future Scenarios of the Space Industry in Thailand Using Foresight Methodology.”



The brainstorming seminar on the future scenarios of Thailand’s space industry over the next ten years

The technical research was presented at the ITS 24th Biennial Conference 2024, convened by the International Telecommunications Society in Seoul, Republic of Korea (June 23-26, 2024). This multilateral academic forum enabled technical knowledge exchange with international telecommunications research experts, advancing the Office of the NBTC’s technical research competencies and establishing international recognition in satellite system policy analysis and space technology regulatory governance research.

1.3 Telecommunications Market Definition and Competitive Analysis Framework Study for Broadcasting, Television, and Telecommunications Sectors implementing comprehensive market boundary analysis utilizing international regulatory best practices and technical performance metrics including minimum transmission capacity thresholds, network interconnection architectures, access technology classifications, and geographic market delineation criteria. This analytical framework supports systematic review

of wholesale broadband access market definitions within the nine market wholesale broadband access established under the Notification of the National Broadcasting and Telecommunications Commission Regarding the Definition of Markets and Relevant Telecommunications Market Scope (No. 2) B.E. 2563. The technical assessment addresses accelerated broadband technology evolution and corresponding consumer demand transformation patterns.

1.4 Radio Spectrum Economic Valuation and Assessment Study encompassing multiple valuation methodologies across spectrum value assessment. The research includes FM radio spectrum valuation for commercial broadcasting services utilizing auction-based assessment methods, and comprehensive valuation analysis for mobile telecommunications spectrum in the 850 MHz, 1800 MHz, 1500 MHz, 2100 MHz, 2300 MHz, and 3500 MHz utilizing four analytical methodologies: Absolute Value Benchmarking, Relative Value Benchmarking, Econometric Analysis, and Business Value Assessment. The study incorporates spectrum demand forecasting to support strategic spectrum allocation planning for International Mobile Telecommunications (IMT) services. Research findings informed stakeholder consultation through a specialized Focus Group session addressing Thailand’s (draft) 5-Year IMT Spectrum Roadmap B.E. 2567 – 2571 (2024-2028) and emerging spectrum requirements for 5G Private Network deployments, conducted on May 29, 2024, at Pullman King Power Bangkok Hotel.



The focus group meeting for the (draft) 5-Year IMT Spectrum Roadmap of Thailand (B.E. 2567 – 2571) (2024 – 2028).

1.5 Telecommunications and Television Sector Performance Indicators Development Study establishing comprehensive monitoring tools for tracking industry dynamics, particularly retail market conditions with broad consumer impact. The initiative creates systematic price-level indicators serving as essential instruments for telecommunications and television market condition assessment. The study produces quarterly analytical reports on telecommunications service pricing trends, including: Telecommunications Service Price Index Reports (TSPI), Telecommunications Service Package Offering Analysis, Price Index Methodology Documentation, and Report Limitations Disclaimer. These evidence-based analytical tools support the Office of the NBTC regulatory oversight activities as well as preparing comprehensive data resources for public dissemination. The systematic data enables stakeholders to access reliable telecommunications market intelligence for informed decision-making and policy analysis, supporting transparent market monitoring and evidence-based telecommunications governance.

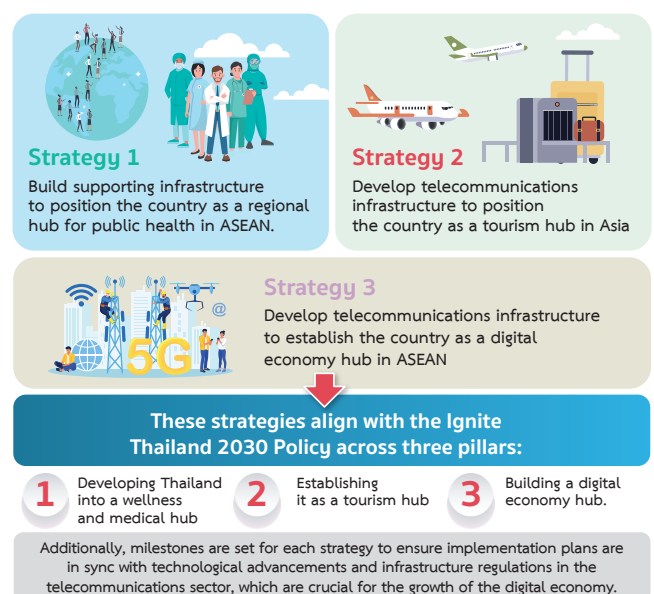
1.6 Comprehensive Broadcasting, Television, and Telecommunications Database Development Study establishing strategic information infrastructure supporting evidence-based policy formulation, impact assessment, and regulatory measure development. The initiative encompasses multiple specialized databases including market intelligence and consumer behavior analytics for Thailand's broadcasting, television, and telecommunications sectors with international benchmarking capabilities.

Fundamental database components include: Statista for market conditions and consumer insights across Thailand and international markets; OMDIA for broadcasting, television, and telecommunications industry analytics; Bloomberg Terminal for macroeconomic data relevant to media and telecommunications sectors; IDC for telecommunications and related industry intelligence; policy and regulatory framework databases supporting foresight research with comprehensive data

access protocols; and GSMA Intelligence for international mobile operators, fixed telecommunications, television services, and convergence analytics.

The initiative has operationalized the Strategic Database System (SDS) for academic operations, designed to consolidate essential strategic economic databases supporting academic research for policy development across the Office of the NBTC functions. The systematic database architecture ensures user-friendly access and optimizes analytical capabilities for policy research and academic analysis, facilitating comprehensive market monitoring, trend analysis, and evidence-based policy recommendation development aligned with the NBTC's regulatory mandate.

1.7 Digital Trade and Connectivity Research Initiative aimed at developing comprehensive policy implementation frameworks for digital trade advancement and connectivity enhancement initiatives supporting digital economy growth. The research encompasses international digital economy development strategy analysis, Thailand's current digital readiness assessment, comparative evaluation of international digital economy plans across multiple dimensions, and alignment with the Ignite Thailand 2030 national vision. The study culminates in a strategic 3-year Roadmap for the Office of the NBTC connectivity and digital connectivity and cross-border digital trade promotion under three strategic implementation domains as follows:



1.8 National Digital Divide Assessment and Universal Access Evaluation conducting comprehensive digital inclusion analysis across Thailand's Northern, Northeastern, and Southern regions through systematic evaluation of digital access infrastructure including Universal Service Obligation Internet Centers (USO Net), educational technology integration sites such as Ban Pha Taek Irrigation School, municipal ICT capacity building facilities including Khon Kaen Municipality ICT Skills Development and Learning Center, USO Wrap implementation sites, and rural connectivity projects such as Ban Don Khi Lek School. The technical assessment identifies best practices and lessons learned from existing community digital literacy centers operated under public-private partnership frameworks, developing evidence-based community learning center models optimized for localized digital inclusion requirements and regional socioeconomic contexts.

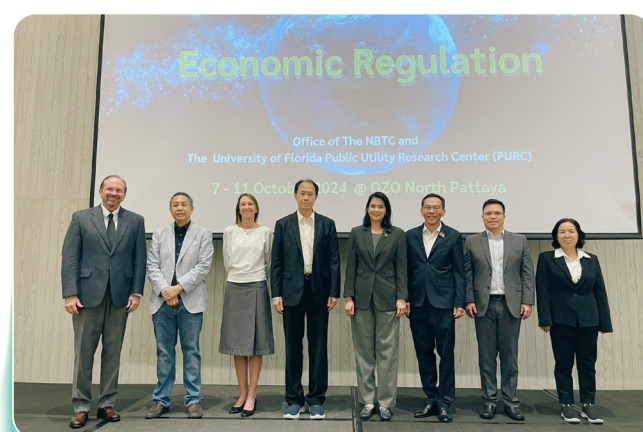
2. Technical Academic Training and Research Publication for Public Knowledge Dissemination

2.1 Academic Research Publication: "NBTC Telecom and Broadcasting Barometer Issue No. 2" presents peer-reviewed research articles and comprehensive market intelligence analysis across broadcasting, television, and telecommunications sectors. This evidence-based policy research publication supports regulatory decision-making through empirical analysis frameworks while enabling systematic regulatory impact assessment of policy interventions and regulatory measures prior to implementation. The technical publication addresses regulatory modernization and policy adaptation challenges responding to telecommunications technology evolution, featuring: space industry strategic foresight research utilizing advanced technology assessment methodologies; Open Radio Access Network (Open-RAN) technology evaluation from competition policy and technology governance perspectives; e-government service adoption determinant analysis reflecting national digital inclusion and telecommunications infrastructure investment impact evaluation of

spectrum auction pricing mechanisms under economic regulatory frameworks.

2.2 Technical Capacity Development through Specialized Professional Training for the Office of the NBTC personnel implementing systematic knowledge transfer protocols for the Office of the NBTC personnel, facilitating associative expertise exchange and professional conference across telecommunications regulatory domains, and advancing technical competencies in broadcasting, television, telecommunications, and radiocommunication sectors, encompassing convergent industry ecosystems. The capacity building framework enables personnel to leverage acquired technical knowledge for evidence-based regulatory policy formulation and enhanced operational efficiency across regulatory functions, exemplified by:

- Economic Regulation Training Program conducted by the Public Utility Research Center (PURC), University of Florida, United States, under the institutional cooperation agreement with the Office of NBTC, held October 7-11, 2024.



The 'Economic Regulation' training session by the Public Utility Research Center (PURC), from October 7-11, 2024, in Bangkok

The program featured participation from the NBTC Commissioners, Associate Professor Suphat Suphachalasai, Air Marshal Thanapant Raicharoen, Emeritus Professor Pirongrong Ramasoota, and Associate Professor Somphob Purivgraipong, who engaged in comprehensive knowledge exchange sessions. The acquired expertise and practical experience will significantly enhance the Office of the NBTC staff capabilities and enable practical application in regulatory operations for continued academic knowledge development.

- The program comprised eight specialized sessions covering: Foresight methodology and strategic planning; Industrial Organization economics for noneconomists; Computable General Equilibrium modeling as organizational management tools through predictive analysis and future scenario development; collaborative knowledge sharing through interactive presentations, economic impact assessment of critical policies and projects, Net Zero Emission implementation strategies for telecommunications and related industries; and comprehensive understanding of AI integration impacts across broadcasting, television, and Over-The-Top (OTT) services, ultimately contributing to collaborative regulatory development for future oversight.

- Implementing systematic academic knowledge transfer protocols across broadcasting, television, telecommunications, and convergent industry sectors through structured professional development initiatives. The technical program encompasses 10 Brown Bag technical seminars

addressing specialized topics including Regulatory Impact Assessment (RIA) methodologies, Digital Trade and International Connectivity frameworks, Spectrum Demand and World Radiocommunication Conference (WRC) regulatory developments. These technical knowledge-sharing sessions facilitate evidence-based academic exchange, collaborative learning frameworks, and professional network development among the Office of the NBTC staff in conjunction with external telecommunications researchers and technical experts from academic and industry institutions. The capacity building initiative supports advanced research competency development enabling enhanced creative research output efficiency and continuous technical knowledge advancement for regulatory excellence.

3. International Academic Network Development and Knowledge Exchange through Global Academic Conferences and Professional Seminars

3.1 Technical consultation with the Australian Competition and Consumer Commission (ACCC) regarding spectrum allocation and telecommunications sector competition policy guidance. The bilateral regulatory dialogue encompassed: 3G network sunset implementation protocols, telecommunications infrastructure access regulation, satellite broadband service market entry procedures, Over-the-Top (OTT) platform regulatory, relevant market delineation methodologies, significant market power (SMP) assessment criteria, and horizontal integration regulatory evaluation processes.

3.2 Bilateral consultation with the Australian Communications Consumer Action Network (ACCAN) addressing Digital Inclusion initiatives, focusing on promoting and enhancing communications access, service availability, device accessibility, and technology adoption. The technical consultation emphasized affordability considerations and digital service accessibility for diverse user groups, including general consumers, remote rural communities, culturally and linguistically diverse populations, and elderly and disabled users.



The academic seminar 'Sharing and Learning: The Advancement of Net-Zero Emission Initiatives in the Telecommunications Industry and Related Sectors'

3.3 Collaborative consultation with the Social Research Centre regarding data collection methodologies for the Australian Digital Inclusion Index (ADII) development. The index utilizes comprehensive survey data collected through statistically rigorous nationwide random sampling via Address-Based Sampling (A-BS) methodology, leveraging the Geocoded National Address File (G-NAF) database sourced from government administrative records.



The meetings to establish academic networks with international agencies

3.4 Strategic Consultation with the ARC Centre of Excellence for Automated Decision-Making and Society (ADM+S Centre) at RMIT University, focusing on Australian Digital Inclusion Index (ADII) analysis and policy application for monitoring government initiatives addressing digital divide reduction across the Commonwealth of Australian.

These consultations with Australian government agencies and academic institutions have established foundations for international academic partnership development. The meetings resulted in preliminary Memorandum of Understanding (MoU) conceptualization with ACCC, ACCAN, Social Research Centre, and ADM+S Centre, supporting the Office of the NBTC's regulatory operations alignment with international best practices while advancing collaborative academic initiatives for knowledge exchange and professional capacity building in three key areas: (1) Australian telecommunications market competition regulatory frameworks for adaptation to Thailand's regulatory context, (2) Digital accessibility enhancement strategies targeting social inequality reduction, particularly for persons with disabilities, elderly populations, and socioeconomically disadvantaged communities, and (3) Collaborative ADII data collection and analysis methodologies for effective digital divide mitigation strategies.

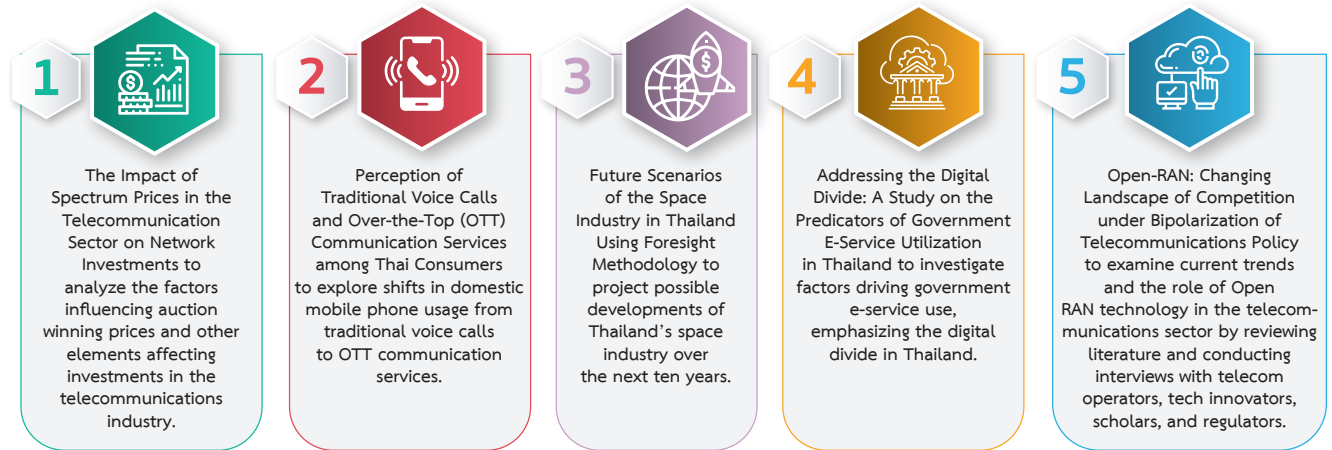
3.5 Academic Research Development and Presentation at the 24th ITS Biennial Conference
(The 24th Biennial Conference of the International Telecommunications Society: ITS 2024) at Korea University, Republic of Korea, June 23-26, 2024.



The presentation of academic work in the 24th ITS Biennial Conference

NBTC Commissioners, Emeritus Professor Pirongrong Ramasoota and Associate Professor Suphat Suphachalasai participated in this premier international forum for vision exchange on technological advancement and telecommunications sector challenges. The conference facilitated comprehensive

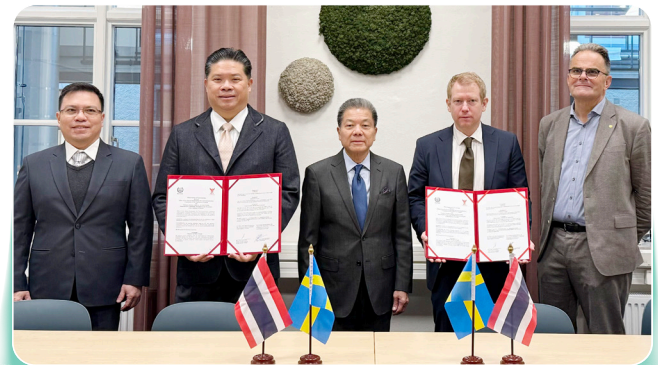
dialogue among diverse stakeholders including telecommunications regulators, policy makers, industry entrepreneurs, independent researchers, and academic institutions. The NBTC delegation presented five academic research papers covering the following topics:



3.6 Bilateral Technical Cooperation and Academic Partnership Development with Swedish Telecommunications Regulatory and Research Institutions, October 27 - November 2, 2024. Chairman of NBTC, Clinical Professor Sarana Boonbaichaiyapruk, leading the Office of the NBTC technical delegation, conducted strategic bilateral consultations with The Swedish Post and Telecom Authority (PTS), Sweden's national postal and telecommunications regulatory authority, in Stockholm. The multilateral technical dialogues addressed regulatory policy frameworks for emerging telecommunications technologies, 5G network infrastructure deployment strategies, national spectrum management optimization approaches, and future international telecommunications cooperation mechanisms. These strategic consultations resulted in enhanced institutional cooperation between the Office of the NBTC and PTS, establishing strengthened bilateral regulatory coordination frameworks.

Concurrently, the Office of the NBTC executed a formal Memorandum of Understanding (MoU) with the Department of Technology Management and Economics (TME) at Chalmers University of Technology on October 30, 2024. This academic partnership framework enables

systematic knowledge transfer protocols, collaborative research methodology development, joint academic publication programs, institutional capacity building initiatives, and coordinated telecommunications research programs. The Office of the NBTC has programmed collaborative research project implementation with TME commencing in 2025.



The meeting with agencies and educational institutions on prevailing and future key issues

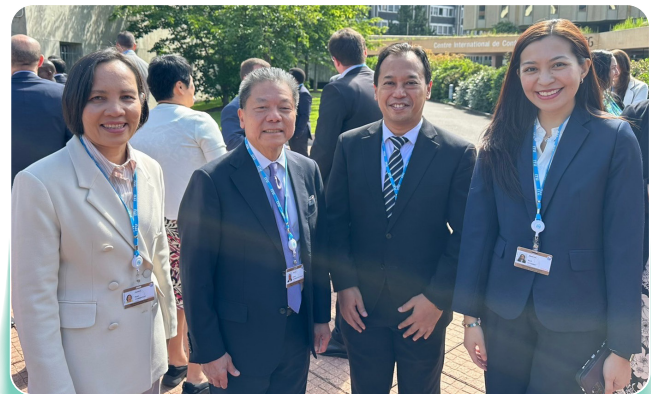


International Telecommunications Affairs

The NBTC has implemented strategic international telecommunications affairs mandates to preserve Thailand's national telecommunications interests, operating as the designated national telecommunications administration for international communications governance with the International Telecommunication Union (ITU), multilateral international organizations, foreign government telecommunications authorities, and overseas regulatory institutions. This comprehensive mandate encompasses international spectrum coordination for broadcasting services, television service, international telecommunications networks, and convergent communications sectors. The NBTC has produced notable achievements and key performance indicators in 2024, including,

1. ITU Council Membership Execution and Strategic Governance Participation. Chairman of NBTC, Clinical Professor Sarana Boonbaichai yapruck, and Deputy Secretary-General, Acting Secretary-General of the NBTC, Mr. Trairat Viriyasirikul served as Thailand's official delegation to the 2024 Session of the ITU Council (Council-24), during June 4-14, 2024, Geneva, Switzerland. The strategic governance session addressed comprehensive institutional administration encompassing organizational management frameworks, strategic planning methodologies, policy implementation protocols, financial planning and budget allocation, and ITU operational trajectory determination for the 2024-2027 strategic planning cycle. This strategic institutional positioning to optimize operational efficiency and ensure alignment with ITU's fundamental mandates concerning spectrum allocation for diverse service categories, telecommunications equipment standardization development, and digital inclusion enhancement initiatives, this Administrative Council session constitutes the second formal participation by Thai senior representatives subsequent

to their election by over 194 ITU member state constituencies to serve as Administrative Council members representing Region E (Asia and Australasia) during the Plenipotentiary Conference 2022 in Bucharest, Romania. This engagement provides strategic opportunities for Thailand to participate in formulating the international organization's strategic governance framework concerning global telecommunications infrastructure, digital transformation initiatives, and artificial intelligence development, while exercising sovereign voting prerogatives to articulate positions safeguarding Thailand's strategic interests, thereby fulfilling NBTC's statutory mandates concerning national interest protection and ITU coordination pursuant to Section 27 (14) of the Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Businesses B.E. 2553 (2010).



The 2024 Session of the ITU Council

2. International Telecommunication Union (ITU) Framework Conferences and Meetings.

During 2024, Thailand maintained active engagement in strategic International Telecommunication Union (ITU) conferences, technical study group sessions, and multilateral coordination meetings, comprising:

2.1 AI for Good Global Summit 2024 (AI for Good 2024) International Conference, conducted on May 29-31, 2024, Geneva, Switzerland, implementing a structured two-component framework: AI Governance Day technical session on May 29 - 31, 2024, and Global Summit plenary sessions conducted on May 30-31, 2024. The multilateral conference objectives encompassed facilitating strategic dialogue among global digital transformation leaders and artificial intelligence ecosystem stakeholders to develop comprehensive AI deployment frameworks advancing the Sustainable Development Goals 2030 (SDGs 2030) implementation through technology for development initiatives.



The AI for Good Global Summit 2024

2.2 World Summit on the Information Society (WSIS) +20 Forum High-Level Event 2024 (WSIS+20) was convened May 27-31, 2024, Geneva, Switzerland, constituting the premier annual multilateral conference addressing Information and Communication Technologies for Development frameworks. The high-level summit implemented systematic WSIS Action Lines operationalization for sustainable development goals advancement through structured knowledge transfer protocols, international best practice dissemination, multilateral cooperation facilitation, and strategic technology foresight dialogue addressing emerging digital transformation paradigms and innovation ecosystem development.



The World Summit on the Information Society (WSIS) +20 Forum High-Level Event 2024

2.3 Global Symposium for Regulators 2024 (GSR-24) held on July 1-4, 2024, Kampala, Uganda, implementing interactive high-level panel methodologies facilitating regulatory experience exchange, strategic foresight dialogue, and comprehensive policy deliberations addressing advanced regulatory frameworks for emerging technology governance. Technical sessions encompassed digital transformation regulation, commercial space sector oversight, universal connectivity advancement, digital ecosystem development, artificial intelligence (AI) and autonomous systems regulation, secure digital financial inclusion frameworks, Regulatory Sandbox deployment protocols, and environmental technology regulatory optimization.

Deputy Secretary – General, Acting Secretary– General of the NBTC, Mr. Trairat Viriyasirikul participated as the NBTC’s senior representative in exclusive regulatory authority executives’ Round Table sessions, addressing adaptive regulatory methodologies for socioeconomic development within dynamic technological transformation environments. He contributed as expert panelist in the “Heads of Regulators Executive Roundtable: Charting the course of transformative technologies” technical session and engaged in GSR Best Practice Guidelines review and endorsement processes, advancing international regulatory harmonization and institutional cooperation among global telecommunications and ICT regulatory authorities.

2.4 ITU Digital Skills Forum 2024: Developing Skills for Digital Transformation convened September 16 - 21, 2024, Manama, Kingdom of Bahrain. NBTC Commissioner, Torpong Selenon participated as expert panelist in the “High-level Dialogue on Key Issues Related to Digital Transformation and the Digital Skills Gap,” articulating digital competency development imperatives for economic transformation, social equity advancement, and inclusive digital opportunity creation within comprehensive digital ecosystem frameworks. Moreover, The Commissioner presented Thailand’s “10 Fingers Model” for Inclusive Design methodologies, targeting Inclusive Society development through universal design principles addressing diverse demographic requirements, specifically persons with disabilities, aging populations, and socioeconomically vulnerable segments.

Additionally, the technical forum enabled strategic institutional consultations with Dr. Cosmas Luckyson Zavazava, Director of the Telecommunication Development Bureau (BDT), addressing critical telecommunications development priorities including Thailand’s institutional preparation for Regional Preparatory Meeting hosting responsibilities for WTDC-25 (APT Preparatory Group WTDC25) and collaborative engagement in ITU disaster risk reduction and emergency telecommunications initiatives.

Currently, bilateral technical consultations with the Kingdom of Bahrain’s Telecommunications Regulatory Authority (TRA) encompassed telecommunications regulatory governance frameworks, market structure analysis and competitive dynamics assessment, digital inclusion policy advancement, and future institutional cooperation protocol development between the Office of the NBTC and TRA.



The ITU Digital Skills Forum 2024



The ITU Digital Skills Forum 2024

2.5 World Telecommunication Standardization Assembly 2024 (WTSA-24) and India Mobile Congress (IMC-24) Technical Conferences were convened on October 15-24, 2024, New Delhi, India, constituting the quadrennial supreme governance assembly for ITU Telecommunication Standardization Sector (ITU-T) strategic planning and standardization framework determination.

Thailand, through the NBTC technical delegation, successfully advanced 164 regional contribution documents achieving WTSA-24 consensus adoption achieving approval for 39 documents total, encompassing Resolution 88 amendment proposals addressing “International Mobile Roaming”

optimization and groundbreaking new resolution establishment on “Standardization Activities of the ITU Telecommunication Standardization Sector to Ensure Artificial Intelligence Safety and Trustworthiness in Telecommunications/ICTs.” This strategic resolution framework addresses AI governance standardization protocols and national AI strategy development mandates ensuring artificial intelligence safety and trustworthiness while supporting ITU-T Study Group technical work programs examining AI system integration within telecommunications/ICT infrastructure for establishing stakeholder confidence in secure and efficient AI technology deployment.

3. International Trade Agreement Negotiations and International Economic Cooperation Implementation including:

3.1 ASEAN-Canada Free Trade Agreement (ACAFTA) Multilateral Trade Negotiation Engagement addressing the NBTC and the Office of the NBTC’s regulatory competencies, telecommunications legal frameworks, and institutional operational mandates across three technical working groups: E-Commerce Working Group, Trade in Services Working Group, and specialized Sub-Working Group formations. The structured negotiation methodology implements dual-phase protocols: 1) ASEAN Caucus coordination sessions for regional consensus development on draft telecommunications and digital services chapter provisions, and 2) ASEAN-Canada Plenary negotiations where consolidated ASEAN positions undergo bilateral deliberation for comprehensive agreement framework finalization and telecommunications services liberalization protocols.

3.2 ASEAN-China Free Trade Agreement (ACFTA) Modernization Negotiation Framework aimed at upgrading the agreement to reflect contemporary trade realities and enhance mutual benefits for both parties. The 11th ASEAN Caucus successfully concluded negotiations on all digital economy chapter provisions, with outstanding

proposals specifically relevant to the NBTC and the Office of the NBTC’s regulatory mandates, including Unsolicited Commercial Electronic Messages, Digital Infrastructure Connectivity, and Anti-online Scam frameworks. Nevertheless, pending negotiations require continued deliberation to finalize draft institutional articles and future work program articles in subsequent negotiation rounds.

3.3 The bilateral trade negotiation framework for the Thai-European Union Free Trade Agreement (TH-EU FTA). The Office of the NBTC maintained active engagement across two specialized negotiation tracks addressing telecommunications services liberalization and digital trade regulatory harmonization:

Services and Investment (SI) Negotiation Track: Within the Telecommunications Services Sub-section framework, technical negotiations encompassed comprehensive substantive analysis, textual refinement, and terminological harmonization of Services and Investment chapter provisions. The negotiation session achieved systematic examination of 16 telecommunications services liberalization chapters, successfully concluding bilateral consensus on four additional chapter frameworks, establishing cumulative consensus on 5 of 16 telecommunications services trade liberalization provisions.

Digital Trade (DT) Negotiation Track: Technical negotiations addressed detailed digital trade chapter development encompassing substantive regulatory content analysis, textual framework development, and terminology standardization protocols. Current negotiations focus on bilateral regulatory limitation identification and mutual accommodation understanding, requiring domestic stakeholder consultation and regulatory impact assessment before continuing multilateral negotiations in subsequent technical sessions.

4. Regional and Interregional Telecommunications Cooperation Coordination through Bilateral and Multilateral Frameworks.

Throughout 2024, the Office of the NBTC has been operating under regional and interregional cooperation frameworks and has sent representatives to participate in bilateral and multilateral institutional consultation meetings to promote cooperation on issues related to broadcasting, television, and telecommunications service regulatory oversight, spectrum allocation to accommodate modern technology and innovation, reducing inequality in digital technology access, and consumer protection. This collaboration initiatives aim to strengthen and develop shared regulatory capabilities among partner agencies for future collaborative oversight, including:

4.1 The 1st ASEAN ADGSOM-ATRC Leaders' Retreat of 2024 and Associated Conferences held on March 18-22, 2024, in Phnom Penh, Cambodia. The strategic retreat addressed comprehensive review and coordination of regional digital initiatives under the ASEAN Digital Master Plan 2025 (ADM 2025) framework, including collaborative activities and projects among ASEAN member states, operational implementation strategies based on key outcomes from the 4th ASEAN Digital Ministers Meeting (ADGMIN), project concept development for ASEAN ICT Fund budget allocation requests, and strategic cooperation frameworks between ASEAN and external dialogue partners.



4.2 The 68th APEC Telecommunications and Information Working Group (APEC TEL WG 68) Conference and Strategic Bilateral Consultations with APEC Economy Representatives. convened on May 4 - 9, 2024, Arequipa, Peru. NBTC Commissioner, Police General Nathathorn Prousoontorn, leading the NBTC technical delegation with Deputy Secretary – General, Acting Secretary– General of the NBTC, Mr. Trairat Viriyasirikul, participated in strategic telecommunications regulatory coordination with regulatory authority executives from 12 APEC economies: Australia, China, Indonesia, Japan, Republic of Korea, Malaysia, Mexico, Papua New Guinea, Peru, Russian Federation, Chinese Taipei, and United States.

Within the technical framework “Promote ICT Infrastructure Investment and Connectivity,” Thailand delivered comprehensive telecommunications policy and regulatory updates during the plenary session, presenting the Office of the NBTC’s progress on Call Center criminal network and SMS scam management initiatives, spectrum management optimization for 5.925 - 6.425 GHz, and ICT infrastructure deployment supporting national digital transformation initiatives. The Conference Chairman, Mr. Victor Manuel Martinez Vanegas of Mexico’s Federal Telecommunications Institute, engaged in discussions regarding the contemporary telecommunications regulatory framework with the technical delegation, which also participated in cybersecurity governance coordination within the Security and Trust Steering Group (STSG).



The 68th APEC Telecommunications and Information Working Group Meeting

Additionally, NBTC Commissioner, Police General Nathathorn Prousoontorn and associated technical experts participated in specialized bilateral coordination meetings with APEC economy delegations addressing Call Center criminal operations, SMS fraud networks, and online scam ecosystems. Technical consultations encompassed comprehensive prevention protocols, incident response mechanisms, and coordinated enforcement strategies for addressing persistent technology-enabled criminal activities across regional telecommunications infrastructure.

4.3 Bilateral Regulatory Coordination Sessions with Korea Communications Commission (KCC) implemented through systematic two-phase technical consultations: initial coordination on June 25, 2024, Seoul, Republic of Korea, and subsequent technical dialogue on December 3, 2024, at the Office of the NBTC.

Seoul Technical Session on June 25, 2024: NBTC Commissioners, Emeritus Professor Pirongrong Ramasoota and Associate Professor Suphat Suphachalasai, with representatives from the Office of the NBTC, conducted comprehensive regulatory policy coordination addressing terrestrial broadcasting infrastructure roles, integrated regulatory frameworks for broadcasting, television, and telecommunications sectors, consumer protection protocols within technological transformation contexts, and bilateral monitoring of Korea-Thailand Broadcast Co-production Agreement development under intergovernmental negotiations, with Thailand represented through Ministry of Culture coordination.



The bilateral meeting with the Korea Communications Commission (KCC) in the Republic of Korea

Subsequently, the Strategic Session on December 3, 2024, Chairman of NBTC, Clinical Professor Sarana Boonbaichaiyapruk, NBTC Commissioners Emeritus Professor Pirongrong Ramasoota and Associate Professor Suphat Suphachalasai, and Deputy Secretary – General, Acting Secretary– General of the NBTC, Mr. Trairat Viriyasirikul engaged in expanded technical policy coordination addressing contemporary broadcasting, television, and telecommunications regulatory frameworks, public service broadcasting obligations within digital ecosystem transformation, online platform regulatory governance for consumer protection enhancement, and regulatory response protocols for Generative Artificial Intelligence integration (Generative AI) within media and communications sectors. These systematic bilateral regulatory coordination mechanisms strengthened institutional cooperation and sustained continuous regulatory collaboration between both telecommunications authorities in broadcasting and television governance, advancing Thailand’s strategic positioning in regional media cooperation and regulatory harmonization initiatives.



The bilateral meeting with the Korea Communications Commission at the Office of the NBTC

4.4 The 30th ASEAN Telecommunications Regulatory Authorities Council Executive Meeting (30th ATRC) with leadership conference convened in Vientiane, Lao People’s Democratic Republic (Lao PDR), October 22-25, 2024. Deputy Secretary–General, Acting Secretary–General of the NBTC, Mr. Trairat Viriyasirikul, serving as Thailand’s ATRC institutional representative,

presented systematic telecommunications regulatory advancement assessments encompassing Universal Service Obligation Plan No. 4 (USO Plan) deployment, Mobile ID authentication service infrastructure, Cell Broadcast emergency telecommunications protocols, and integrated anti-fraud mitigation frameworks addressing Scam Call and SMS criminal network operations.

The multilateral executive conference facilitated comprehensive telecommunications regulatory policy coordination among ASEAN Member States. Thailand proposed enhanced regional cybersecurity cooperation architectures for systematic Scam Call and SMS threat neutralization across regional telecommunications infrastructure, advocating coordinated anti-fraud protocols and expanded institutional cooperation mechanisms throughout ASEAN. The Office of the NBTC confirmed institutional commitment to systematic information sharing protocols and regulatory best practice dissemination, including coordinated anti-fraud countermeasure implementation, optimizing collective cybersecurity capabilities, and telecommunications fraud prevention efficacy across ASEAN Member States' telecommunications ecosystems.

4.5 Participation in the 15th Global Mobile Broadband Forum 2024 held on October 30-31, 2024, Istanbul, Turkey. NBTC Commissioners, Air Marshal Thanapant Raicharoen, Police General Nathathorn Prousoontorn, and Associate Professor Somphob Purivigraipong engaged in systematic technical knowledge transfer protocols addressing advanced mobile broadband technology evolution, specifically 5.5G network architecture development and next-generation wireless connectivity infrastructure supporting ultra-high-speed, low-latency internet service provisioning. The technical forum encompassed comprehensive artificial intelligence (AI) integration presentations for telecommunications operational efficiency optimization and communications sector performance enhancement. The delegation participated

in strategic technical consultations with Huawei technical executives addressing AI-enabled network infrastructure deployment protocols and 5G/5.5G network performance optimization methodologies for comprehensive user experience maximization and service capability expansion.

This multilateral technical engagement facilitated critical opportunities for modern telecommunications infrastructure advancement, digital ecosystem development support, and enhanced AI-driven intelligent network management system implementation. The technical participation substantially advances Thailand's telecommunications sector development through emerging technology adoption facilitation and strategic partnership establishment with premier global telecommunications technology providers and network infrastructure specialists.



The 15th Global Mobile Broadband Forum 2024 and the discussion with executives from Huawei

4.6 Memorandum of Understanding (MoU) Signing Ceremony with the Independent Communications Authority of South Africa (ICASA). The Office of the NBTC and ICASA established systematic bilateral regulatory cooperation protocols on November 4, 2024, at the Eastin Grand Hotel Sathorn in Bangkok. The MoU's objective encompassing spectrum management and consumer protection regulatory frameworks are among the critical domains that the strategic institutional partnership framework emphasizes in order to achieve improved regulatory coordination across the broadcasting, audiovisual services, and telecommunications sectors. This bilateral cooperation framework articulates multilateral cooperation and reciprocal support in subsequent international telecommunications standardization forums.



The 'Girls in ICT Day Thailand 2024' event



The Memorandum of Understanding (MoU) signing ceremony with the Independent Communications Authority of South Africa (ICASA)

5. International Conference Organization and Multilateral Meeting Coordination.

5.1 Bilateral Conference Co-hosted Girls in ICT Day Thailand 2024 Conference in Partnership with the International Telecommunication Union (ITU) and Ministry of Digital Economy and Society held on April 25, 2024, at the Office Of NBTC. The event showcased the NBTC's commitment to advancing technology accessibility for girls and young women, focusing on digital skills development in Science, Technology, Engineering, and Mathematics (STEM) fields to enable future career opportunities and meaningful community engagement.

5.2 Bilateral Conference Co-hosting of the 5th Asia-Pacific Regional Preparatory Meeting for World Telecommunication Standardization Assembly 2024 with Asia-Pacific Telecommunity (APT) executed August 19-23, 2024, Bangkok Marriott Hotel. Chairman of NBTC, Clinical Professor Sarana Boonbaichaiyapruk delivered the inaugural technical keynote, articulating the strategic significance of Artificial Intelligence (AI) integration within contemporary telecommunications infrastructure and communications technology ecosystems.



The 5th Meeting of APT Preparatory Group for WTSA 2024

5.3 Bilateral International Conference
Co-hosting of International Regulators Forum
2024 with International Institute Communications
(IIC), at the Eastin Grand Hotel Sathorn in Bangkok,
 the conference was conducted on November 4-5,
 2024. The contemporary regulatory governance

challenges within accelerated telecommunications technology evolution contexts were the focus of the multilateral regulatory conference, which brought together 137 telecommunications regulatory authority representatives from 37 countries to engage in systematic knowledge transfer, regulatory experience exchange, and strategic policy dialogue.

The technical forum facilitated comprehensive bilateral regulatory coordination sessions between NBTC Chairman and NBTC Commissioners, and international regulatory authority counterparts encompassing Singapore's Infocomm Media Development Authority (IMDA), the United Kingdom's Office of Communications (Ofcom), and Bahrain's Telecommunications Regulatory Authority (TRA). These strategic institutional consultations established systematic cooperation framework development protocols for enhanced multilateral regulatory coordination mechanisms.



The International Regulators Forum 2024 (IRF 2024)





The Office of the NBTC Operations Management.

During 2024, the Office of the NBTC executed systematic institutional development initiatives advancing the NBTC governance policies focused on integrity and transparency assessment standard maintenance within sustainable development frameworks. Strategic environmental sustainability programs encompassed carbon footprint quantification, plastic waste mitigation protocols, and energy efficiency optimization across the Office of the NBTC. The institution enhanced operational transparency protocols while facilitating public stakeholder engagement through digital platform mechanisms and diversified community outreach activities. Concurrently, the Office of the NBTC implemented professional excellence advancement programs for institutional personnel, strengthening human resource capabilities for effective national communications sector regulatory governance execution. The NBTC has produced notable achievements and key performance indicators, including:

1. Implementation of Integrity and Transparency Assessment Standard Maintenance Policies and Sustainable Development Initiatives, including:

1.1 Completed the 2024 Integrity and Transparency Assessment (ITA) for Public Sector Organizations, earning an exceptional score of 97.27 from the National Anti-Corruption Commission Office (NACC). The Office of the NBTC was awarded the esteemed ITA AWARDS 2024 honor shield and certificate, which acknowledges its success as the highest-performing organization in the “Other State Agencies” category for three consecutive years and as a central government agency that achieved an “Excellent Pass” assessment level.

This distinguished recognition reflects the collective pride of the NBTC and the Officer of

NBTC, demonstrating the dedicated commitment and collaborative efforts of all management and staff in implementing the organization’s implementing strategic 2024 operational policies focused on maintaining integrity and transparency assessment standards.

The Office of the NBTC will utilize these assessment outcomes for systematic institutional learning protocols, analyzing areas for institutional development and establishing enhanced integrity and transparency promotion measures. This continuous improvement approach aims to maximize public service benefits and strengthen stakeholder confidence in the NBTC regulatory operations.



The Receipt of the ITA Awards 2024

1.2 Developed Comprehensive Governance Frameworks of 6-Year of the Office of the NBTC Good Governance Promotion Plan B.E. 2565 - 2570 (2022-2027) and Annual Anti-Corruption Action Plan for Fiscal Year 2024 establishing strategic guidelines for advancing the Office of the NBTC governance operations through integrity and transparency enhancement while ensuring continuous corruption prevention and suppression measures. The 2024 Strategic Implementation Activities:

1) Institutional Ethics and Governance Protocol Execution executed the Notification of the Office of the NBTC Good Governance Promotion Plan in alignment with the NBTC Code of Ethics, complying with the 2020 Ethics Standards Committee Regulation on ethics code development, requirements, and maintenance processes for government agencies and officials. The program included comprehensive ethics development training for the Office of the NBTC personnel and newly appointed staff, alongside ethics promotion lectures designed to establish ethical frameworks, professional values, and learning culture development through moral principle application in professional and personal conduct.

2) Comprehensive ITA Assessment Preparation Program; Implemented comprehensive training protocols, preparing internal institutional stakeholders (IIT) for the fiscal year 2024 integrity and transparency assessment of the Office of the NBTC. Concurrently executed stakeholder consultation sessions with external institutional stakeholders (EIT) to facilitate feedback collection, operational recommendations, and improvement suggestions regarding the Office of the NBTC performance while enabling external stakeholder participation in institutional development initiatives aligned with service delivery optimization requirements. Institutional Best Practice Knowledge Transfer Initiative conducted strategic institutional learning engagement with Provincial Electricity Authority (PEA), examining “Institutional Development Methodologies for Integrity and Transparency Organizational Excellence,” facilitating systematic knowledge exchange and institutional lesson extraction from exemplary public sector entities to enhance the Office of the NBTC for ITA assessment preparedness and institutional governance advancement protocols.

3) Institutional “No Gift Policy” Declaration Implementation promulgated an official institutional commitment prohibiting all gift exchange activities (reception or provision) of any nature associated with official duty execution across pre-service, active



The Training Session to Prepare for the Assessment of Integrity and Transparency

service, and post-service phases that could potentially generate corruption risks or misconduct incidents within current and future operational contexts. This comprehensive anti-corruption protocol supports systematic transparency, operational frameworks, and corruption-free institutional governance while maintaining strict regulatory compliance with The Notification of the National Anti-Corruption Commission Concerning the Provisions of the Acceptance of Property or Any Other Benefit on Ethical Basis by State Officials B.E. 2563 (2020).

4) Implemented “The Best of NBTC 2024”, presenting commemorative awards and certificates of achievement to distinguished personnel, designed to enhance organizational morale while recognizing the NBTC staff members who exhibit outstanding professional competency and exemplify ethical conduct standards, thereby establishing performance benchmarks and promoting institutional knowledge transfer and professional development excellence.

2. The Office of the NBTC Digital Transformation of Advancing Toward Digital Office Excellence

2.1 Advanced National Digital Organization Leadership of Establishing Data-Driven Operations with International Standards and Comprehensive Digital Office Transformation (NBTC Digitalization). During 2024, the institution systematically expanded technology integration for

electronic workflow optimization, deploying: unified data retrieval infrastructure, centralized information system platforms for internal the Office of the NBTC, comprehensive citizen engagement and multi-stakeholder service information architectures, electronic licensing application frameworks, and enhanced information systems for citizen service delivery optimization encompassing regulatory oversight, research and development fund administration, and complaint management through Traffy Fondue digital platform integration. “Digital Government Excellence Recognition of 2024 Institutional Achievement. The Office of the NBTC achieved premier Digital Government Award 2024 “DG Awards 2024” recognition, securing first-place national ranking within government service-oriented department-level institutional category for three consecutive assessment cycles. This distinguished recognition, conferred by the Digital Government Development Agency (Public Organization) (DGA), acknowledges government institutions demonstrating exceptional organizational transformation toward digital government operational excellence.

Specialized Digital Excellence Awards: The institution received three distinguished recognition awards from DGA’s 2024 Digital Government Readiness Level institutional assessment: Government Data Quality Institutional Award (Data Governance), Electronic Participation Promotion Quality Institutional Award (e-Participation), and Outstanding Digital Organization Executive Recognition Award acknowledging executive leadership excellence in digital institutional transformation advancement and digital organizational culture development facilitation.



The Receipt of the Digital Government Awards 2024

2.2 Advanced Sustainable Development Policy Implementation promoted comprehensive policies targeting sustainable development objectives including carbon footprint assessment, plastic waste reduction initiatives, and energy consumption optimization across the Office of the NBTC operations. In 2024, Carbon Management Initiative including Established the Office of the NBTC Carbon Footprint Working Group to conduct systematic analysis of Thailand’s (draft) Climate Change Act and related regulatory frameworks while collecting comprehensive greenhouse gas emission activity data and establishing emission factors for converting activity data into quantified greenhouse gas emissions. This technical foundation supports policy development and greenhouse gas reduction action plan formulation for the Office of the NBTC.

Therefore, “Sharing and Learning” technical conference on Net Zero Emission implementation advancement within telecommunications and convergent industry ecosystems. The technical symposium presented foundational climate science concepts, greenhouse gas mitigation knowledge frameworks, regulatory implications of Thailand’s (draft) Climate Change Act B.E., and institutional development protocols for Net Zero.

3. Data Privacy Protection and Cybersecurity Governance Policy Framework and Operational Protocols.

3.1 “Cybersecurity Awareness and Prevention” Royal Commemorative Technical Conference executed June 26, 2024, within the Royal Honor Project framework, celebrating His Majesty the King’s 6th Cycle Birthday Anniversary on July 28, 2024. This comprehensive cybersecurity capacity-building initiative targeted enhanced public cybersecurity literacy and threat awareness development, addressing contemporary cyber threat vectors through integrated cybersecurity operational frameworks. The technical program facilitated systematic cybersecurity knowledge transfer and professional competency enhancement in cybersecurity operational responsibilities, conducted

at the Universal Service Obligation Internet Centers (USO Net) facility at Ban Nong Kula School, Nong Kula Subdistrict, Bang Rakam District, Phitsanulo Province, with simultaneous digital transmission to 209 USO Net centers nationwide through technical broadcasting infrastructure. The cybersecurity awareness technical program engaged 3,000 participants encompassing educational institution stakeholders (students, teaching professionals) and community members through systematic cybersecurity education activities and knowledge dissemination sessions focused on cyber threat mitigation protocols and digital security operational practices.

3.2 Strategic cybersecurity governance and data privacy protection framework implemented comprehensive cybersecurity awareness protocols targeting systematic prevention, incident response, and cyber threat risk mitigation while deploying robust personal data protection frameworks to minimize data breach incident impacts. The initiative encompassed the Office of the NBTC’s information security policy promulgation and operational practice establishment, defining personal data protection protocols for electronic transaction processing and data collection, utilization, and disclosure operations, maintaining full regulatory compliance with Cybersecurity Act

B.E. 2562 (2019) and Personal Data Protection Act B.E. 2562(2019) or PDPA. Inter-institutional Cybersecurity Coordination Initiative held on November 7, 2024, NBTC Commissioners, Police General Nathathorn Prousoontorn and Mr. Torpong Selenon executed a strategic partnership with the National Cyber Security Agency (NCSA), implementing comprehensive cybersecurity cooperation protocols targeting systematic prevention, incident response, and cyber threat risk mitigation. The inter-institutional program enhanced cybersecurity knowledge frameworks and threat awareness through integrated information security operational practices and specialized competency development protocols. National cybersecurity education dissemination network deployed systematic cybersecurity education curricula through NCSA MOOC digital learning platform, originating from Universal Service Obligation Internet Centers (USO Net) facility at Sunthonphupittaya Secondary School, Klam Subdistrict, Klaeng District, Rayong Province. The technical deployment reached 329 USO Net centers and USO Wrap facilities through digital transmission infrastructure, engaging 13,000 participants encompassing educational stakeholders (students, teaching professionals).



The Seminar titled ‘Be Aware, Be Prepared, Be Cyber-Safe,’ in Collaboration with the National Cyber Security Agency (NCSA).

3.3 Comprehensive Data Protection Training Program delivered specialized training courses on Data Protection Impact Assessment (DPIA) awareness and information security risk assessment for personal data processing operations. The technical program addressed personal data protection impact evaluation methodologies and institutional risk management strategies for regulatory compliance optimization. Professional Data Protection Officer Compliance Training Initiative executed DPO Taskforce audit training programs articulating institutional security policies, operational practices, and assessment criteria aligned with international governance standards, specifically UK ICO Accountability Framework protocols and Personal Data Protection Committee regulatory standards for the Office of the NBTC internal assessment procedures. Hence, the systematic training framework ensures information security governance and personal data handling operational practices maintain alignment with international standards while enhancing institutional awareness regarding cybersecurity policy frameworks and operational practices under the Cybersecurity Act B.E. 2562 (2019) and Personal Data Protection Act B.E. 2562 (2019) regulatory requirements.

4. Comprehensive the Office of the NBTC Personnel Development and Continuous Knowledge Transfer Program.

Implementing professional excellence advancement in telecommunications regulatory governance to ensure digital economy transformation readiness through continuous institutional capacity building protocols. The comprehensive program advances technical competencies across broadcasting, television, telecommunications, and radiocommunication sectors, encompassing convergent industry ecosystems, while enhancing specialized professional skills and technical expertise aligned with institutional regulatory mandates. The systematic initiative encompasses

diversified learning methodologies designed to strengthen personnel technical capabilities and institutional capacity supporting the Office of NBTC functions and optimized public service delivery frameworks, positioning the institution as a premier international digital-era telecommunications regulatory authority through:

4.1 “The Future of the NBTC’s DNA” Professional Development Program implemented to enhance collective institutional understanding and systematic review of the Office of the NBTC Core Values functioning as essential operational guidance frameworks for personnel performance optimization aligned with institutional Mission accomplishment. The comprehensive program ensures strategic coherence with Vision fulfillment and strategic objectives defined within the Office of the NBTC on National Broadcasting and Telecommunications Commission Strategic Plan No. 3 B.E. 2568 - 2570 (2022-2027) while supporting executive governance policies emphasizing institutional transformation toward High Performance Organization operational excellence, executed at the Office of the NBTC.

4.2 Comprehensive Legal Capacity Building Workshop on Civil, Criminal, and Administrative Litigation for the Office of the NBTC Personnel in 2024 implemented to advance legal personnel’s technical competencies for optimized professional performance through specialized knowledge frameworks and expert proficiency development in civil litigation, criminal proceedings, and administrative law procedures, processes, and methodological applications. This comprehensive professional development initiative supports strategic institutional policies advancing the Office of the NBTC’s core regulatory mission, efficiency, and operational effectiveness optimization. NBTC Commissioner, Police General Nathathorn Prousoontorn delivered an institutional recognition address and conferred professional development certificates to 30 program participants at Centara Grand at Central Plaza Ladprao Bangkok.



The Legal Training Workshop for the Organization's Personnel

4.3 NBTC Annual Academic Conference

2024 featuring comprehensive NBTC Learn and Grow 2024 and NBTC Accessible Touch 2024 program series addressing diverse professional development topics including “BOOK REVIEW SESSION WITH THE CHAIRMAN,”

constitutional frameworks for Thailand’s communications sector, the NBTC’s regulatory role in digital transformation, and institutional responsibilities in broadcasting, television, and telecommunications licensing and oversight within evolving digital technology contexts. The comprehensive knowledge advancement initiative enables personnel to apply enhanced expertise across multiple dimensions of regulatory oversight. Distinguished participants included Chairman of NBTC and NBTC Commissioners alongside expert speakers possessing specialized knowledge and direct operational experience, delivering professional presentations to the Office of the NBTC personnel and external stakeholders participating in institutional study visits at the Office of the NBTC.



The ‘NBTC Learn and Grow 2024’ and the ‘NBTC Accessible Touch 2024’ Seminars on Various Topics

4.4 Comprehensive Internal and External Training Program Implementation featuring Organization Psychology training for executives and operational staff alongside external professional development opportunities

aligned with the Office of the NBTC Annual Personnel Development Plan. The program encompasses specialized technical courses and multidimensional skill development initiatives delivered by distinguished internal the Office of the NBTC experts

and external specialists with domain-specific expertise. The premier “Regulatory Skillsets in the Digital Era” technical workshop enhanced personnel technical competencies for digital economy transformation engagement across diverse communications sector regulatory governance dimensions aligned with the Office of the NBTC mandates. Systematic competency development encompassed: advanced technology proficiency, multilingual communication competency, legal framework expertise, data privacy protection specialization, broadcasting, television, telecommunications, satellite communications regulatory oversight proficiency, and professional stakeholder communication competencies.

The systematic framework elevates the Office of the NBTC for effective broadcasting, television, telecommunications, and satellite communications regulatory governance while maintaining technological transformation adaptation. Currently, Organization Psychology professional development for executive and operational personnel promotes optimal institutional work environments and operational efficiency optimization with high performance institutional standards under governance excellence frameworks, ensuring stakeholder service delivery optimization.

4.5 Multi-Stakeholder Youth Media Literacy Initiative implemented through strategic partnership with SEED Thailand Youth Network, Senate Subcommittee on Creative and Safe Digital Media Development for Youth, and King Prajadhipok Institute Student Foundation for Society. The collaborative technical program executed the “Digital Media Literacy and Rights Awareness - Me & Mind: Peer-to-Peer Learning for Comprehensive Media Literacy” capacity building workshop on March 25, 2024. The program facilitated essential digital literacy knowledge transfer encompassing media literacy competencies, personal and community rights awareness frameworks, and youth stakeholder engagement in networking activities and creative media production for social development. Chairman of NBTC, Clinical Professor Sarana Boonbaichaiyapruk

and First Vice - President of the Senate, General Singsuk Singpai delivered technical opening addresses and provided executive mentorship guidance on safe digital media consumption protocols and creative media production methodologies. Additionally, the workshop engaged 100 children and youth from Bangkok metropolitan area participated through onsite engagement at Conference Rooms 402-403 (4th Floor, at Senate) within New Parliament Building facilities, Bangkok, complemented by 100 participants engaging through online digital media platforms utilizing video conferencing technology (Zoom meeting infrastructure).



The Workshop on “Media Literacy and Rights: Me & Mind: A Peer-Led Initiative to Promote Media Awareness among Youth”

5. The Office of the NBTC Fiscal Year 2024 Financial Management and Budget Administration.

Throughout 2024, the Office of the NBTC maintained surplus budget governance with comprehensive revenue generation of 8,071.37 million baht against annual operational expenditure budget establishment of 6,212.70 million baht. Actual institutional operational expenditure totaled 4,898.08 million baht for the Office of the NBTC. the Office of the NBTC executed mandatory financial transfers totaling 1,201.21 million baht to the National Digital Economy and Society Development Fund complied with Section 25(4) of the Development of Digitality for Economy and Society Act, B.E. 2560 (2017), utilizing cash basis accounting methodology. Additional projected government revenue remittance of 1,972.09 million baht is anticipated for national treasury contribution.

6. The Office of the NBTC Internal Control Systems and Risk Management Framework.

Comprehensive Governance Structure Establishment initiated the Internal Audit Committee, Internal Control Assessment Committee, and Risk Management Committee of the Office of the NBTC to implement internal audit, internal control, and risk management by the Ministry of Finance criteria on standards and guidelines for internal audit practices for government agencies B.E. 2561 (2018), with amendments, Ministry of Finance criteria on standards and guidelines for internal control practices for government agencies B.E. 2561 (2018), and Ministry of Finance criteria on standards and guidelines for risk management practices for government agencies B.E. 2562 (2019) under the provisions of State Fiscal Discipline Act B.E. 2561 (2018) Section 79. Moreover, developed the Office of the NBTC Internal Control and Enterprise Risk Management Strategic Plan B.E. 2566-2570 (2023 – 2027) serve as a 5-year operational framework for driving the Office of the NBTC to become an organization with efficient and sustainable internal control and risk management, including continuous regular internal control monitoring and improvement with mechanisms for operational monitoring and evaluation every 6 month and annual 12 month according to Ministry of Finance standards and guidelines to help prevent and reduce risks or errors that may cause damage to Office of the NBTC operations and ensure efficient and effective goal achievement.

7. Implementation of Sustainable Development Activities for Society and the Environment.

The Office of the NBTC has facilitated multi-stakeholder initiatives in partnership with relevant external entities to advance the sustainable development of Thailand's broadcasting, television, and telecommunications infrastructure. These collaborative frameworks are designed to generate socioeconomic and environmental value while enhancing national resilience capabilities for emergency communications and disaster risk reduction, encompassing:



The Receipt of the Recognition Award for Contributions to the Ministry of Education for the Year 2024

7.1 The Office of the NBTC Honored with Ministry of Education Partnership Recognition for Digital Inclusion Initiatives. The Office of the NBTC created benefits for the Ministry of Education and the country's education system on May 1, 2024, through the implementation of USO Net and USO Wrap centers and the installation of Free Wi-Fi in school areas. These benefits were direct and indirect. This facilitates the use of information and communication technology for distance learning (e-Learning) by teachers, students, and school personnel, as well as the convenient and efficient search for information and learning. It does so without any cost to schools or the Ministry of Education, also supporting learning in remote areas for the general public.

7.2 The Office of the NBTC has respectfully promulgated a charitable contribution to Her Royal Highness Princess Maha Chakri Sirindhorn in support of the Chaipattana Foundation's media production initiatives, specifically funding the development of audiovisual content including the feature film and documentary series "Steps to Victory" The 66-episode documentary series commenced broadcast transmission on May 4, 2024, distributed via multi-platform delivery including terrestrial television networks and dedicated mobile application "Steps to Victory." Content programming focuses on disseminating the development philosophy, theoretical frameworks, and operational methodologies of His Majesty King Bhumibol Adulyadej The Great,

featuring Chaipattana Foundation development initiatives and Royal Development Projects. The companion mobile application platform launched for public access in May 2024. The Chaipattana Foundation, in partnership with the Foundation for Research and Sustainable Development, implements this multimedia content initiative to communicate His Majesty's developmental vision emphasizing population welfare enhancement, quality of life improvement, and national stability advancement through sustainable development practices. The strategic communication campaign specifically targets youth demographics and emerging generations through integrated digital media and broadcast television distribution channels, promoting Chaipattana Foundation institutional awareness and development program engagement.

7.3 The Office of the NBTC Implements Broadcasting Excellence Recognition Framework Under Positive Regulatory Governance. The NBTC Commissioners, led by Air Marshal Thanapant Raicharoen, officiated at the awards ceremony recognizing 105 broadcasting entities under the “NBTC - Quality Radio Broadcasting Award” at the Miracle Grand Convention in Bangkok. This regulatory initiative operationalizes the Commission's Positive Regulation methodology, designed to enhance broadcasting service quality standards and promote public interest obligations within Thailand's radio frequency spectrum management framework. The program establishes performance benchmarks for licensed broadcasting operators, ensuring universal access to essential information services following the ITU Radio Regulations. This regulatory approach aligns with ITU-R recommendations for broadcasting service development and supports national digital transformation objectives through enhanced media quality standards and responsible spectrum utilization. The assessment framework processed 2,505 licensed broadcasting stations across all service categories, representing comprehensive coverage of Thailand's current radio broadcasting ecosystem. Participating entities demonstrated clean compliance records, absence of content violations, and active engagement in

three regulatory evaluation processes. The recognition system employs district-level (85 recipients), regional-level (15 recipients), and national-level (5 recipients) categories. Evaluation criteria encompass regulatory compliance metrics, content quality standards, public service obligations, and spectrum efficiency parameters.



The 'NBTC-Quality Radio Broadcasting Award' Ceremony

7.4 Comprehensive Emergency Telecommunications Response and Disaster Relief Operations for Typhoon Noru, Northern Regional Flood Impact deployed technical field response teams implementing disaster assistance protocols. The Office of the NBTC of Sailom Center operated as the primary emergency communications coordination hub, facilitating systematic coordination with amateur radio operator associations within disaster-impacted regions through strategic collaboration with Provincial Disaster Prevention and Mitigation institutional offices across affected and adjacent provincial jurisdictions, enabling optimal victim assistance response protocols. Resilient telecommunications infrastructure mandated comprehensive monitoring and preparedness protocols for all mobile telecommunications service providers regarding network infrastructure maintenance optimization and enhancement procedures, ensuring continuous telecommunications service provisioning for populations within high-risk geographical areas. Operators received directives for systematic situation monitoring utilizing the Meteorological Department and Department of Disaster Prevention and Mitigation intelligence reporting for strategic emergency preparedness and coordinated response planning protocols.

Systematic Humanitarian Aid Distribution Framework, Implemented comprehensive relief supply distribution operations for northern flood victim assistance encompassing essential humanitarian supplies, including food provisions (dried goods), sanitation materials (toilet paper), thermal protection equipment (blankets), medical supplies (adult diapers, household pharmaceuticals, topical treatments, insect repellent), potable water, clothing provisions, and additional emergency necessities. Distribution logistics are operated through established charitable institutional networks, including Panadda Wongphudee Foundation, Por Teck Tung Foundation, Thai Red Cross Society, and Wat Phra Bat Nam Pu for optimized victim assistance coordination and resource distribution efficiency.



The Donations for Flood Victims

7.5 Sustainable Development Policy Implementation Initiative encompasses comprehensive environmental sustainability measures, including carbon footprint assessment, plastic waste reduction programs, and energy consumption optimization across the Office of the NBTC operations. The initiative established strategic “plastic waste collection points” throughout office facilities and partnered with PTT Global Chemical Public Company Limited through the “YOU Turn PLATFORM” project for systematic plastic management. The institutional partnership facilitates plastic waste processing through “Upcycling” transformation methodologies, converting post-consumer waste materials into value-enhanced new product manufacturing. This innovative circular economy approach contributes to greenhouse gas emission reduction protocols and global warming impact mitigation while advancing circular economy principles and institutional environmental stewardship frameworks.



The Delivery of Used Plastic Bottles to PTT Global Chemical Public Company Limited, under the ‘YOUTURN Platform’ Project.

Spectrum Monitoring and Regulatory Compliance Inspection for Broadcasting, Television, and Telecommunications Services.

The Office of the NBTC implements systematic spectrum monitoring and compliance inspection protocols across broadcasting, television, and telecommunications sectors through regulatory enforcement operations targeting non-compliance under the Radiocommunication Act B.E. 2498 (1955), Broadcasting and Television Business Act B.E. 2551 (2008), and Telecommunications Business Act B.E. 2544 (2001).

The technical framework encompasses radio frequency spectrum assignment verification, spectrum system configuration compliance inspections, unauthorized emission detection and enforcement, human health protection supervision regarding radiocommunication equipment deployment with electromagnetic field (EMF) exposure measurements, technical transmission standard compliance verification, and integrated

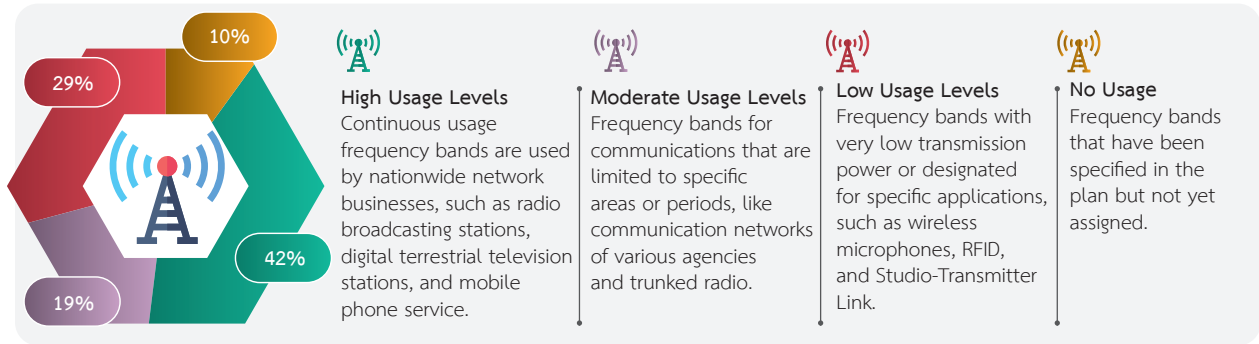
inter-agency coordination for telecommunications sector oversight within Thailand’s border geographical regions. The comprehensive spectrum monitoring and regulatory enforcement framework. The NBTC has produced notable achievements and key performance indicators, including:

1. Radio Frequency Spectrum Monitoring and Assessment according to the systematic Radio Frequency Spectrum Monitoring Plan, technical assessments are structured into two comprehensive analytical components:

1.1 Systematic data collection and technical analysis of radio frequency spectrum utilization across 30-3000 MHz revealed spectrum occupancy density variations with the following utilization distribution metrics: 1) No occupancy range group without established National Frequency Allocation Table assignments or with allocation table entries but lacking specific spectrum assignment implementation, resulted in 10 percent,

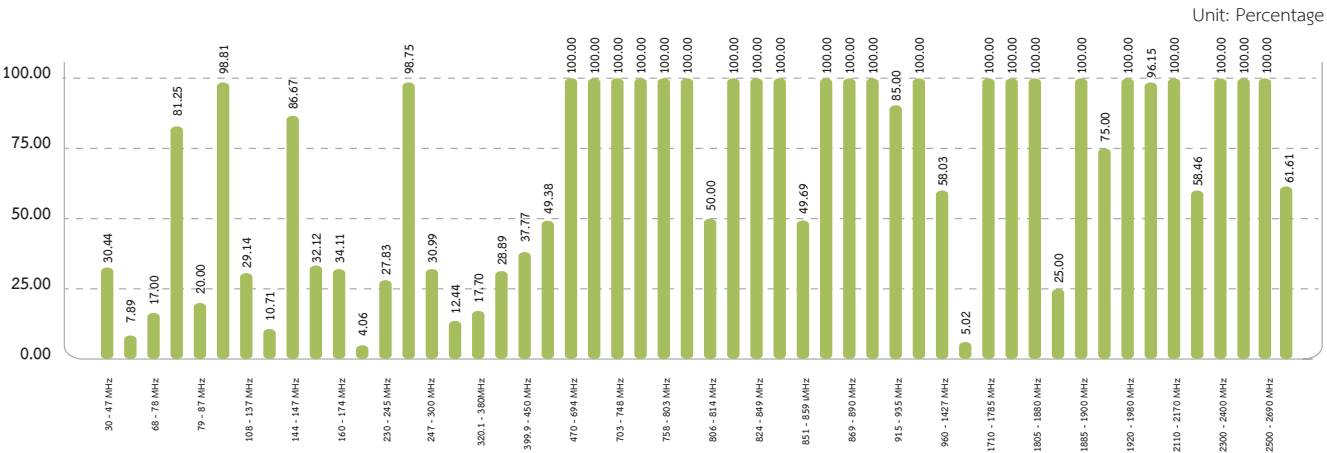
2) Low occupancy range group, characterized by minimal transmission power deployment or specialized short-range device applications including wireless microphone systems, Radio Frequency Identification (RFID) technologies, and Studio Transmitter Link infrastructure requiring limited spectrum occupancy, resulted in 29 percent. 3) Moderate occupancy range group utilized for communication networks with geographically and temporally limited deployment, including agency-specific communication networks and Trunked Radio systems, resulted in 19 percent. 4) High occupancy range group with continuous operational usage or nationwide network infrastructure including radio broadcasting stations, digital terrestrial television stations, and mobile telecommunications networks with comprehensive national coverage, resulted 42 percent. Spectrum utilization density proportions classified by radiocommunication service categories are detailed in Chart 2 and 3.

Chart 2: Radio Frequency Spectrum Allocation and Utilization by Service category in 2024



Remark: Data as of December 31, 2024
Source: Regional Affairs Bureau, Office of the NBTC

Chart 3: Radio Frequency Spectrum Usage Volume from 30 to 300 MHz in 2024

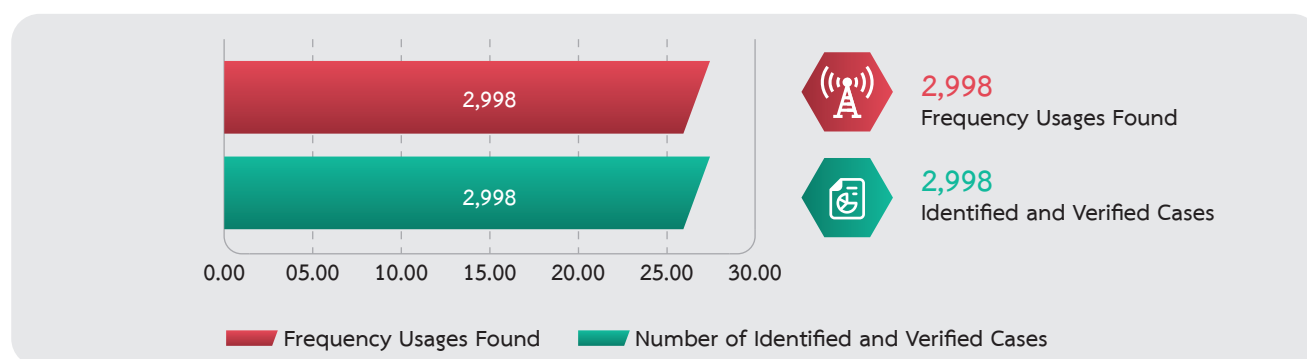


Remark: Data as of December 31, 2024
Source: Regional Affairs Bureau, Office of the NBTC

1.2 Spectrum Assignment Verification and Station Identification Subsequent to spectrum utilization density technical assessments. The Regional Office of the NBTC implements systematic verification protocols to identify and authenticate radio communication station operators utilizing assigned frequencies, maintaining comprehensive and current spectrum assignment databases with detailed operational parameters. 137-174 MHz, systematic

technical verification identified 2,998 active spectrum assignments. Comprehensive verification protocols and station identification procedures were successfully executed for all 2,998 spectrum assignments. The spectrum assignment database has been updated to reflect current operational status and technical parameters, with comprehensive analytical, as presented in chart 4.

Chart 4: Spectrum Assignment Verification and station identification with in the spectrum Range of 137-174 MHz.



Source: Regional Affairs Bureau, Office of the NBTC

2. Spectrum Interference Detection, Investigation and Mitigation Framework.

Spectrum interference investigations originate from dual detection mechanisms, formal harmful interference reports from affected radiocommunication service operators and interference incidents identified during systematic spectrum monitoring. The regional and district the Office of the NBTC implement comprehensive investigation protocols including interference source identification, technical cause analysis, and formal notification to responsible parties for corrective action implementation. Resolution

procedures may include transmission suspension orders or equipment operation cessation directives for interference-causing devices, enabling operators to implement technical corrections and establish preventive measures against future interference occurrences. Throughout 2024, the Regional Office of the NBTC processed 303 interference notifications and successfully completed spectrum interference investigation and resolution activities, achieving 100 percent resolution rate for all reported interference complaints. Comprehensive performance details as presented in Table 5.

Table 5: Spectrum Interference Detection and Resolution in 2024

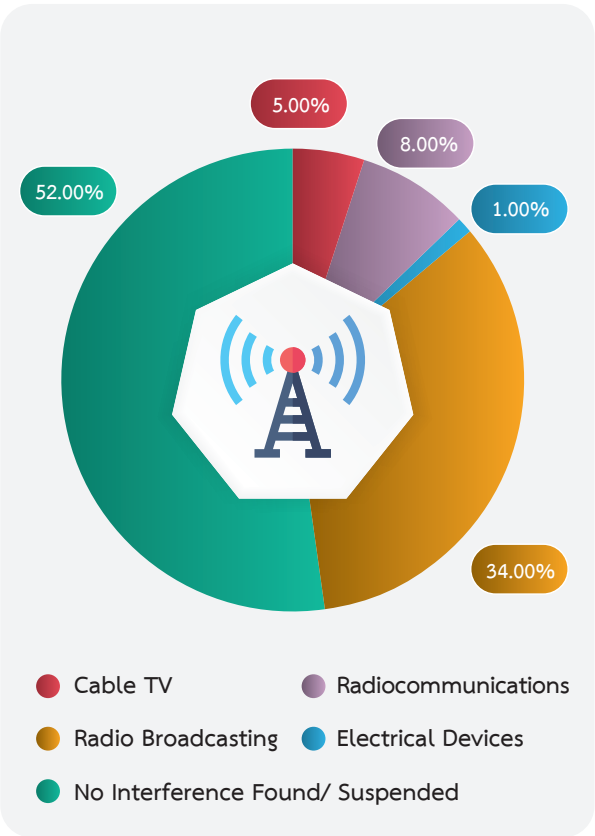
Agency	Number of Cases	Affected Business			
		Telecommunications	Broadcasting/ Television	Radio Communications	Aeronautical Radio
The Regional Office of the NBTC 1	254	147	11	52	44
The Regional Office of the NBTC 2	30	4	2	22	2
The Regional Office of the NBTC 3	5	0	1	3	1
The Regional Office of the NBTC 4	14	2	0	6	6
Total	303	153	14	83	53

Remark: Data as of December 31, 2024

Source: Regional Affairs Bureau, Office of the NBTC

The five predominant harmful interference source categories encompass: 1) Spurious emission from electrical and electronic devices, 103 cases resulted in 34 percent. 2) Spurious emission from cable television system, 15 cases, resulted in 5 percent. 3) Spurious emission from radiocommunication station, 23 cases, resulted in 7 percent. 4) Spurious emission from broadcasting station, 3 cases, resulted in 1 percent. 5) Spurious emission from intermittent or unidentifiable interference sources, 159 cases, resulted in 52 percent. The Regional Office of the NBTC technical teams successfully executed comprehensive harmful interference investigation and resolved all interference case completely. Comprehensive interference resolution protocols. Comprehensive technical statistical analysis, as presented in Chart 5.

Chart 5: Proportion of Interference Categorized by Disrupted Businesses



Remark: Data as of December 31, 2024
Source: Regional Affairs Bureau, Office of the NBTC

3. Human Health Safety Oversight for Radiocommunication Equipment and Electromagnetic Field (EMF) Radiation Level Monitoring of Radiocommunication Stations.

Implementation adheres to Notification on the Safety Standard for the Use of Radiocommunication Equipment (NTC. TS. 5001-2550). EMF measurement data undergoes comparative analysis against established electromagnetic field exposure reference levels for radiocommunication equipment capable of electromagnetic radiation emission within close proximity to anatomical head regions or within 20 centimeters of human body positioning during normal operational deployment. The Specific Absorption Rate (SAR)¹⁷ within 100 kHz - 10 GHz. for the group exposed to specific electromagnetic fields from work-related activities and the group exposed to general electromagnetic fields must not exceed the standard limits according to the NTC. TS. 5001-2550, as presented in Table 6.

Table 6: The NTC. TS. 5001-2550 Standard Limits

1	SAR Limits for the Group Exposed to EMF from Work-Related Activities	SAR Limits (W/Kg)
		Average SAR for Whole-Body
		SAR for Head & Trunk
		SAR for Limbs
2	SAR Limits for the Group Exposed to General EMF	SAR Limits (W/Kg)
		Average SAR for Whole-Body
		SAR for Head & Trunk
		SAR for Limbs

Remark: Data as of December 31, 2024
Source: Regional Affairs Bureau, Office of the NBTC

The Office of the NBTC implements continuous technical standard verification and electromagnetic field emission measurements for mobile telecommunications base station infrastructure operated by licensed telecommunications service providers. The comprehensive operational protocol establishes EMF emission level assessment procedures for effective human exposure safety supervision regarding electromagnetic field radiation from

¹⁷ 1) The overall specific absorption rate (SAR) levels are the average rate in any 6-minute period.
2) The average SAR for the whole body derives from a quotient of the total power absorbed into the body and the total mass.
3) The partial body SAR is the average rate per 10 grams of tissue mass in a cubic shape.

radiocommunication equipment subsequent to radiocommunication station deployment, ensuring regulatory compliance with human exposure safety measures for radiocommunication equipment utilization and associated the Notification of the NBTC.

Nevertheless, the Office of the NBTC mandates telecommunications operators maintaining base station infrastructure to deploy prominent safety signage indicating electromagnetic field exposure reference levels for radiocommunication equipment components capable of electromagnetic field emission within close anatomical head proximity or less than 20 centimeters from human body positioning during normal operational deployment, encompassing permanently installed radio equipment with wide-area electromagnetic field coverage, adhering to NTC TS. 5001-2550 human exposure safety standards. Throughout 2024, comprehensive electromagnetic field emission level assessments were executed across radiocommunication base station infrastructure operated by four nationwide telecommunications service providers, with systematic measurement inspection protocols targeting 1,008 assessment sites. The technical inspection program completed 828 scheduled station assessments, 279 supplementary inspections exceeding planned requirements, and additional assessments responding to public exposure concerns, totaling 37.

Technical results, totaling 1,144, demonstrated comprehensive compliance with established safety reference levels, with electromagnetic field power density measurements maintaining conformity within electromagnetic field strength limits prescribed by NTC. TS. 5001-2550 human exposure standards, indicating satisfactory average compliance performance metrics, measuring across all telecommunications service providers averaged 0.04 percent of prescribed exposure reference levels. EMF emission level technical assessments from radiocommunication base station infrastructure operated by four licensed telecommunications operators demonstrated comprehensive compliance with established human exposure safety standards: 1) Advanced Wireless Network Limited Company (AWN) with 275 base station sites assessed with electromagnetic field power density measuring at 0.04 percent. 2) Total Access Communication Public Company Limited (dtac) with: 247 base station sites assessed with electromagnetic field power density measuring 0.03 percent. 3) True Corporation Public Company Limited (TRUE) with 260 base station sites assessed with electromagnetic field power density measuring 0.09 percent. 4) National Telecom Public Company Limited (NT) with 362 base station sites assessed with electromagnetic field power density measuring 0.01 percent. Comprehensive technical assessment data and statistical analysis, as presented in Tables 7 and 8.

Table 7: Plan and Result of Electromagnetic Field (EMF) Emission Measurement of the Radiocommunication Stations in 2024

Month	Regulator								Total	
	The Regional Office of the NBTC 1		The Regional Office of the NBTC 2		The Regional Office of the NBTC 3		The Regional Office of the NBTC 4			
	Plan	Result	Plan	Result	Plan	Result	Plan	Result	Plan	Result
JAN	24	51	20	13	20	24	20	29	84	117
FEB	24	53	20	31	20	30	20	28	84	142
MAR	24	28	20	17	20	39	20	33	84	117
APR	24	25	20	32	20	22	20	30	84	109
MAY	24	38	20	18	20	26	20	23	84	105
JUN	24	22	20	22	20	24	20	22	84	90
JUL	24	19	20	20	20	13	20	19	84	71
AUG	24	25	20	33	20	15	20	29	84	102
SEP	24	13	20	12	20	13	20	11	84	49
OCT	24	58	20	19	20	48	20	33	84	158
NOV	24	6	20	19	20	9	20	17	84	51
DEC	24	3	20	0	20	15	20	15	84	33
Total	288	341	240	236	240	278	240	289	1,008	1,144

Table 8: Results of Electromagnetic Field (EMF) Emission Measurement of the Radiocommunication Stations in 2024, Categorized by Operators

Unit: Station

Agency	EMF Emission Measurement Plan 2024	Number of EMF Emission Measurements Categorized by Operator (Stations)				Measurement Results
		AWN	dtac	True corp	NT	
The Regional Office of the NBTC 1	288	82	74	82	98	336
The Regional Office of the NBTC 2	240	59	54	57	66	236
The Regional Office of the NBTC 3	240	61	59	62	101	283
The Regional Office of the NBTC 4	240	73	60	59	97	289
Total	1,008	275	247	260	362	1,144
EMF Density Compared to the Standards (Percentage)		0.04	0.03	0.09	0.01	0.04

Remark: Data as of December 31, 2024

Source: Regional Affairs Bureau, Office of the NBTC

4. Technical Standards Verification for Radio Spectrum Transmission.

Spectrum emission standards verification was executed across broadcasting, television, and telecommunications operations within designated regulatory jurisdiction areas, encompassing 4,963 radiocommunication stations. Technical assessment

results demonstrated 4,889 stations achieved full spectrum emission compliance with prescribed technical parameters, while 74 stations exhibited non-conformity with established technical specifications. A reinspectic of these station were conducted to verify the corrective measures, as presented in table 9.

Table 9: Technical Standards for Radio Spectrum Transmission Inspection of Broadcasting, Television, and Telecommunications Operations in 2024

Unit: Station

Agency	Inspection Plan	Number of Inspections	Types of Inspected Businesses (Times)		
			Radio Broadcasting Stations	Experimental Radio Broadcasting	TV Stations (MUX)
The Regional Office of the NBTC 1	1,320	1,465	107	1,228	130
The Regional Office of the NBTC 2	1,000	1,233	70	953	210
The Regional Office of the NBTC 3	1,260	1,379	85	1,059	235
The Regional Office of the NBTC 4	762	886	116	506	264
Total	4,342	4,963	378	3,746	839

Remark: Data as of December 31, 2024

Source: Regional Affairs Bureau, Office of the NBTC

5. Regulatory Enforcement Investigation and Violator Apprehension.

During 2024, the Office of the NBTC implemented systematic regulatory enforcement actions against non-compliant operators under

comprehensive legislative frameworks encompassing Radiocommunication Act B.E. 2498 (1955), Broadcasting and Television Business Act B.E. 2551 (2008), and Telecommunications Business Act B.E. 2544 (2001). Regulatory investigation and

evidence collection procedures were executed at suspected non-compliance locations to apprehend unauthorized operators and secure evidentiary materials for subsequent regulatory prosecution procedures. The comprehensive enforcement framework resulted in 42 total regulatory violation cases categorized

across service sectors: radiocommunication service violations totaling 37 cases, broadcasting and television violations totaling 3 cases and Telecommunications and internet service violations totaling 2 cases. Comprehensive regulatory enforcement statistics and case documentation, as presented in Table 10.

Table 10: Technical Standards for Radio Spectrum Transmission Inspection of Broadcasting, Television, and Telecommunications Operations in 2024

Agency	Source		Offending Business Operation			Total Offenses Found
	Received Notification	Found by Inspection	Broadcasting/ Television	Radio Communication	Telecom-munications/ Internet	
The Regional Office of the NBTC 1	7	6	2	9	2	13
The Regional Office of the NBTC 2	3	11	2	13	0	14
The Regional Office of the NBTC 3	0	13	0	13	0	13
The Regional Office of the NBTC 4	2	0	0	2	0	2
Total	12	30	3	37	2	42

Remark: Data as of December 31, 2024

Source: Regional Affairs Bureau, Office of the NBTC

6. Regulatory Inspection of Radio-communication Equipment and Device Trading Operators.

During 2024, the Office of the NBTC implemented systematic regulatory compliance inspection protocols targeting radiocommunication equipment and apparatus trading operations to ensure adherence to the Notification of the NBTC Regarding Selling Radiocommunications Equipment and the Notification of the NBTC Criteria and Procedures for Granting A Permit to Manufacture, Import, Sell, or Offer for Sale or Install Receiver, Apparatus or Device Enabled for Receiving or Decoding Signals to Receive Programs of the Subscription Broadcasting Business B.E. 2555 (2012). These regulations mandated that Licensed equipment dealers must maintain comprehensive inventory documentation systems for radiocommunication equipment, signal reception apparatus, technical instruments, and associated devices at designated

commercial premises or authorized storage facilities. The Comprehensive regulatory inspections encompassed 515 authorized retail establishments, identifying significant compliance deficiencies. It found that Non-Compliance Cases totaling 77 licensed companies and retail establishments failed to maintain required inventory records, violating notification conditions. The Regional Offices of the NBTC implemented appropriate supervisory measures according to relevant regulatory provisions. Non-Operating Businesses totaling 279 establishments maintained no sales inventory, primarily due to license applications for case-specific procurement and institutional sales rather than general retail operations. The Office of the NBTC conducted promotional campaigns encouraging license cancellation for operators not actively conducting business operations and maintaining no sales inventory, as presented in Table 11.

Table 11: Inspection of Radiocommunication Devices and Equipment Traders in 2024

Agency	Quantity	Inspection Results (Shops)		
		Register Found	Register Not Found	Stock Reserves Not Found
The Regional Office of the NBTC 1	85	49	0	36
The Regional Office of the NBTC 2	123	52	3	68
The Regional Office of the NBTC 3	62	39	5	18
The Regional Office of the NBTC 4	245	19	69	157
Total	515	159	77	279

Remark: Data as of December 31, 2024

Source: Regional Affairs Bureau, Office of the NBTC

7. Radiocommunication Equipment, Station, and License Compliance Inspection.

Throughout 2024, The Office of the NBTC implemented systematic radiocommunication equipment, station infrastructure, and authorization compliance verification activities to ensure adherence to the Notification of the NBTC on Criteria and Procedures for Granting License to Local Government Organization (LAO) for Frequency Utilization, Radio Frequency Assignment and Supervision, encompassing comprehensive oversight of license holder compliance totaling 892 radiocommunication station installations operated by local administrative organizations, identifying substantial regulatory

non-conformity incidents. It found that unauthorized spectrum utilization totaling 250 station installations operating without mandatory spectrum assignment authorizations, Technical Parameter Non-Conformity totaling 52 station installations operating with technical parameters inconsistent with authorized spectrum assignment specifications, resulting in total of 302 station installations requiring mandatory corrective implementation. The Office of the NBTC conducted extensive outreach campaigns informing agencies of permit application requirements and mandating spectrum usage corrections to achieve compliance with authorization specifications, as presented in Table 12.

Table 12: Inspection of Radiocommunication Equipment, Stations, and Licenses in 2024

Agency	Number of Inspections	Business		Spectrum Licensing and Usage			
		Radio Communications (LGO)	Radio Communications (Foundations/ the Public)	Licenses Found/ Usage Found	Licenses Found/ No Usage Found	No License/ Usage Found	No License/ No Usage
The Regional Office of the NBTC 1	363	355	8	81	4	109	169
The Regional Office of the NBTC 2	330	329	1	7	1	155	167
The Regional Office of the NBTC 3	158	151	7	130	4	18	6
The Regional Office of the NBTC 4	41	41	0	1	0	20	20
Total	892	876	16	219	9	302	362

Remark: Data as of December 31, 2024

Source: Regional Affairs Bureau, Office of the NBTC

8. Spectrum Monitoring and Regulatory Compliance Inspection for Broadcasting and Television Services.

8.1 The Office of the NBTC developed a comprehensive manual for digital terrestrial television signal inspection at transmitter stations, including standardized reporting forms designed to facilitate field staff operations during inspection and technical data collection procedures. Annual operational performance reports are submitted to the Office of the NBTC by December 31 each year, providing essential data for supervising network service delivery and digital terrestrial television signal quality oversight. On February 21, 2024, the Office of the NBTC convened a technical consultation meeting addressing digital terrestrial television network technical methodologies with licensed digital terrestrial television network and infrastructure service providers. The consultation focused on reviewing and discussing 2023 annual technical characteristic inspection results and performance assessments.

8.2 The Office of the NBTC implemented comprehensive field assessment protocols to monitor television broadcasting service operations and inspect television network monitoring and control infrastructure, encompassing radiocommunication transmission facilities and regional television network control operation centers. These systematic inspections ensure digital terrestrial television broadcasting network service supervision maintains compliance with licensing conditions mandating holders to sustain, preserve, and continuously optimize broadcasting infrastructure for efficient service provisioning throughout licensing periods.

During June 5 - 7, 2024, Field technical assessments conducted across Ubon Ratchathani and Si Sa Ket provinces demonstrated network service providers successfully maintained digital terrestrial television broadcasting operations featuring, reliable digital terrestrial television network monitoring and control infrastructure, continuous 24-hour operational

control personnel, emergency notification and alert systems, and advanced equipment monitoring and control capabilities utilizing proprietary systems developed by network provider technical teams for operational efficiency optimization.

Furthermore, the Office of the NBTC executed systematic field observation protocols and progress monitoring coordination with licensed operators through digital terrestrial television broadcasting signal inspections at transmission facilities ensuring broadcasting signal transmission compliance with two prescribed technical parameters (1) Samoeng and Li transmission facility technical inspections on July 17-18, 2024 and (2) Kaeng Khro (Phu Khao Daeng) and Pon transmission facility technical inspections on August 13-14, 2024. All four transmission facilities demonstrated normal broadcasting signal transmission capabilities maintaining full compliance with prescribed technical conditions.

9. Regulatory Enforcement and Legal Compliance Actions Against Broadcasting and Television Service Operators.

In 2024, broadcasting and television regulatory enforcement operations were executed against broadcasting and television operators, encompassing both authorized licensees and unauthorized service providers operating without regulatory authorization. Enforcement protocols included regulatory compliance warnings, formal complaints to law enforcement agencies, and direct regulatory investigation, apprehension, and legal prosecution procedures. Therefore, these systematic enforcement actions targeted radio frequency supervision, ensuring interference-free and guaranteed service operator compliance with applicable regulatory provisions, notification criteria, and licensing frameworks. The Comprehensive regulatory enforcement action results and legal compliance outcomes details, as presented in Tables 13 and 14.

Table 13: Results of Legal Proceedings against Offenders in the Broadcasting and Television Sectors

Business	Enforcement Actions	Number	
		Cases	Station/Location
Broadcasting			
Unauthorized business operators	Search and arrest	8	8
	Filing complaints	2	2
Television			
Television set-top box distributors (internet)	Search and arrest	7	9
	Filing complaints	2	2

Table 14: Monitoring, Inspection, and Resolution of Interference Results, along with Follow-Up on Legal Actions Against Offenders in the Broadcasting and Television Sectors.

Business	Monitoring, Inspection, and Resolution of Interference Results		Follow-Up on Legal Actions	
	Follow-up on Resolution (Station/Location)	Completed (Station/Location)	Follow-up on Case Results (Cases)	Case Result Received (Cases)
Broadcasting	6	6	76	35
Television	9	4	67	32

Remark: 1. Data from January 1 to December 31, 2024

2. The follow-up on legal actions against offenders in the broadcasting and television sectors aims to assess the progress of legal proceedings, expedite the legal processes, and improve the methods of evidence gathering for these cases.

Efficiency and Effectiveness in Consumer Complaint Resolution for Broadcasting, Television, and Telecommunications Services.

The NBTC and the Office of the NBTC maintain continuous regulatory oversight of the broadcasting, television, and telecommunications sectors. In 2024, significant improvements were implemented in complaint management mechanisms, developing faster and more efficient complaint handling and resolution processes while updating consumer protection criteria and measures to address contemporary challenges comprehensively across all service dimensions, prioritizing maximum public benefit. Strategic initiatives encompassed Call Center 1200 technical upgrades through expanded citizen complaint channel infrastructure, enhancing coverage comprehensiveness and accessibility convenience, including specialized accessibility channels for visually and auditory-

impaired individuals, ensuring equitable service accessibility. The systematic program established inter-institutional cooperative networks enhancing collaborative operational efficiency and integrated database optimization. The technical initiative implemented telecommunications business licensing database integration utilizing corporate identification number protocols through the Office of the NBTC integrated central database infrastructure (NBTC Data Center) with Office of Consumer Protection Board (OCPB), elevating consumer protection operational effectiveness across comprehensive service dimensions and sectoral coverage. Significant operational performance achievements encompass:

1. Public Information and News Service Delivery

The Office of the NBTC maintains the mission of providing transparent public information services using modern technology, systematically collecting and coordinating complaint referrals within the NBTC's regulatory scope to relevant internal departments. The institution has developed and optimized the toll-free Call Center 1200 infrastructure, enhancing information service delivery, inquiry response protocols, and concern resolution procedures for the NBTC service operations through systematic referral protocols to relevant institutional departments. Service operations maintain comprehensive accessibility daily Monday-Sunday, 08:30-16:30 (excluding public holidays) through diversified communication channels: Call Center 1200 (toll-free telecommunications), Electronic mail: 1200@nbt.go.th, Website: serviceportal.nbt.go.th, Facebook: NBTC1200, Line Application: @NBTC1200, Drop Call voice messaging infrastructure (continuous 24-hour availability outside operational hours), and Specialized accessibility channels for visually and auditory-impaired individuals.

Moreover, service capabilities encompass Traffy Fondue platform implementation for Broadcasting, television, and telecommunications, and communication hazard incident reporting, streamlining reporting protocols with transparent status monitoring capabilities. During 2024, Data integration was implemented with external agencies including Government Information Service Center "Hotline 1111" (Prime Minister's Office) and Office of Consumer Protection Board "Hotline 1166," plus telecommunications license database integration using corporate identification numbers through the NBTC's integrated central database system (NBTC Data Center). The unified multi-channel communication (Omni-channel) approach enables seamless citizen engagement and inter-agency coordination protocols, optimizing service delivery efficiency in information retrieval, inquiry response, complaint tracking, and satisfaction enhancement while evaluating operational performance metrics for accelerated, precision-enhanced problem resolution coordination protocols.

Channels of the "Call Center 1200" for receiving inquiries/complaints from the public

Service users can contact, inquire, or file complaints to the **Call Center 1200** through the following

- Call 1200** (operating every day from Monday to Sunday, from 8.30 AM to 4.30 PM, except on public holidays)
- serviceportal.nbt.go.th**
- 1200@nbt.go.th**
- NBTC1200**
- @NBTC1200** (accepts complaints about unorganized communications lines)
- Voice Messaging Service (Drop Call)** (accepts voice messages **24-hour** with staff responding within the next working day)
- Contact us directly** at the Call Center 1200 at the Office of the NBTC, 87 Phaholyothin Road, Soi 8 (Sailom), Samsen Nai, Phayathai, Bangkok 10400

Office of the National Broadcasting and Telecommunications Commission

Throughout 2024, Call Center 1200 delivered comprehensive public information services totaling 91,806 cases across four primary service categories:

1) Telecommunications Services in total of 41,520 cases, including complaints and inquiries regarding mobile phone services, reporting fraudulent call center numbers and deceptive SMS messages,

internet connectivity issues, free service cancellation requests, and related telecommunications concerns.

2) Broadcasting and Television Services in total of 1,270 cases, including complaints and inquiries about inappropriate program content, digital television information, satellite television services, and broadcasting-related issues.

3) Office-Related Information Services in total of 35,882 cases, including comprising inquiries to track complaint processing progress, internal staff contact requests, and general the NBTC of Office information inquiries.

4) Disorderly telecommunication cables Reports in total of 13,134 cases, including problem

reports received through Call Center 1200 channels totaling 8,690 cases and Traffy Fondue platform submissions totaling 4,444 cases. Subsequently, performance growth in total of service volume increased by 9,374 cases compared to the previous year, with comprehensive service statistics, as presented in Table 15.

Table 15: Information Service Provision through the Call Center 1200 of the Office of the NBTC in 2024

No.	Type of Service	Number of Cases		Increase/ (Decrease)
		2023	2024	
1	Telecommunications services	38,251	41,520	3,269
2	Broadcasting and television services	1,405	1,270	(135)
3	Other information related to the Office of the NBTC	31,349	35,882	4,533
4	Receiving complaints about disorderly telecommunication cables reports	11,427	13,134	1,707
Total		82,432	91,806	9,374

Remark: Data as of December 31, 2024

Source: Data Operation Center Bureau, Office of the NBTC

2. Operational Efficiency and Effectiveness in Consumer Complaint Management for Broadcasting, Television, and Telecommunications Services.

2.1 Consumer Complaint Resolution and Problem Mitigation for Broadcasting and Television Services

1) Regulatory compliance framework implementation procedures were implemented in accordance with comprehensive the Notification of the NBTC regulatory frameworks including: the Notification of the NBTC on Process and Completion Period of Request or Complaints Consideration Regarding Broadcasting Business, the Notification of the NBTC on Criteria and Procedures for Fact Finding of Offense with Administrative Penalty in Broadcasting and Television Businesses B.E. 2558 (2015), and the analysis and proposals to the NBTC were conducted to consider complaint issues according to the Notification of the NBTC on Actions Considered as Consumer Exploitation in Broadcasting and Television Businesses B.E. 2562 (2019). The implementation involved systematic analysis preparation and recommendation development for the NBTC consideration based on

established regulatory criteria. The NBTC complaint consideration operations consistently meet or exceed specified timeframe requirements, with streamlined processes and procedures summarized as follows:

- Multi-Channel complaint reception with accessible channels and clear responsibility assignment for efficient processing
- Complaint Notification and Fact-Finding Process notifying respondents of complaints while conducting comprehensive fact-finding from license holders, service providers, and additional sources, including inter-agency coordination with relevant government entities when interconnected issues arise, such as Food and Drug Administration (FDA) and the Office of Consumer Protection Board (OCPB).
- Procedural consideration framework of The Subcommittee on Consumer Protection in Broadcasting and Television Services, established under the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010), conducts systematic consideration processes. Additional expert committees comprising consumer

protection specialists and related field experts prepare comprehensive recommendations for the NBTC consideration and decision-making.

- The NBTC resolution implementation on executing the NBTC’s decisions including issuing administrative orders to license holders engaging in consumer exploitation practices, complaint case closure, or coordination with relevant agency notifications.

- The NBTC regulatory conditions mandate digital television service providers to implement dedicated consumer complaint resolution mechanisms and submit biannual problem resolution performance reports to the NBTC every 6 months.

- Citizens and complainants can monitor complaint processing status and outcomes through the Office of the NBTC websites and official channels, including complaint reception database systems and

broadcasting and television service database systems. For illegal drug, food, and health product advertising issues, citizens can file complaints with the Office of the NBTC through Headquarter and regional offices, Call Center 1200, or E-mail 1200@nbt.go.th.

In 2024, a total of 109 complaints were received following resolved cases were established, and 31 complaints were resolved within 2 hours to 2 days. Consumer exploitation cases were established, and 78 complaints regarding broadcasting and television consumer exploitation entered formal consideration processes. Additionally, the Notification case resolution status was categorized into two assessments: Completed cases were conducted, 55 cases were terminated or completed according to procedures, resulting in 70.51 percent, and active cases were under processing in a total of 23 cases, resulting in 29.49 percent. as presented in Table 16.

Table 16: Complaints on Actions that Disadvantage Consumers in the Broadcasting and Television Businesses, Categorized by Types of Businesses in 2024

Type of Complaint	Number of Cases Entering the Process under the Notification	Settled/Completed Cases		Ongoing Process	
		Number of Cases	Percentage	Number of Cases	Percentage
Complaints regarding the network use or advertising that is excessively profit-oriented or causes undue disturbance or annoyance to consumers, in a manner considered exploitative to consumers	46	42	91.30	4	8.70
Complaints related to spectrum use for broadcasting and telecommunications businesses	8	7	87.50	1	12.50
Complaints regarding the interference of audio/ visual broadcast or transmission by broadcasting or television business licensees, and those regarding the network use and connection for the broadcasting and television businesses	5	2	40.00	3	60.00
Complaints concerning verification of qualifications and operations of broadcasting and television business licensees, and those regarding income-generating advertising activities of broadcasting and television business licensees	1	1	100.00	-	-
Complaints regarding monopolistic practices involving the consolidation of multiple types of media businesses under a single entity, or the cross-ownership of media platforms, and those regarding broadcasts that infringe upon the rights, freedom, dignity, reputation, family rights, or privacy of affected individuals	18	3	16.67	15	83.33
Total	78	55	70.51	23	29.49

Remarks: Complaints filed from January 1 to December 31, 2024. The overall process of considering and handling complaints in the broadcasting and television industries follows the Notification of the NBTC on Procedures and Completion Period for Complaint Consideration regarding the Broadcasting and Television Businesses, which typically takes 90-120 days.

Source: Broadcasting Consumer Protection Bureau, Office of the NBTC

In complaint consideration processes where the NBTC administrative orders may impact party rights, the Subcommittee on Consumer Protection in Broadcasting and Television Services, as delegated by the NBTC, ensures comprehensive due process protections by providing license holders with adequate fact disclosure opportunities and dispute resolution procedures that enable evidence presentation according to established procedural frameworks. The process also includes clarification and guidance to enhance legal compliance understanding, along with recommendations for license holders to improve

broadcasting program and advertising service delivery while considering broader consumer protection interests. These measures present systematic efforts to reduce future violations and minimize consumer impact through proactive compliance education and service improvement initiatives.

Upon analysis of all 78 complaints received, 35 complaint cases were identified as involving issues that constitute violations under the Notification of the NBTC on Standards of Subscription Television Service Contract B.E. 2562 (2013), as presented in Table 17.

Table 17: Complaint cases within the Scope of Misconduct under the Standards of Subscription Television Service Contract in 2024

Standards of Subscription Television Service Contract	Total Cases	Settled/ Completed	Ongoing Process
Inability to view television broadcasts under normal conditions	23	22	1
Billing error/non-compliance with the law	9	9	-
Request for service fee or device insurance fee refunds	2	2	-
Service termination	1	1	-
Total	35	34	1

Remark: Data as of December 31, 2024
Source: Broadcasting Consumer Protection Bureau, Office of the NBTC

Statistical analysis of the 35 complaints involving violations of subscription television service signal standards revealed that 34 cases have been terminated or completed, representing complaints where service providers successfully resolved issues to complainant satisfaction. The NBTC reviewed these completed complaints and resolved to close them due to successful problem resolution by service providers. The complaint consideration process followed procedures established the under the Notification of the NBTC on Process and Completion Period of Request or Complaint regarding Broadcasting Business. Analysis of problem resolution and complaint management timeframes for complaints received between January 1 - December 31, 2024, showed an average processing time of 54 days, significantly below the 120-day timeframe prescribed in the Notification of the NBTC.

Cases currently under processing involve pending operator fact clarification or review by other relevant agencies such as the Food and Drug Administration (FDA). Nevertheless, certain complaint cases require complex fact-gathering involving technical issue verification with sophisticated evidence analysis or program recording material requests for analytical assessment and recommendation development, often necessitating collaboration with other agencies both internal and external the Office of the NBTC.

2) The Operations were conducted regarding complaints about program schedules and program content in broadcasting and television business within the 120-day timeframe¹⁸ according to the Notification of the NBTC on Process and Completion Period of Request or Complaint regarding Broadcasting Business, and fact-gathering processes according to the

¹⁸ In cases where an extension is permitted, it should not exceed 157 days.

Notification of the NBTC on Criteria and Procedures for Fact Finding of Offense with Administrative Penalty in Broadcasting and Television Business B.E. 2558 (2015). The Subcommittee on Program Content, Self-Regulation Promotion and Professional Organization Development in Broadcasting and Television Services considers such complaints before presenting them to the NBTC meetings for further consideration. The Office of the NBTC has processes for receiving program schedule complaints through diverse and easily accessible complaint channels, with processes for notifying complaint receipt and consideration results to complainants for awareness and complaint status tracking. Additionally, the Office of the NBTC Headquarter, regional offices, and Radio and Television Content Monitoring Centers within the Office of the NBTC's network serve as monitoring functions and coordinate with external agencies for program content supervision, such as Ministry of Social Development and Human Security, Ministry of Foreign Affairs, Ministry of Culture, Moral Center (Public Organization), and Siam Society under Royal Patronage. All three cases¹⁹ enter the complaint verification and consideration process with established standard timeframe indicators for faster complaint resolution than the timeframes specified in the Notification of the NBTC on Process and Completion Period of Request or Complaint Consideration regarding Broadcasting Services.

Furthermore, complaint complexity²⁰ levels are categorized to set rapid problem resolution targets: 1) Low complexity: maximum 45 days, 2) Medium complexity: maximum 90 days, and 3) High complexity: maximum 120 days.

For program schedule and content quality supervision in broadcasting and television services, the Office of the NBTC has laws governing program schedule operations and program content quality supervision including: 1) Broadcasting and Television Business Act B.E. 2551 (2008) 2) The Notification of the NBTC on Criteria and Methods for Broadcasting or Television Service Licensing B.E. 2555 (2012) 3) The Notification of the NBTC on Criteria for Program Schedule Preparation for Broadcasting or Television Services B.E. 2556 (2013) and amendments, and 4) The Notification of the Office of the NBTC on Guidelines for Television Program Suitability Rating according to the Notification of the NBTC on Criteria for Program Schedule Preparation for Broadcasting or Television Services B.E. 2556 (2013). There are six consideration approaches with the following implementation measures:

1) In cases where prohibited broadcast content under Section 37 of the Broadcasting and Television Business Act B.E. 2551 (2008) carry administrative fines from 50,000-500,000 baht;

2) In case where television program suitability ratings (G, PG, T, 13+, the 18+, Adult) do not comply with The Notification of Office of the NBTC on Guidelines for Television Program Suitability Rating according to the Notification of the NBTC on Criteria for Program Schedule Preparation for Broadcasting or Television Services B.E. 2556 (2013). require subcommittee and the NBTC consideration of program content and measures for license holders to adjust television program suitability ratings to comply with established criteria to protect child and youth viewers from age-inappropriate content.

¹⁹ The three cases include: 1) receiving complaints through various channels, 2) examination by the Radio and Television Illegal Content Inspection Center, the Office of the NBTC Headquarters, and the Regional Offices, and 3) coordinating with external agencies to oversee program content.

²⁰ 1) Complaints with low complexity are those with complete and comprehensive evidence, requiring no further input from external agencies or experts.
2) Complaints with moderate complexity are those that may involve difficulties in gathering evidence or may require input from no more than one external agency or expert.
3) Complaints with high complexity involve significant challenges in gathering evidence, may require input from multiple external agencies or experts, or may necessitate additional actions to resolve the issues raised, aiming to promote effective regulation of program schedules and content in broadcasting and television businesses.

3) In cases where program content violating scope and conditions of broadcasting and television services licenses according to the Notification of the NBTC on Criteria and Methods for Broadcasting or Television Service Licensing B.E. 2555 (2012), since license holders have duties and responsibilities for selecting, procuring, and supervising program content according to professional and media ethics standards, require hierarchical administrative measures starting with administrative warnings for license holders to improve, correct, or comply properly, but if violations or non-compliance with administrative orders continue, the NBTC will impose higher measures through license suspension and revocation respectively.

4) In cases where program content violates legal requirements and licensing conditions but involves inappropriate rather than prohibited content, the Subcommittee and the NBTC may consider issuing advisory opinions recommending caution in program content presentation, exercising authority under Section 27 (6) and (16) of the Act on Organization to Assign Radio Frequency Allocation and to Regulate Broadcasting and Telecommunications Service B.E. 2553 (2010).

5) In cases where the involving promotion of professional association formation and establishment of professional or vocational ethical standards with self-regulation under ethical standards according to Section 39 of the Broadcasting and Television Business Act B.E. 2551 (2008), the Subcommittee and the NBTC may consider transmitting complaint details and adjudication results to relevant professional organizations where license holders maintain membership for awareness and to benefit ongoing professional association promotion and ethical standards development.

6) In cases where citizens provide regulatory recommendations to the Office of the NBTC, the Subcommittee and the NBTC may incorporate such

recommendations into their regulatory oversight of broadcasting and television service operations to enhance service quality and operational efficiency.

In 2024, a total of 44 program schedule and content complaints in broadcasting and television services entered the formal complaint process, distributed across service categories as follows: (1) digital terrestrial television services with 41 cases, and (2) broadcasting services with 3 cases, comprising 2 existing radio service cases and one experimental radio broadcasting case. The complaint sources included 26 cases from public complaints submitted to the Office of the NBTC with 24 digital terrestrial television cases and 2 existing radio cases, 17 cases identified through the Office of the NBTC monitoring activities with 16 digital terrestrial television cases and one experimental radio broadcasting case, and one case referred from external agencies where the Ministry of Culture requested examination of potentially inappropriate drama content.

Subsequently, Operations achieved completion for 34 total cases, represent in 77.27 percent completion rate. Additionally, citizens submitted 2 regulatory supervision recommendations to the Office of the NBTC addressing (1) television media programs featuring impolite and vulgar language usage, and (2) the issues concerning children's programming broadcasting in digital terrestrial television services. Complaint processing timeframes maintained compliance with established timeframe frameworks according to the Notification of the NBTC on Process and Completion Period of Request or Complaint regarding broadcasting and television services, achieving performance indicators based on standard average timeframes for complaint processing operations, with comprehensive, as presented in Table 18 and Table 19.

Table 18: Complaints Regarding Program Schedules and Content in the Broadcasting and Television Sectors in 2024

Source	Quantity	Type of Service				Completed	
		Digital Terrestrial TV	Satellite & Cable TV	Existing Radio Station	Experimental Radio Broadcasting	Number of Cases	Percentage
Complaints filed by the public	26	24	-	2	-	18	69.23
Problems identified by the Office of the NBTC's inspections	17	16	-	-	1	15	88.24
Other agencies forward the complaints to the Office of the NBTC.	1	1	-	-	-	1	100
Total	44	41	0	2	1	34	77.27

Remarks: 1. Data as of December 31, 2024
2. Data on complaints entered the process from January 1 to December 31, 2024
3. Complaints still in process are those that entered the process during the third and fourth quarters.

Source: Content Regulation and Announcer Development Bureau, Office of the NBTC

Table 19: Complaint Issues Regarding Program Schedules and Content

Complaint Issue	Number of Cases	Percentage
Violent content or scenes	13	29.55
Use of inappropriate words or impolite, offensive language, or language inciting conflicts and hatred	11	25.00
Others, including inappropriate attire, the implication of lottery number predictions, and excessive or unnecessary news reporting	9	20.45
Inconsistency with professional ethical standards or civil rights violations, such as children's rights and women's rights, etc.	5	11.36
Inaccurate and incomplete presentation of news and information	3	6.82
Classification of television program appropriateness	2	4.55
Obscene or pornographic content	1	2.27
Total	44	100.00

Remarks: Data as of December 31, 2024

Source: Content Regulation and Announcer Development Bureau, Office of the NBTC

Analysis of complaint patterns revealed that violent content or violent imagery constitutes the predominant complaint category at 29.55 percent, encompassing domestic violence incidents, school violence events, and weapon-related harm to others, where license holders often repeatedly broadcast violent clips while announcers use emotionally stimulating tones in news reporting that encourage viewer emotional engagement and may promote imitative behavior. The second most common complaint category involves inappropriate language usage in broadcasting and television services at 25 percent, including impolite and vulgar language, hate speech that creates conflict and hatred, and incorrect Thai

language usage. Other miscellaneous issues account for 20.45 percent of complaints, covering inappropriate dress, lottery number hints, and exaggerated news reporting. Presentations violating professional ethics standards or human rights represent 11.36 percent of complaints, particularly cases involving child sexual abuse reporting that discloses identifying information about children and families, causing psychological harm, reputational damage, dignity violations, or other rights infringements, along with racial discrimination and gender prejudice. Misleading news information presentation during broadcasts that causes public misunderstanding accounts for 6.82 percent of complaints. Television program suitability rating violations not complying with

the Office of the NBTC Guidelines on Television Program Suitability Rating regarding sexual content, language, and violence represent 4.55 percent of complaints. The least common complaint category involves obscene content at 2.27 percent.

Additionally, the Office of the NBTC has implemented responsive measures addressing program content presentation with broad social impact through both issue-based and event-based approaches, delivering effective and timely responses to emerging situations. Implementation includes issuing cautionary letters to broadcasting and television service license holders emphasizing careful content presentation practices, and circulating advisory notices to media professional organizations requesting member supervision for program content presentation within mass communication professional ethics standards and applicable legal frameworks.

Furthermore, the Office of the NBTC systematically compiles factual evidence for presentation to the Subcommittee on Program Content, Self-Regulation Promotion and Professional Organization Development in Broadcasting and Television Services, while the NBTC considers appropriate administrative measures following established procedural protocols. In 2024, three significant events with broad social impact occurred requiring institutional response: 1) a Grade 8 student fatally stabbing a classmate at school. 2) A domestic homicide incident involving a husband killing his wife. 3) A school bus fire from Uthai Thani Province on Vibhavadi Rangsit Road, The Office of the NBTC implementing comprehensive response measures for all cases.

Challenges and Obstacles

1. The primary major challenge encompasses complaints regarding radio broadcasting advertisements exceeding legally prescribed timeframes, where current regulatory frameworks lack appropriate criteria or guidelines for advertising time measurement that align with evolving industry conditions. Additionally, there are no established criteria for determining what types of broadcasting content constitute advertising, compounded by differing approaches to advertising time

calculation between stations, operators, and the Supreme Administrative Court, creating regulatory confusion and enforcement inequality. While the 9th NBTC Meeting of 2023 was held on April 1, 2023, approved advertising time counting guidelines based on Supreme Administrative Court interpretations, practical implementation remains challenging due to complex interpretation requirements and unclear definitional details regarding “advertising” terminology. This ambiguity creates difficulties in distinguishing between regular program content and advertising material, complicating supervision and accurate advertising time measurement while potentially enabling consumer exploitation. These challenges highlight the urgent necessity for establishing clear and equitable criteria for advertising time counting methodologies that can be practically implemented while effectively protecting consumer rights, where multi-stakeholder participation will facilitate sustainable standards development and enhance confidence in broad-casting and television regulatory supervision systems.

Future Problem-Solving Approaches to Comprehensively Address the NBTC’s Regulatory Authority on the Office of the NBTC is currently developing foundational principles for the (draft) notification of the NBTC on Criteria for Advertising Time Calculation, submitting these to the Subcommittee on Consumer Protection in Broadcasting and Television Services for preliminary review before presenting to the NBTC for approval and subsequent implementation processes.

2. Law enforcement resolves service user complaints across broadcasting, television, and telecommunications sectors, where the Office of the NBTC complaint handling currently operates under two distinct legal frameworks including the Notification of the NBTC on Procedures and Completion Timeframes for Broadcasting and Television Application or Complaint Consideration, and the Notification of the NBTC on Telecommunications Business Complaint Reception and Consideration Processes B.E. 2559 (2016), where each framework contains both overlapping and divergent requirements, creating inconsistent complaint handling approaches in certain cases. Consequently, the NBTC issued Order No. 8/2567 on February 9, 2024,

establishing a Subcommittee to Study and Develop Service User Complaint Resolution Procedures for Broadcasting, Television, and Telecommunications Services with operational duties through July 31, 2024, where the Subcommittee systematically studied and compiled operational problems and procedural obstacles in complaint reception and consideration across broadcasting, television, and telecommunications sectors, while developing the (draft) Notification of the NBTC on Criteria for Broadcasting, Television, and Telecommunications Complaint Reception and Consideration B.E....to enhance system mechanisms, conceptual frameworks, and operational processes for complaint handling across these sectors, ensuring the Office of the NBTC operations are comprehensive, efficient, and enable rapid problem resolution for service users through practices aligned with technological advancement, currently under the NBTC review.

2.2 Telecommunications Complaint Resolution has implemented comprehensive initiatives to develop rapid and efficient complaint resolution mechanisms for telecommunications services while ensuring complainant satisfaction and accelerated case closure. Resolution operations follow established procedures under the Notification of the NBTC on Procedures for Receiving and Considering Complaints Regarding Telecommunications Services B.E. 2559 (2016) (Complaint Reception Notification), encompassing consumer complaints regarding telecommunications services and cases involving damage from telecommunications service provision through mediation processes specified in the Notification, maintaining compliance with

prescribed timeframes or achieving faster resolution, with systematic complaint resolution processes and procedures including:

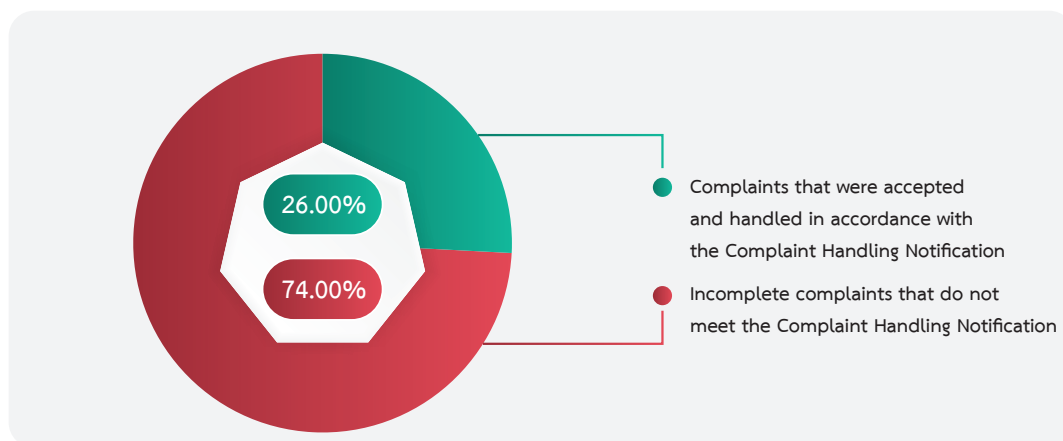
- Complaint intake through multiple accessible complaint channels with comprehensive verification of relevant supporting documentation and evidence.
- Notification of resolution outcomes and factual explanations to complainants, where complainant satisfaction with license holder clarifications results in complaint case closure, while complainant dissatisfaction with provided explanations prompts the Office of the NBTC to advance the matter through systematic consideration procedures, presenting non-complex cases to Secretary-General of the NBTC for adjudication according to established guidelines, and/or advancing complex cases to the Subcommittee on the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) and amendments, composed of consumer protection experts and related specialists, to develop recommendations for the NBTC consideration.
- Notification of adjudication results with supporting rationale to complainants and service providers. In 2024, the Office of the NBTC received 5,612 total telecommunications service complaints, categorized as: 1) 4,153 incomplete petitions not meeting complaint reception notification requirements, and 2) 1,459 petitions accepted as formal complaints and processed according to Complaint Reception Notification procedures, as presented in Table 20 and Chart 6.

Table 20: Complaint Receiving and Handling in 2024

Complaint Receiving and Handling	Quantity	Percentage	Status			
			Settled	Percentage	Ongoing Process	Percentage
Complaints that were accepted and handled in accordance with the Complaint Handling Notification	1,459	26.00	1,146	78.55	313	21.45
Incomplete complaints that do not meet the Complaint Handling Notification	4,153	74.00	4,003	96.39	150	3.61
Total	5,612	100.00	5,149	91.75	463	8.25

Remark: Data as of December 31, 2024
Source: Telecommunications Consumer Protection Bureau, Office of the NBTC

Chart 6: Complaint Receiving and Handling in 2024



Remark: Data as of December 31, 2024

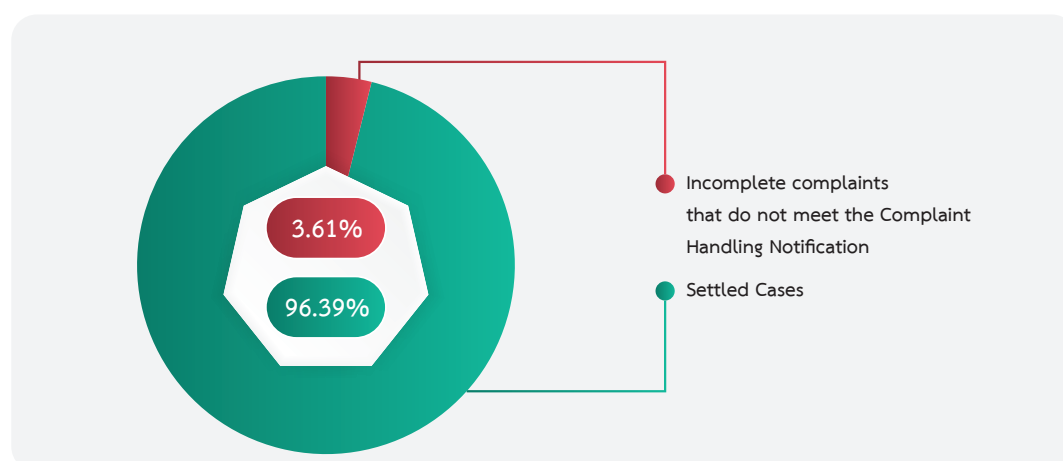
Source: Telecommunications Consumer Protection Bureau, Office of the NBTC

The Office of the NBTC has implemented problem resolution management for petitions with the following operational outcomes:

- Operations addressing incomplete petitions not conforming to complaint reception Notification requirements encompassed 4,153 petitions, representing 74.00 percent of total complaints received, where the Office of the NBTC achieved petition problem resolution through proactive coordination with license holders, enhancing complaint

resolution management efficiency and enabling rapid complainant problem resolution with case closure for 4,003 petitions representing 96.39 percent, exceeding half of all petitions without requiring formal complaint management processes under complaint reception notification procedures, while 150 petitions remain under active coordination representing 3.61 percent of all incomplete petitions not meeting complaint reception notification requirements, with comprehensive details presented in Chart 7.

Chart 7: Handling Incomplete Complaints in 2024 that do not meet the Requirements Specified in the Notification of the NBTC on the Complaint Handling Process and Consideration in the Telecommunication Business, B.E. 2559 (2016)



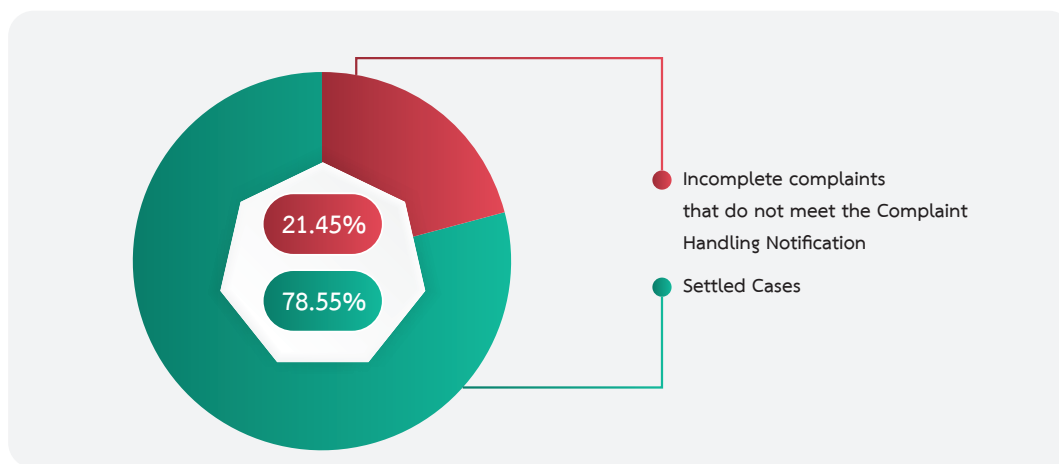
Remark: Data as of December 31, 2024

Source: Telecommunications Consumer Protection Bureau, Office of the NBTC

- Implementation of telecommunications service complaint problem resolution for cases accepted as formal complaints entering complaint management processes according to complaint reception notification procedures, addressing issues including inability to cancel fixed internet services without penalties, suspension or cancellation of phone numbers with number restoration requests, unauthorized short message service (SMS) billing charges, poor mobile phone and internet signal quality

for voice and data services, incorrect mobile phone service billing charges, and similar service-related problems. In 2024, telecommunications service complaints entering formal complaint reception processes totaled 1,459 cases, where the Office of the NBTC successfully achieved complaint problem resolution to conclusion for 1,146 cases representing 78.55 percent, while 313 cases remain under active processing representing 21.45 percent of all complaints received as formal complaints, as presented in Chart 8.

Chart 8: Handling Complaints in the Telecommunications Sector under the Process in 2024



Remark: Data as of December 31, 2024

Source: Telecommunications Consumer Protection Bureau, Office of the NBTC

Analysis of total complaint statistics classified by metropolitan area reveals Bangkok area complaints totaled 444 cases, achieving telecommunications service complaint resolution for 335 cases representing 75.45 percent, with 109 cases remaining under active processing representing 24.55 percent of all formal complaints received,

while provincial area complaints totaled 1,015 cases, achieving telecommunications service complaint resolution for 811 cases representing 79.90 percent, with 204 cases remaining under active processing representing 20.10 percent of all formal complaints received, as presented in Table 21.

Table 21: Statistics of Complaints of the Office of the NBTC, Classified by Provincial Areas

Area	Total	In Progress		Settled Cases		
		Number of Cases	Percentage	Number of Cases	Percentage	Average Settling Time (Days)
Bangkok	444	109	24.55	335	75.45	48
Other Provinces	1,015	204	20.10	811	79.90	46
Total	1,459	313	21.45	1,146	78.55	46

Remark: Data as of December 31, 2024

Source: Telecommunications Consumer Protection Bureau, Office of the NBTC

Service type classification includes 1) mobile phone services with 1,086 cases representing 74.43 percent, 2) fixed internet services with 357 cases representing 24.47 percent, 3) radiocommunication

station and signal tower installation with 13 cases representing 0.89 percent, and 4) fixed-line telephone services with 3 cases representing 0.21 percent, as presented in Table 22.

Table 22: Number of Complaints by Service Type in 2024

No.	Type of Services	Total Cases	
		Quantity (Cases)	Percentage
1	Mobile phone service	1,086	74.43
2	Fixed internet service	357	24.47
3	Establishment of radiocommunications stations/signal towers	13	0.89
4	Fixed-line telephone service	3	0.21
Total		834	1,459

Remark: Data as of December 31, 2024

Source: Telecommunications Consumer Protection Bureau, Office of the NBTC

The predominant five complaint issue classifications encompassing 1) service provision complications as the primary complaint category with 561 cases representing 38.45 percent, 2) service termination issues with 366 cases representing 25.09 percent, 3) signal quality degradation problems (Quality of Service parameters) with 266 cases

representing 18.23 percent, 4) erroneous service billing complications with 152 cases representing 10.42 percent, and 5) short message service (SMS) system-related complications with 79 cases representing 5.41 percent respectively, as presented in Table 23.

Table 23: Results of Resolved Complaints, Classified by Complaint Issue in 2024

Complaint Issues	Number of Cases	Percentage	Status	
			Settled	In Progress
Service provision complication	561	38.45	397	164
Service termination issues	366	25.09	305	61
Signal quality degradation problem	266	18.23	238	28
Erroneous Service Billing	152	10.42	124	28
Problems related to the receipt of SMS	79	5.41	67	12
Privacy rights and personal data	19	1.30	11	8
Establishment of radiocommunications stations/cell towers	13	0.89	1	12
Incorrect or insufficient information provided	3	0.21	3	0
Total	1,459	100	1,146	313

Remark: Data as of December 31, 2024

Source: Telecommunications Consumer Protection Bureau, Office of the NBTC

Analysis of efficiency and effectiveness in complaint problem resolution classified by issue categories demonstrates that in 2024, telecommunications service complaint problems accepted as formal complaints and processed through complaint management procedures according to complaint reception notification achieved resolution for 1,146 cases, representing 78.55 percent of the total 1,459 cases. Comparative analysis of complaint issues between 2023 and 2024 shows most problem categories decreased in volume, with exceptions including service provision issues such as mobile number portability (MNP) and mobile phone number restoration requests, and

signal quality problems that increased significantly despite continuous implementation of various complaint resolution measures, though limitations persist regarding related notification usage that lacks sufficient clarity for complaint adjudication. Notably, short message service (SMS) related problems demonstrated clear complaint volume reduction due to consumer self-protection measures including *137 dial-out service for self-cancellation of SMS services, complemented by awareness campaigns promoting beneficial information through various the Office of the NBTC channels to enhance public awareness and enable independent basic problem resolution, as presented in Table 24.

Table 24: Effectiveness of Complaint Resolution and Settlement from 2023 to 2024

No.	Complaint Issues	2023			2024		
		Total Cases	Settled	In Progress	Total Cases	Settled	In Progress
1	Service termination issues	506	468	38	366	305	61
2	Service provision complication	429	359	70	561	397	164
3	Erroneous Service Billing	246	208	38	152	124	28
4	Signal Quality (QoS)	235	135	100	266	238	28
5	Problems related to the receipt of SMS	138	98	40	79	67	12
6	Privacy rights and personal data	19	11	8	19	11	8
7	Establishment of radiocommunications stations/signal towers	14	5	9	13	1	12
8	Incorrect/insufficient information	5	2	3	3	3	0
9	Service usage period limitation	1	1	-	-	-	-
Total		1,593	1,287	306	1,459	1,146	313

Remark: Data as of December 31, 2024

Source: Telecommunications Consumer Protection Bureau, Office of the NBTC

Telecommunications service complaints in 2024 totaled 5,612 cases, categorized as cases accepted as formal complaints and processed according to 1) complaint reception notification procedures with 1,459 cases, and 2) incomplete petitions not conforming to notification requirements with 4,153 cases, achieving termination for 5,149 cases representing 91.75 percent. The terminated complaints within the incomplete petition category totaled 4,003 cases representing 96.39 percent, accomplished through systematic

coordination and license holder cooperation in complaint management prior to formal complaint acceptance according to notification requirements, demonstrating that such operational procedures constitute processes that significantly enhance complaint management efficiency while enabling rapid complainant problem resolution and reducing formal complaint reception volumes according to notification procedures. However, in 2024, the Office of the NBTC enhanced complaint management operational

efficiency by expanding telecommunications service problem reporting channels for three specific issues including 1) receiving SMS requiring blocking, 2) SMS harassment, or unauthorized SMS charges, incorrect service billing or 3) mobile number portability (MNP) service issues through Traffy Fondue platform implementation to facilitate convenient public problem reporting with rapid problem resolution forwarding to license holders.

Challenges and Obstacles

Certain legislative frameworks do not align with contemporary telecommunications service provision circumstances, potentially impeding rapid complaint consideration and creating a lack of clarity in adjudication processes. Furthermore, some complaints involve complex cases with multiple interconnected problem issues, creating complex resolution and consideration processes requiring extended adjudication periods, while some cases may involve concurrent court proceedings, constituting consumer exploitation in telecommunications services with continuous procedural requirements necessitating extended timeframes for legal compliance, where certain petitions fall beyond the NBTC and the Office of the NBTC authority for consideration according to powers and duties specified in of the Act on Organization to Assign Radio Frequency Allocation and to Regulate Broadcasting and Telecommunications Service B.E. 2553 (2010), and amendments.

Future Problem-Solving Approaches to Comprehensively Address the NBTC's Regulatory Authority are currently under development through proposals to the Subcommittee on Consumer Protection in Telecommunications Services to formulate recommendations for the NBTC regarding amendment of notifications, regulations related to complaint reception and consideration processes, and other relevant consumer protection legislation, complemented by collaborative meetings with license holders to discuss and clarify understanding for comprehensive problem prevention and resolution while ensuring correct legal compliance. The approach includes reviewing complaint consideration processes and establishing clear operational guidelines through staff understanding development and license holder comprehension clarification for systematic problem resolution and complaint consideration procedures. Additionally, service problem reporting channels have been expanded through user-convenient platforms such as Traffy Fondue, enabling rapid forwarding to service providers for prompt acknowledgment and problem resolution, while creating public knowledge and understanding for telecommunications service consumers through media and various outreach activities to comprehend complaint reception and consideration processes, including providing factual information supporting complaint processing and developing awareness of consumer self-protection rights.

Administration of Research and Development Fund for Broadcasting, Television, and Telecommunications Services for Public Interest.

In 2024, the Broadcasting and Telecommunications Research and Development Fund for Public Interest (BTRDFP) under the administration of the Management of the Fund Committee achieved. The NBTC has produced notable achievements and key performance indicators, including:

1. Key Operational Achievements.

1.1 Fund operational direction and implementation mechanisms for 2024 involved

appointing working groups to support operations of the Research and Development Fund Management Committee for Broadcasting, Television, and Telecommunications Services for Public Interest (BTRDFP), encompassing the Working Group for Fund Policy and Strategic Plan Implementation, Project and Budget Screening Working Groups (Sets 1 and 2) for Fund expenditures, Fund Project Monitoring and Evaluation Working Group, Fund Financial Risk Management

Working Group, and Fund Legal Affairs Working Group, with the Fund Management Committee Secretariat providing administrative support, analytical services, and information support enabling the Fund Management Committee to effectively manage fund resources for operations according to Section 52 under Act on the Organization to Assign of the Radio Frequency Allocation and to Regulate Broadcasting and Telecommunications Service, including comprehensive financial and accounting management of the BTFP.

The BTFP policy in 2024 focused on comprehensively driving Thai society toward the digital era, prioritizing technology application for problem resolution and opportunity creation while enhancing quality of life across all sectors. Supporting research and development projects related to broadcasting, television, and telecommunications services is therefore essential for Thailand's global competitiveness and optimal utilization of emerging technologies including Artificial Intelligence (AI), Internet of Things (IoT), 5G technology, and Metaverse applications across diverse sectors such as education, healthcare, and agriculture, with the primary objective of creating an equitable and sustainable digital society. The fund administered financial resources in 2024 through five strategic areas: (1) developing digital security and safety using advanced technology for prevention and problem resolution, (2) advancing digital education and skills to prepare Thai youth for modern digital technology adoption, (3) developing infrastructure and innovation to establish technological foundations for future advancement, (4) enhancing public health and medical systems through technology implementation for national healthcare system improvement, and (5) promoting media literacy and consumer protection to ensure safety and minimize direct and indirect impacts from media consumption.

1.2 Strategic Implementation Initiatives

were executed in alignment with the Strategic Plan of the Office of the NBTC No. 3 B.E. 2565 - 2570 (2022-2027) under Strategic Objective 1: Enhancing Organizational Development and Good Governance

while Establishing a High-Performance Organization in the Digital Era, specifically Strategy 2: Organizational elevation to comprehensive digital transformation with international standards for improving operational processes and service delivery through digital technology to facilitate public convenience and service provision, accompanied by transparent disclosure of fund management and allocation information for public awareness and oversight capabilities, implementing fund allocation framework guidelines according to the 2024 Annual Operation Plan direction of the Research and Development Fund, which received approval from the 23th NBTC Commission Meeting of 2023 on December 20, 2023, and December 25, 2023 (continued session).

1.3 Development and Enhancement of Relevant Criteria to Align with Contemporary Circumstances.

1) Implemented comprehensive studies, analysis, and evaluation of Fund operational plans, Fund allocation framework guidelines, and project programs aligned with Fund objectives to develop the (draft) Fund five-year the Office of the NBTC 5-Year Strategic Plan of the Fund under the BTFP B.E. 2568 - 2572 (2022-2029).

2) Implemented improvements and amendments to contracts for research and development in broadcasting, television, and telecommunications services for recipients of promotional and financial support from the BTFP, where the Office of the Attorney General submitted a new draft contract that underwent comprehensive review and redrafting processes, with the Fund Management Committee currently approving the contract language in the draft contract for subsequent implementation.

3) Developed the Notification of Fund Management Committee on Accepting Project, Activity, or Type 1 Operation Proposals for Annual Year 2024 and the Notification of Fund Management Committee on Accepting Project, Activity, or Type 2 Operation Proposals for Annual Year 2024.

4) Evaluated operational guidelines regarding fund reservations and financial allocation for contractual obligation payments of the BTFP, and reviewed the establishment of rules and regulations for intellectual property management to ensure compliance with The Thailand Research and Innovation Utilization Promotion Act B.E. 2564 (2021), by examining draft regulations and supplementary guidelines to align with the NBTC legal frameworks that support Fund and the NBTC.

5) Implemented legal framework initiatives regarding Fund support for the (draft) Notification of the NBTC on Measures for Promote Collaboration among Licensees, Program Producers, and Media Professionals in the Broadcasting and Television Services.

6) Enhanced fund allocation criteria and expenditure guidelines from the Fund for Type 1, Type 2, and Type 3 categories to establish operational framework guidelines aligned with current standards and circumstances.

1.4 Fund Mission Implementation through fund allocation to the Digital Development Fund for Safety and Creativity according to Section 52 (5) of the Act on Organization to Assign Radio Frequency Allocation and to Regulate Broadcasting and Telecommunications Service B.E. 2553 (2010) and amendments, while supporting spectrum utilization for maximum efficiency and supporting spectrum recall from authorized holders for reallocation purposes, including support for compensation, reimbursement, or remuneration for spectrum recall to achieve optimal spectrum usage efficiency according to Section 52 (6).

1.5 Fund Asset Management and Preservation On December 31st 2024, the Fund maintained a remaining balance of 59,471.84 million baht, with total revenue receipts during 2024 totaling 10,342.07 million baht encompassing 1) receipts from the Office of the NBTC allocation of 500.00 million baht, 2) contributions from broadcasting, television, and telecommunications service license holders of 7,813.59 million baht, 3) interest earnings

from bank deposits of 1,158.98 million baht, 4) administrative penalty revenue of 4.19 million baht, and 5) miscellaneous income of 865.30 million baht consisting of project surplus funds returned by grant recipients and VAT refunds when input tax exceeds output tax.

The BTFP recorded total expenditures of 7,579.80 million baht categorized as project expenditures according to 1) fund objectives totaling 6,920.44 million baht comprising Type 1 projects with 39.33 million baht, Type 2 projects with 149.58 million baht, Type 3 projects with 18.59 million baht including projects for Telecommunications Universal Service Obligation with 6,212.94 million baht, Type 4 project with 500.00 million baht, and 2) additional expenditures of 659.36 million baht, including Treasury remittances from digital terrestrial television transition support projects of 101.98 million baht and VAT plus withholding tax remittances of 557.38 million baht.

For fund asset custody, the BTFP placed deposits with domestic commercial banks and specialized financial institutions according to Fund Management Committee Regulation on Custody, Expenditure, Accounting Preparation and Accounting System B.E. 2559, achieving an average return rate at the conclusion of the fourth quarter on December 31, 2024 of 2.16% per annum.

1.6 Fund Resource Allocation. In 2021, fund resources were allocated according to the BTFP objectives for public benefit and citizen welfare to promote and support initiatives within established frameworks as follows:

Funding Type 1, encompass projects from eligible applicants requesting promotional and financial support from the Fund that align with Fund objectives (Open Grant funding) according to Section 52 (1) (2) and (3) of the Act on Organization to Assign Radio Frequency Allocation and to Regulate Broadcasting and Telecommunications Service B.E. 2553 (2010) and amendments, currently under the NBTC's consideration totaling 22 projects with aggregate funding of 178.69 million baht.

Funding Type 2, Grants comprise two categories: 1) Strategic Grants focusing on achieving success according to Fund Management Committee policy objectives with approved Terms of Reference (TOR) budgets for Type 2 projects encompassing ten projects for 2023 and eight projects for 2024 with aggregate budget allocation of 274.70 million baht²¹, and 2) Continuing Grants encompassing projects with applicants requesting fund promotional and financial support for Type 2 continuing grant initiatives for 2024, including one projects under consideration with total budget allocation of 6.84 million baht.

Moreover, five approved projects and two rejected projects, one project is currently under review totaling five projects with approved initiatives including 1) Integrated Inter-Fund Database Development Cooperation Project Phase 2 with 5.49 million baht, 2) Community Enterprise Agricultural Management System Project Phase two with 10.03 million baht, 3) KidBright Net Communication Sensor Network for Education Project Phase two with 5.09 million baht, 4) Extension Project for Online Educational Media Development and Early Childhood Care Training on Thai Children's Platform for Sustainable Development with 10.52 million baht, Radar Design and Development Project for Drone Detection and 5) Classification from Interference Sources with 9.97 million baht, alongside two disapproved projects with 43.03 million baht allocation and one project under review with 6.84 million baht allocation.

Funding Type 3, encompass projects or operational initiatives that NBTC announces to achieve fund objectives, including the Advanced Training Course Project on Management, Regulatory Supervision, and Legal Development for Broadcasting, Television, and Telecommunications Services (Advanced Level Program) Type 2 with 37.28 million baht allocation.

Funding Type 4, Support for operational implementation according to the Digital Development Fund for Safety and Creativity Act through block grant mechanism totaling 500.00 million baht.

²¹ The Fund Management Committee resolved to combine the allocation of the two years and announced it solely as the allocation for the Category 2 project for the year 2024.

1.7 Monitoring and Performance

Evaluation A Working Group for Research and Development Fund Project monitoring and evaluation was established to monitor and assess fund expenditure utilization, alongside a Research Output Review Committee composed of subject matter experts to evaluate project implementation outcomes according to grant agreement terms, including review and approval of deliverables submitted by grant recipients. The comprehensive project monitoring overview for Fund-allocated projects spanning 2015-2024 encompassed 609 total projects, including 458 completed projects, 17 cancelled projects, and 134 ongoing projects, with 86 projects proceeding according to established timelines and 48 projects experiencing schedule delays, demonstrating that 64.18 percent of projects successfully operated according to established implementation plans.

1.8 BTFP Institutional Development and Public Image Enhancement. The BTFP implemented comprehensive information promotion and Fund image enhancement initiatives for 2024 to produce and disseminate public relations content regarding Fund roles, responsibilities, and institutional missions, including promotion of project grant support programs and fund operational performance through diversified communication channels encompassing television, print media, and digital media platforms, enabling extensive and rapid public information access aligned with contemporary information consumption patterns. Public relations activities included news production and content writing, infographic development, video content creation, special interview programming, grant recipient project promotion disseminated through television broadcasting, print publications, and online media platforms including Facebook, YouTube, and Instagram, complemented by promotion through recognized online media influencers and relevant government agency partnerships. Additionally, the BTFP organized promotional events highlighting for public interest roles and institutional missions, including

a presentation showcase for 12 BTFP - funded projects under “BTFP Showcase 2024” featuring the theme “Empowering Progress, Funding Excellence” to provide platforms and opportunities for grant recipients to present achievements, facilitate knowledge exchange for project development, and inspire researchers, students, and interested stakeholders. The initiative also included electronic publication development (Flip Books) documenting Fund-supported project outcomes to compile completed project achievements for educational dissemination, serving as examples for interested parties to advance conceptual frameworks, enhance research development for effective grant proposal preparation, and extend successful implementation models for broadcasting, television, and telecommunications service development for public benefit.

2. Performance Efficiency and Effectiveness Assessment.

2.1 Fund financial management maintains continuous operational efficiency while preserving safe financial liquidity and achieving appropriate investment return rates.

1) The fund implements systematic cash flow forecasting according to fund revenue and expenditure planning with necessary operational commitments maintained in savings accounts, while surplus funds are strategically invested in fixed-term deposits with domestic commercial banks and specialized financial institutions according to investment evaluation criteria established by the Fund Management Committee, which systematically assesses credit risk factors including return on assets ratios, institutional credit ratings, ownership structure and asset scale, plus capital adequacy ratios, alongside Liquidity Risk factors including non-performing loan ratios and loan-to-deposit ratios for each banking and financial institution to optimize investment returns while minimizing risk exposure, where during 2021 operational performance (data as of December 31, 2024) the Fund achieved an average return rate of

2.16 percent, significantly exceeding the 0.96 percent average return rate of five major commercial banking institutions.

2) The Fund conducted comprehensive review of the aggregate disbursement plan for 2024 covering Type 1-4 projects and additional categories to ensure efficient comparative data presentation based on appropriate operational assumptions, revising from the original allocation of 7,257.01 million baht approved in 10th Fund Committee Meeting of 2023 on October 31, 2023, to 7,867.04 million baht following observations and approval from the 7th Fund Committee Meeting of 2024 on August 30, 2024, where project disbursement approval results for Type 1-4 project categories during 2024 operational cycle as of the fourth quarter of conclusion (December 31, 2024) demonstrated annual disbursement planning for 2024 totaling 7,135.66 million baht with successful disbursement approvals of 6,481.63 million baht representing 90.83 percent achievement, indicating overall performance alignment with established operational targets.

2.2 Financial management achieves established objectives as the Fund maintains a stable financial position with continuous security and sustainability.

1) Fund operational performance (according to accrual accounting basis reflected in Fund financial statements) for 2024 (as of December 31, 2024) demonstrates fund revenue of 14,522.24 million baht representing (a decrease of 974.82 million baht or 6.29 percent compared to December 31, 2023 baseline), and operational expenditures of 6,718.16 million baht (representing a decrease of 1,956.57 million baht or 22.55 percent compared to December 31, 2023 baseline), while the fund maintains outstanding contractual project obligations totaling 18,230.21 million baht (a decrease of 5,833.17 million baht or 24.24 percent compared to December 31, 2023 baseline.)

2) Fund financial position for 2024 on December 31, 2024 demonstrates fund assets totaling 98,327.72 million baht representing an increase of 1,717.27 million baht or 1.78 percent compared to December 31, 2023 data, and fund liabilities totaling 33,965.80 million baht representing a decrease of 6,086.81 million baht or 15.20 percent (comparative on December 31, 2023 baseline).

3) The Fund demonstrates financial stability throughout 2024 with a Current Ratio of 16.72 times, representing an increase of 5.24 times from the previous year and significantly exceeding the accounting standard benchmark of minimum 1.5 times, alongside a Debt Ratio of 0.35 times, representing a decrease of 0.06 times from the previous year and performing favorably against the accounting standard benchmark of maximum 1.5 times, as presented in Table 25.

Table 25: Financial Report of the BTFP Comparison between 2024 and 2023

Unit: Million Baht

	2024 (As of Dec 31, 2024)	2023 (As of Dec 31, 2023)	Increase (Decrease) Million Baht	Percentage Increase (Decrease)	Remark
1. Performance (Accounting)					
Revenues	14,522.24	15,497.06	(974.82)	(6.29)	1
Revenue allocated from the Office of the NBTC	500.00	1,000.00	(500.00)	(50.00)	
Contributions from licensees	12,545.73	13,301.75	(756.02)	(5.68)	
Revenue from deposit interests	1,229.60	671.81	557.79	83.03	
Revenue from administrative fines	4.19	218.28	(214.09)	(98.08)	
Contribution to the Digital TV Frequency Auction Fund (Section 53 (2))	0.00	258.87	(258.87)	(100.00)	
Other revenues	242.72	46.35	196.37	423.67	
Expenditures	6,718.16	8,674.73	(1,956.57)	(22.55)	2
Expenses supporting projects in Category 1	33.29	124.55	(91.26)	(73.27)	
Expenses supporting projects in Category 2	115.50	418.40	(302.90)	(72.39)	
Expenses supporting projects in Category 3 (NBTC)	18.59	25.75	(7.16)	(27.81)	
Expenses supporting projects in Category 3 (USO)	4,294.67	5,426.06	(1,131.39)	(20.85)	
Expenses supporting projects in Category 4	500.00	500.00	0.00	0.00	
Depreciation and amortization	1,752.31	1,849.25	(96.94)	(5.24)	
Expenses for the digital TV auction project	0.00	157.31	(157.31)	(100.00)	
Other expenses	2.88	72.35	(69.47)	(96.02)	
Other expenses (state remittance – the digital TV project)	0.92	101.06	(100.14)	(99.09)	
Revenues greater (less) than expenditures	7,804.08	6,822.33	981.75	14.39	

Table 25: Financial Report of the BTFP Comparison between 2024 and 2023 (Continued)

Unit: Million Baht

	2024 (As of Dec 31, 2024)	2023 (As of Dec 31, 2023)	Increase (Decrease) Million Baht	Percentage Increase (Decrease)	Remark
2. Financial Position					
Assets	98,327.72	96,610.45	1,717.27	1.78	3
Cash and cash equivalents	9,730.93	11,231.92	(1,500.99)	(13.36)	
Short-term investment	49,740.91	45,240.91	4,500.00	9.95	
Accrued revenue from contributions	8,140.26	7,909.04	231.22	2.92	
Accrued deposit interests	452.02	381.39	70.63	18.52	
Other current assets	119.86	154.48	(34.62)	(22.41)	
Accrued revenue receivable from spectrum reclamation (Section 53 (8/1))	27,178.35	27,178.35	0.00	0.00	
Fixed assets - net	0.19	3.84	(3.65)	(95.05)	
Infrastructure assets - net	2,965.20	4,510.52	(1,545.32)	(34.26)	
Liabilities	33,965.80	40,052.61	(6,086.81)	(15.20)	4
Short-term liabilities	4,073.19	5,552.50	(1,479.31)	(26.64)	
Funds to be remitted to the Treasury as national revenue	0.00	101.06	(101.06)	(100.00)	
Other current liabilities	5.18	3.04	2.14	70.39	
Accrued recalled spectrum compensation payable	3,246.82	3,246.82	0.00	0.00	
Deferred fund contribution revenue	26,616.14	31,117.04	(4,500.90)	(14.46)	
Retention money and coupons	15.72	23.40	(7.68)	(32.82)	
Deferred administrative fine revenue	8.75	8.75	0.00	0.00	
Net Assets	64,361.92	56,557.84	7,804.08	13.80	5,6
Founding capital	2,926.32	2,926.32	0.00	0.00	
Revenue greater (less) than accumulated expenses brought forward	53,631.52	46,809.19	6,822.33	14.57	
Revenue greater (less) than expenses of the current year	7,804.08	6,822.33	981.75	14.39	
Project contract obligations	18,230.21	24,063.38	(5,833.17)	(24.24)	
3. Financial Ratio					
Current Ratio (times)	16.72	11.48	5.24	45.64	
Debt Ratio (times)	0.35	0.41	(0.06)	(14.63)	
4. Cash Flow					
Cash inflow	10,342.07	10,098.34	243.73	2.41	7
Cash received from the Office of the NBTC's allocation	500.00	1,000.00	(500.00)	(50.00)	
Cash received from licensees' contributions	7,813.59	7,675.08	138.51	1.80	
Cash received from deposit interests	1,158.98	413.40	745.58	180.35	
Cash received from administrative fines	4.19	262.69	(258.50)	(98.40)	
Other cash received	865.31	747.17	118.14	15.81	
Cash outflow	7,579.80	10,286.58	(2,706.78)	(26.31)	8

	2024 (As of Dec 31, 2024)	2023 (As of Dec 31, 2023)	Increase (Decrease) Million Baht	Percentage Increase (Decrease)	Remark
Cash paid to support projects in Category 1	39.33	129.35	(90.02)	(69.59)	
Cash paid to support projects in Category 2	149.58	412.36	(262.78)	(63.73)	
Cash paid to support projects in Category 3 (NBTC)	18.59	21.04	(2.45)	(11.64)	
Cash paid to support projects in Category 3 (USO)	6,212.94	3,993.92	2,219.02	55.56	
Cash paid to support projects in Category 4	500.00	500.00	0.00	0.00	
Others	659.36	5,229.91	(4,570.55)	(87.39)	
Cash received greater (less) than cash paid	2,762.27	(188.24)	2,950.51	(1,567.42)	

Remarks: 1. Data as of December 31, 2024

2. The financial statements for the year ended December 31, 2024, shown for comparison, have not been audited and reviewed by the Office of the Auditor General of Thailand (OAG).

Source: The Research and Development Fund Bureau, Office of the NBTC

Notes to Financial Statements and Reporting

1. Net Revenue Analysis (2023 compared to 2024) aggregate net revenue totaling 974.82 million baht representing a 6.29 percent decrease compared to 2023, comprising: (1) The Office of the NBTC allocation revenue decreased by 500 million baht with 2023 receipts of 500 million baht versus 2024 receipts of 1,000 million baht, (2) Broadcasting Universal Service Obligation fund contribution revenue decreased net 11.38 million baht due to reduced revenue payments from broadcasting and television service license holders resulting from evolving consumer television viewing behaviors shifting toward alternative platform consumption, and (3) Telecommunications Universal Service Obligation fund contribution revenue decreased net 744.64 million baht, partially attributable to accounting adjustments converting fund contribution revenue pending recognition from liability classification to telecommunications USO fund contribution revenue under revenue classification to ensure consistency with revenue recognition principles upon telecommunications USO project expenditure disbursement. Furthermore, From the remaining deferred revenue balance previously treated according to accounting standards established by the Thailand Federation of Accounting Professions (TFAC) approval, which undergoes gradual write-off until completion, 2024 revenue adjustments decreased by 4,500.90 million baht compared to the previous year, correlating with Type 3 Telecommunications Universal Service Obligation project support expenditure recognition decreasing by 1,313.39 million baht. (4) Broadcast spectrum auction revenue BC Section 53(2) and recalled spectrum auction revenue Section 53(8/1) decreased by 258.87 million baht due to 2023 adjustments converting deferred spectrum auction revenue to BC spectrum auction revenue account Section 53(2) for correlation with additional spectrum auction expenditure recognition, with 254.53 million baht pending Ministry of Finance return for digital terrestrial television transition support project, and recording receivable revenue from the Office of the NBTC allocation and recalled spectrum auction fund contributions of 4.34 million baht, which did not occur in 2024. (5) Bank deposit interest revenue increased by 557.79 million baht, attributable to increased surplus fund placement in fixed deposit accounts combined with Bank of Thailand interest rate increases effective from late 2023. (6) Administrative penalty revenue from license holders violating regulations decreased by 214.09 million baht, while (7) other revenue increased by 196.37 million baht, where 2024 penalty revenue included project surplus returns and research compensation share increases of 7.50 million baht, late fund contribution payment penalties decreased by 26.50 million baht, with additional 2024 adjustment cancellation of commitment obligations totaling 214.93 million baht previously recorded as liabilities, reclassified as other revenue due to unsuccessful stamp duty collection recovery on remaining balances.
2. Expenditure Analysis (2024 compared to 2023) aggregate net expenditure totaling 1,956.57 million baht representing a 22.55 percent decrease compared to 2023, encompassing (1) Fund mission expenditures decreased by 401.32 million baht due to reduced expenditures pursuant to Section 52(1) across Type 1, 2, and 3 BC Must Carry requirements, research and development expenditures Section 52 (2), Type 1 and 2 personnel development expenditures Section 52 (3), Type 1, Type 3, and consumer protection expenditures Section 52 (4), Type 2 (2) Digital spectrum auction expenditure declined by 157.30 million baht reflecting non-recurring costs from 2023 Broadcasting spectrum auction activities with no equivalent expenditure in 2024 (detailed analysis available in Note 1: Revenue Analysis (2024 compared to 2023), subsection (4) Broadcasting (BC) Spectrum Auction Revenue pursuant to Section 53(2)) (3) Telecommunications Universal Service Obligation mission expenditures for universal service provision decreased by 1,331.39 million baht from 4,294.67 million baht in

- 2023 to 5,426.06 million baht in 2024. (4) Other expenditures decreased net 169.61 million baht due to state remittance expenditures from TV Digital spectrum auction reducing from 101.06 million baht in 2024 to 0.92 million baht in 2024, while 2024 equipment disposal losses increased net 2.68 million baht from transfers to other agencies resulting in 2.88 million baht losses. Additionally, 2023 included other expenditures of 72.35 million baht for penalty refunds to two contractors previously charged penalties during 2021 for late delivery, subsequently the Public Procurement and Supplies Administration Committee, Comptroller General's Department issued urgent communication No. KoKho (KoWoCho) 0405.4/C 693 dated August 6, 2021 regarding leniency assistance for contractors affected by late delivery due to Coronavirus (Covid-19) pandemic crisis, recommending 0.00 percent penalty rate for penalties during March 26, 2020 - June 30, 2022, encompassing delayed contract 000/2562 High-Speed Internet Service Project in Remote Areas (Zone C) Group 3, Northeast Region 1 where third period penalties to Chiller and Skytel Joint Venture totaling 36.20 million baht and delayed contract 001/2562 High-Speed Internet Service Project in Remote Areas (Zone C) Group 5, Northeast Region 3. Third period penalty restitution to National Telecom Public Company Limited totaling 36.20 million baht, with no such expenditures occurring in 2024, and (5) asset depreciation decreased net 96.94 million baht, partially attributable to equipment transfers to other agencies and governmental entities during 2024 resulting in accumulated depreciation adjustments of 2.59 million baht, with additional reduction from depreciation calculations for telecommunications infrastructure assets decreasing by 94.37 million baht.
3. Asset Performance Analysis (2024 compared to 2023) Aggregate net assets totaling 1,717.27 million baht representing a 1.78 percent increase compared to 2023, encompassing (1) cash and cash equivalents decreased net 1,500.49 million baht due to BTFP's disbursement activities including project support expenditures for types 1, 2, and 3 totaling 207.49 million baht, Type 3 Universal Service Obligation totaling 6,212.94 million baht, Type 4 totaling 500.00 million baht, Ministry of Finance institutional remittances totaling 101.98 million baht, and miscellaneous expenditures totaling 557.38 million baht. (2) Deferred fund contribution revenue for broadcasting and telecommunications sectors increased net 231.22 million baht, while accrued (3) bank deposit interest receivable increased 70.63 million baht attributable to increased surplus cash allocation in fixed-term deposit accounts with some deposits not yet reaching maturity, resulting in accrued interest revenue recognition calculations according to accrual accounting basis combined with Bank of Thailand interest rate increases effective from late 2023. (4) The Office of the NBTC receivables increased 25.82 million baht for value-added tax recovery pending from the Office of the NBTC through input tax payments with monthly VAT returns filed jointly with the Office of the NBTC. (5) Other current assets decreased net 60.44 million baht accrued income from penalties totaling 725.31 million baht due to 2023 recording of penalty assessments against NT's failure to deliver building management services arising from National Telecom's USO Net center service delivery in educational institutions not meeting contractual specifications, resulting in contract termination 000/2560 on September 28, 2017 for mobile telecommunications signal and high-speed internet services in Zone C+ border areas Group 2 (Northern Region 2) Part 1 High-Speed Internet Service (Broadband Internet Service) Phase 2 Period 2 valued at 331.98 million baht and contract No. 003/2560 on September 28, 2017 for mobile telecommunications signal and high-speed internet services in Zone C+ border areas Group 3 (Northeast Region) Part 1 High-Speed Internet Service (Broadband Internet Service) Phase 2 first installment valued at 393.33 million baht, with penalty payment receipts during 2023 for contract 002/2560 totaling 244.38 million baht and contract No. 003/2560 totaling 393.33 million baht, offset against periodic payments for first, second and third installments with remaining contractor payments under contract No. 002/2560 of 42.92 million baht offset against payments to National Telecom for fourth installment during 2024, including additional accounting adjustments converting prepaid purchase accounts to purchase accounts for tax refund preparation reducing prepaid purchase account balance net 17.03 million baht. (6) Receivables from spectrum recall allocation under Section 53(8/1) totaling 27,178.35 million baht remained unchanged, representing funds to be received by the Fund under Section 53(8/1) from spectrum allocation returns under Section 27(112/1) covering recall of unused or inadequately utilized spectrum for enhanced utilization according to the Organization of Frequency Allocation Act B.E. 2553 and amendments for Fund utilization according to Section 52(6) objectives supporting maximum spectrum usage efficiency including supporting spectrum recall from license holders for reallocation and supporting compensation, reimbursement, or remuneration for spectrum recall to achieve optimal spectrum usage efficiency after deducting spectrum allocation expenses, where the Office of the NBTC allocated recalled 2600 MHz for reallocation requiring Fund remittance of 30,174.34 million baht with Period 1 allocation of 3,000.33 million baht completed in 2020, remaining six periods totaling 27,178.35 million baht pending from the Office of the NBTC during 2025-2030 contingent upon the Office of the NBTC receipt of license fee payments from 2500-2690 MHz spectrum auction winners scheduled for payment during 2025-2030 according to the Notification of the NBTC on Criteria and Methods for Global Mobile Telecommunications Spectrum Usage Authorization in 700 MHz 1800 MHz 2600 MHz and 26 GHz prior to Fund allocation, with the Fund providing compensation disbursements MCOT Public Company Limited for 2600 MHz spectrum

recall compensation during 2022-2030 at 514.92 million baht annually totaling 3,089.51 million baht, recorded in spectrum recall remedy expenses payable account of 3,089.51 million baht plus 157.31 million baht for digital terrestrial television transition project commitments pending judicial determination for payment to litigation winners. (7) Land, buildings and equipment assets decreased net 3.64 million baht due to the first quarter of 2024 equipment transfers including electrical and radio equipment, publicity and dissemination equipment, and computer program equipment partially returned from grant recipients due to project termination and equipment not directly related to grant recipients' primary activities, transferred to the Officer of the NBTC internal departments including Regional Affairs Bureau and Broadcasting Engineering Standards Approval Bureau, and government organizations including Office of the Royal Development Projects Board (OPDPB) and Royal Thai Air Force. (8) Infrastructure assets decreased net 1,545.32 million baht due to 2024 recognition of Universal Service Obligation telecommunications network system equipment including surge protection devices totaling 4,039 units valued at 184.64 million baht, with construction-in-progress account value increases net 18.97 million baht and infrastructure asset book value adjustments to depreciation accounts totaling 8,012.53 million baht compared to 6,263.60 million baht in 2023, resulting in net value decrease calculated using straight-line depreciation method by equipment type and estimated useful life of approximately 5-10 years.

4. Liability Performance Analysis (2024 compared to 2023) aggregate net liabilities totaling 6,086.81 million baht representing a 15.20 percent decrease compared to 2023, encompassing (1) short-term liabilities decreased 1,479.31 million baht due to Fund asset adjustments reflected as of December 31, 2023, with 2024 accounting entries including loan and utility creditor transfer payments net 7.03 million baht, project creditor settlement payments net 10.80 million baht, equipment expenditure recordings including capital and operational expenses with equipment-under-installation (Capex/Opex) account adjustments net 885.11 million baht, accrued Fund expenses account reclassifications to creditor accounts upon billing document receipt totaling 361.44 million baht, and accrued Fund expenses account adjustments to miscellaneous revenue due to partial stamp duty collection refusal indicating no remaining support fund requests totaling 214.93 million baht. (2) Treasury remittance obligations pending as state revenue decreased 101.06 million baht attributable to 2023 recording of remaining unencumbered partial funds from digital terrestrial television transition project pending Ministry of Finance remittance as state revenue totaling 101.06 million baht, subsequently remitted during 2024 reducing other current liability classifications. (3) Spectrum recall remedy expenses payable see explanation in Note 3. Asset Analysis (2024 compared to 2023), subsection (6) Receivables from spectrum recall allocation under Section 53(8/1)). (4) Universal Service Obligation telecommunications fund contribution revenue pending recognition decreased net 4,500.90 million baht through systematic account adjustments of fund contribution revenue pending recognition during 2024 totaling 4,500.90 million baht reclassified as Universal Service Obligation telecommunications licensed operator revenue to ensure consistency with revenue recognition accounting principles upon Universal Service Obligation telecommunications project expenditure disbursement, derived from remaining balances previously treated according to accounting standards established by the Federation of Accounting Professions (TFAC) with Auditor General's Office approval, undergoing gradual write-off until completion.
5. Net Asset = Asset – Liabilities
6. Net Asset Analysis (2024 compared to 2023), (1) On December 31, 2024, the Fund achieved operational performance comprising aggregate revenue of 14,522.24 million baht and total expenditures of 6,718.16 million baht, resulting in operational results with net revenue exceeding expenditures by 7,804.08 million baht. (2) On December 31, 2023, the Fund recorded operational performance comprising aggregate revenue of 15,497.06 million baht and total expenditures of 8,674.73 million baht, resulting in net revenue exceeding expenditures by 6,822.33 million baht. (3) Net assets on December 31, 2024 increased by 981.75 million baht, representing a 14.39 percent increase compared to 2023.
7. Net Cash Flow Inflow Analysis (2024 compared to 2023), Net cash flow receipts increased by 243.73 million baht representing a 2.41 percent increase, primarily attributable to increased bank deposit interest earnings net 745.58 million baht and increased miscellaneous revenue receipts net 118.14 million baht.
8. Net Cash Flow Outflow Analysis (2024 compared to 2023), Net cash flow outflows decreased by 2,706.68 million baht representing a 26.31 percent reduction, primarily attributable to decreased support fund disbursements for Type 1, 2 and 3 projects by 355.25 million baht, while increased support fund disbursements for Type 3 Universal Service Obligation telecommunications projects by 2,219.02 million baht, with additional 2024 miscellaneous expenditure disbursements decreasing by 4,570.55 million baht due to 2023 liability recordings for Ministry of Finance remittances pending for low-income internet support initiatives under Universal Service Obligation telecommunications (USO Telecommunications) totaling 4,683.73 million baht, which was remitted during 2023 but did not recur in 2024

2.3 Efficient Operations of the Broadcasting, Television, and Telecommunications Development Funded project

initiatives have generated comprehensive benefits for Broadcasting, Television, and Telecommunications service sectors across research and development domains, technology innovation and infrastructure facilitation domains, service delivery domains promoting learning advancement and citizen quality of life improvement, and policy formulation with strategic planning domains for broadcasting, television, and telecommunications services extensively, through systematic monitoring and evaluation conducted across six assessment dimensions encompassing, overall performance assessment, relevancy evaluation, efficiency measurement, effectiveness analysis, impact assessment, and sustainability evaluation of funded projects completed within specified timeframes, totaling 40 projects successfully completed in 2024, achieving evaluation results across all 6 dimensions with a combined performance score at a relatively high level of 3.77 as follows:

1) Funded projects completed in 2024 achieved overall evaluation performance at a relatively high level scoring 4.05 out of 5 points, with performance breakdown including Technology, Innovation, and Infrastructure Facilitation domain achieving comprehensive results at a relatively high level scoring 4.19 out of 5 points, Research and Development domain achieving comprehensive results at a relatively high level scoring 4.02 out of 5 points, Policy Formulation and Strategic Planning for Broadcasting, Television, and Telecommunications Services domain achieving comprehensive results at a relatively high level scoring 4.00 out of 5 points, and Service Delivery, Learning Advancement, and Citizen Quality of Life Enhancement domain achieving comprehensive results at a relatively high level scoring 3.99 out of 5 points.

2) Funded projects completed in 2024 achieved relevancy assessment at a relatively high level scoring 3.99 out of 5 points, with relevancy

breakdown including Technology, Innovation, and Infrastructure Facilitation domain achieving relevancy alignment at a relatively high level scoring 4.23 out of 5 points, Service Delivery, Learning Advancement, and Citizen Quality of Life Enhancement domain achieving relevancy alignment at a relatively high level scoring 3.99 out of 5 points, Research and Development domain achieving relevancy alignment at a relatively high level scoring 3.91 out of 5 points, and Policy Formulation and Strategic Planning for Broadcasting, Television, and Telecommunications Services domain achieving relevancy alignment at a relatively high level scoring 3.83 out of 5 points.

3) Funded projects completed in 2024 achieved efficiency assessment at a relatively high level scoring 3.69 out of 5 points, with efficiency breakdown including Technology, Innovation, and Infrastructure Facilitation domain achieving efficiency performance at a relatively high level scoring 4.11 out of 5 points, Service Delivery, Learning Advancement, and Citizen Quality of Life Enhancement domain achieving relatively high efficiency performance scoring 3.75 out of 5 points, Research and Development domain achieving relatively high efficiency performance scoring 3.58 out of 5 points, and Policy Formulation and Strategic Planning for Broadcasting, Television, and Telecommunications Services domain achieving moderate efficiency performance scoring 3.33 out of 5 points.

4) Funded projects completed in 2024 achieved effectiveness assessment at a relatively high level scoring 3.91 out of 5 points, with effectiveness breakdown including Technology, Innovation, and Infrastructure Facilitation domain achieving relatively high effectiveness performance scoring 4.08 out of 5 points, Service Delivery, Learning Advancement, and Citizen Quality of Life Enhancement domain achieving effectiveness performance at a relatively high level scoring 3.93 out of 5 points, Research and Development domain achieving effectiveness performance at a relatively high level scoring 3.85 out of 5 points, and Policy Formulation and Strategic Planning for

Broadcasting, Television, and Telecommunications Services domain achieving effectiveness performance at a relatively high level scoring 3.80 out of 5 points.

5) Funded projects completed in 2024 achieved Impact assessment at a moderate level scoring 3.23 out of 5 points, with impact breakdown including Research and Development domain achieving impact performance at a relatively high level scoring 3.54 out of 5 points, Service Delivery, Learning Advancement, and Citizen Quality of Life Enhancement domain achieving impact performance at a moderate level scoring 3.13 out of 5 points, and domains with equivalent scoring achieving impact performance at a moderate level including Technology, Innovation, and Infrastructure Facilitation domain and Policy Formulation and Strategic Planning for Broadcasting, Television, and Telecommunications Services domain scoring 3.12 out of 5 points.

6) Funded projects completed in 2024 achieved Sustainability assessment at a relatively high level scoring 3.73 out of 5 points, with sustainability breakdown including Policy Formulation and Strategic Planning for Broadcasting, Television, and Telecommunications Services domain achieving sustainability performance at a relatively high level scoring 4.00 out of 5 points, Technology, Innovation, and Infrastructure Facilitation domain achieving sustainability performance at a relatively high level scoring 3.82 out of 5 points, Research and Development domain achieving sustainability performance at a relatively high level scoring 3.59 out of 5 points, and Service Delivery, Learning Advancement, and Citizen Quality of Life Enhancement domain achieving sustainability performance at a relatively high level scoring 3.50 out of 5 points, as presented in Table 26.

Table 26: The Research and Development Fund for Broadcasting, Television, and Telecommunications Services for Public Interest fund (BTFFP) has executed comprehensive

Aspect	Average Score						
	Overall	Relevance	Efficiency	Effectiveness	Impact	Sustainability	Final Rating
1. Research and development	4.02 (Relatively High)	3.91 (Relatively High)	3.58 (Relatively High)	3.85 (Relatively High)	3.54 (Relatively High)	3.59 (Relatively High)	3.75 (Relatively High)
2. Technology, innovation, and facilities	4.19 (Relatively High)	4.23 (High)	4.11 (Relatively High)	4.08 (Relatively High)	3.12 (Moderate)	3.82 (Relatively High)	3.92 (Relatively High)
3. Enhancement of service delivery, learning promotion, and quality of life	3.99 (Relatively High)	3.99 (Relatively High)	3.75 (Relatively High)	3.93 (Relatively High)	3.13 (Moderate)	3.50 (Relatively High)	3.71 (Relatively High)
4. Formulation of policies and strategic plans for broadcasting, television, and telecommunications services	4.00 (Relatively High)	3.83 (Relatively High)	3.33 (Moderate)	3.80 (Relatively High)	3.12 (Moderate)	4.00 (Relatively High)	3.68 (Relatively High)
Total Average Score	4.05 (Relatively High)	3.99 (Relatively High)	3.69 (Relatively High)	3.91 (Relatively High)	3.23 (Moderate)	3.73 (Relatively High)	3.77 (Relatively High)

Remarks : 1) A total score ranging from 1.00 to 1.80 is considered low.
 2) A range from 1.81 to 2.60 is considered a relatively low level.
 3) A range from 2.61 to 3.40 is considered a moderate level.
 4) A range from 3.41 to 4.20 is considered a relatively high level.
 5) A range from 4.21 to 5.00 is considered a high level.

Table 27: Results of the Evaluation in Overall, Relevance, Efficiency, Effectiveness, Impact, and Sustainability of Completed Grant-Funded Projects, Classified by Each Project, 2024

Project List		Number of Projects	Budget (Million Baht)	Overall	Relevance	Efficiency	Effectiveness	Impact	Sustainability	Final Rating
1. Research and development		10	78.29	4.02 (Relatively High)	3.91 (Relatively High)	3.58 (Relatively High)	3.85 (Relatively High)	3.54 (Relatively High)	3.59 (Relatively High)	3.75 (Relatively High)
1.1	The Automatic Suspect Tracking Platform using a Multi-Camera System Project		7.79	4.17 (Relatively High)	4.22 (High)	4.00 (Relatively High)	3.82 (Relatively High)	3.70 (Relatively High)	3.81 (Relatively High)	3.95 (Relatively High)
1.2	The Smart Air Purification Tower Project, Powered by Solar Energy, Integrates IoT Technology to Address PM 2.5 Dust Pollution in Public Areas		4.48	4.05 (Relatively High)	4.33 (High)	4.11 (Relatively High)	4.09 (Relatively High)	3.86 (Relatively High)	3.85 (Relatively High)	4.05 (Relatively High)
1.3	The Research and Development Project for a Radar-Based Drone Detection System, Designed to Prevent Unauthorized Drone Usage		9.96	4.75 (High)	4.72 (High)	4.54 (High)	4.61 (High)	4.45 (High)	4.28 (High)	4.56 (High)
1.4	The Prototype Project for Utilizing 5G Technology in the Service Industry		16.17	3.75 (Relatively High)	3.67 (Relatively High)	3.00 (Moderate)	3.60 (Relatively High)	3.38 (Moderate)	4.00 (Relatively High)	3.57 (Relatively High)
1.5	The Project to Study, Design, and Develop a Prototype of the National Digital Trade Platform System		19.97	3.75 (Relatively High)	3.67 (Relatively High)	3.17 (Moderate)	3.40 (Moderate)	2.88 (Moderate)	3.25 (Moderate)	3.35 (Moderate)
1.6	The Research and Development Project on Promoting Next-Generation Farmers to Become Digital Farmers, Utilizing Essential Fundamental Digital Farming Tools and Collaborative Blended Learning Approach: in the Agricultural Production Sector		6.89	4.0 (Relatively High)	3.67 (Relatively High)	3.33 (Moderate)	3.80 (Relatively High)	3.88 (Relatively High)	3.25 (Moderate)	3.65 (Relatively High)
1.7	The Research and Development Project on Open Hardware and Open Guidelines for Sustainable Farmer Development		4.16	3.75 (Relatively High)	3.50 (Relatively High)	3.17 (Moderate)	3.60 (Relatively High)	3.25 (Moderate)	3.50 (Relatively High)	3.46 (Moderate)

Project List		Number of Projects	Budget (Million Baht)	Overall	Relevance	Efficiency	Effectiveness	Impact	Sustainability	Final Rating
1.8	The Project to Develop 5G Standard Signal Encryption Devices for Educational Media and Commercial Applications		1.12	4.00 (Relatively High)	3.67 (Relatively High)	3.50 (Relatively High)	3.80 (Relatively High)	3.50 (Relatively High)	3.50 (Relatively High)	3.66 (Relatively High)
1.9	The Project to Develop Centimeter-Level Precision GNSS-Based Positioning Devices for Industrial Applications		2.07	4.00 (Relatively High)	3.67 (Relatively High)	4.00 (Relatively High)	4.00 (Relatively High)	3.25 (Moderate)	3.50 (Relatively High)	3.74 (Relatively High)
1.10	The Project to Develop an IoT Platform for Wildfire and Air Pollution Monitoring with LORA Technology		5.68	4.00 (Relatively High)	4.00 (Relatively High)	3.00 (Moderate)	3.80 (Relatively High)	3.25 (Moderate)	3.00 (Moderate)	3.51 (Relatively High)
2. Technology, innovation, and facilities		9	143.79	4.19 (Relatively High)	4.23 (High)	4.11 (Relatively High)	4.08 (Relatively High)	3.12 (Moderate)	3.82 (Relatively High)	3.92 (Relatively High)
2.1	The Portable Museum Guide and Data Management System Project for Supporting Usage in Areas with Limited Internet Connectivity		4.53	4.33 (High)	4.39 (High)	4.19 (Relatively High)	4.22 (High)	3.74 (Relatively High)	3.55 (Relatively High)	4.07 (Relatively High)
2.2	The Coordination Center Project for Cyber-security in Telecommunications Related Computer Systems		18.58	4.55 (High)	4.67 (High)	4.50 (High)	4.40 (High)	3.93 (Relatively High)	3.98 (Relatively High)	4.33 (Relatively High)
2.3	The Community-Supported Agriculture Platform (CAP) Project		5.54	4.58 (High)	4.73 (High)	4.53 (High)	4.47 (High)	4.27 (High)	4.09 (Relatively High)	4.45 (High)
2.4	The Monitoring System Expansion Project and Assistive Devices for the Elderly and Individuals Undergoing Physical Rehabilitation, Utilizing Public Communication Networks		14.06	4.27 (High)	4.43 (High)	4.44 (High)	4.59 (High)	3.71 (Relatively High)	4.51 (High)	4.33 (High)
2.5	The Second Phase of the National Readiness Development Project for 5G Wireless Communication: Massive MIMO Technology and High-Precision Positioning Use Cases		1.64	4.00 (Relatively High)	3.83 (Relatively High)	3.83 (Relatively High)	3.40 (Moderate)	2.50 (Relatively Low)	2.75 (Moderate)	3.39 (Relatively High)
2.6	The Data Analytics System Project on Economic Impacts to Consumers		39.17	3.50 (Relatively High)	3.83 (Relatively High)	3.17 (Moderate)	3.60 (Relatively High)	2.38 (Relatively Low)	4.00 (Relatively High)	3.41 (Relatively High)

Project List		Number of Projects	Budget (Million Baht)	Overall	Relevance	Efficiency	Effectiveness	Impact	Sustainability	Final Rating
2.7	The Training Project on Digital Marketing Strategies to Support Thailand 4.0		1.97	4.25 (High)	3.50 (Relatively High)	3.83 (Relatively High)	4.00 (Relatively High)	2.63 (Moderate)	3.00 (Moderate)	3.53 (Relatively High)
2.8	The Project for the Installation and Integration of Information and Communication Systems Using Artificial Intelligence Technology to Enhance Security in the Historical Canal Zones and Surrounding Communities under the Ministry of Defense		56.24	5.00 (High)	5.00 (High)	5.00 (High)	5.00 (High)	1.67 (Low)	5.00 (High)	4.44 (High)
2.9	The Young Innovators Development Camp Project for Upper Northern Provinces of Thailand		2.06	3.25 (Moderate)	3.67 (Relatively High)	3.50 (Relatively High)	3.00 (Moderate)	3.25 (Moderate)	3.50 (Relatively High)	3.36 (Moderate)
3. Enhancement of service provision, learning promotion, and people's quality of life		20	157.54	3.99 (Relatively High)	3.99 (Relatively High)	3.75 (Relatively High)	3.93 (Relatively High)	3.13 (Moderate)	3.50 (Relatively High)	3.71 (Relatively High)
3.1	The KidBright Net Project: Communication Networks for Education		4.59	4.34 (High)	4.62 (High)	4.41 (High)	4.33 (High)	3.74 (Relatively High)	3.78 (Moderate)	4.20 (Relatively High)
3.2	The Project to Expand Community Internet Service Centers for Disadvantaged Groups in Remote Highland Villages		7.84	4.39 (High)	4.49 (High)	4.17 (Relatively High)	4.11 (Relatively High)	3.79 (Relatively High)	3.68 (Relatively High)	4.10 (Relatively High)
3.3	The Skill Development Project for Future Data Journalists		1.30	3.50 (Relatively High)	4.00 (Relatively High)	3.83 (Relatively High)	3.20 (Moderate)	2.13 (Relatively Low)	3.50 (Relatively High)	3.36 (Moderate)
3.4	The Pilot Project for an Integrated Sign Language Service Platform for the Hearing Impaired		5.13	4.50 (High)	4.33 (High)	4.17 (Relatively High)	4.20 (Relatively High)	4.38 (High)	4.25 (High)	4.30 (Moderate)
3.5	The Learning Center Pilot Project for Enhancing Digital Technology Skills (Digital Native)		7.26	3.75 (Relatively High)	4.17 (High)	3.83 (Relatively High)	4.00 (Relatively High)	3.00 (Moderate)	3.25 (Moderate)	3.67 (Relatively High)
3.6	The Internet-Based Learning Center Project to Promote Information System Literacy among the Elderly for Quality of Life Enhancement		8.82	3.50 (Relatively High)	4.00 (Relatively High)	3.83 (Relatively High)	3.80 (Relatively High)	3.25 (Moderate)	3.75 (Relatively High)	3.69 (Relatively High)

Project List		Number of Projects	Budget (Million Baht)	Overall	Relevance	Efficiency	Effectiveness	Impact	Sustainability	Final Rating
3.7	The Innovation Project to Develop Digital Citizenship Skills Regarding Information Technology Security for the Elderly		3.52	3.30 (Moderate)	3.33 (Moderate)	3.50 (Relatively High)	3.20 (Moderate)	2.63 (Moderate)	2.75 (Moderate)	3.07 (Moderate)
3.8	The Personnel Capacity Enhancement Project for Utilizing 5G Technology in the Service Industry		3.51	3.50 (Relatively High)	3.33 (Moderate)	3.67 (Relatively High)	4.00 (Relatively High)	3.25 (Moderate)	3.50 (Relatively High)	3.54 (Relatively High)
3.9	The Broadcasting and Television Consumer Network Empowerment Project		6.03	4.00 (Relatively High)	4.67 (High)	5.00 (High)	4.80 (High)	3.38 (Moderate)	3.75 (Relatively High)	4.27 (High)
3.10	The Pilot Prototype Project on the Application of 5G Technology in Teaching and Learning for Educational Institutions with National Security Missions		14.20	4.75 (High)	4.17 (Relatively High)	3.83 (Moderate)	4.20 (Relatively High)	3.50 (Relatively High)	3.75 (Relatively High)	4.03 (Relatively High)
3.11	The ‘Prachabodi Award’ Creative Media Project: The “Good People Under the Sky” Program		3.63	3.00 (Moderate)	3.17 (Moderate)	3.17 (Moderate)	3.20 (Moderate)	3.50 (Relatively High)	2.75 (Moderate)	3.13 (Moderate)
3.12	The Production Project of the National Luk Thung (Thai Country Music) Singing Contest Program		30.00	4.00 (Relatively High)	3.67 (Relatively High)	3.83 (Relatively High)	4.00 (Relatively High)	2.13 (Relatively Low)	3.00 (Moderate)	3.44 (Relatively High)
3.13	The Short Film Contest Project on the Theme “Opportunities Provided by Society”		2.04	5.00 (High)	5.00 (High)	4.17 (Relatively High)	4.60 (High)	1.75 (Low)	3.50 (Relatively High)	4.00 (Relatively High)
3.14	The ‘White Television Awards’ Project		8.49	3.25 (Moderate)	3.67 (Relatively High)	3.50 (Relatively High)	3.40 (Relatively High)	3.13 (Moderate)	3.25 (Moderate)	3.37 (Moderate)
3.15	The Social Media Literacy Development Project for Creative Purposes		5.50	4.00 (Relatively High)	3.83 (Relatively High)	3.67 (Relatively High)	4.00 (Relatively High)	3.00 (Moderate)	3.25 (Moderate)	3.63 (Relatively High)
3.16	The Television Program Production Project for Security		17.14	4.25 (High)	3.50 (Relatively High)	2.33 (Relatively Low)	3.00 (Moderate)	1.88 (Relatively Low)	3.25 (Moderate)	3.03 (Moderate)

Project List		Number of Projects	Budget (Million Baht)	Overall	Relevance	Efficiency	Effectiveness	Impact	Sustainability	Final Rating
3.17	The Development Project of an Appropriate Telemedicine System Model for Correctional Inmates		16.93	4.75 (High)	4.83 (High)	3.50 (Relatively High)	5.00 (High)	3.00 (Moderate)	4.75 (High)	4.31 (High)
3.18	The Prototype Development Project for Technology Enhancing the Quality of Remote Emergency Medical Services in Rural Areas via High-Speed Digital Networks (Phase Two)		6.93	4.00 (Relatively High)	3.67 (Relatively High)	2.83 (Moderate)	4.00 (Relatively High)	3.75 (Relatively High)	3.50 (Relatively High)	3.63 (Relatively High)
3.19	The Remote Child and Youth Visitation Project via Online System		4.41	4.00 (Relatively High)	3.67 (Relatively High)	3.67 (Relatively High)	3.80 (Moderate)	3.63 (Relatively High)	3.25 (Moderate)	3.67 (Relatively High)
3.20	The Research and Development Project on a Game Application to Improve Language Learning and Memory Skills for Children with Down Syndrome		0.27	4.00 (Relatively High)	3.67 (Relatively High)	4.00 (Relatively High)	3.80 (Relatively High)	3.75 (Relatively High)	3.50 (Relatively High)	3.79 (Relatively High)
4.	Formulation of policies and strategic plans for broadcasting, television, and telecommunications services	1	2.66	4.00 (Relatively High)	3.83 (Relatively High)	3.33 (Moderate)	3.80 (Relatively High)	3.12 (Moderate)	4.00 (Relatively High)	3.68 (Relatively High)
4.1	The Measure and Recommendation Project for Establishing Policies and Regulations on Consumer Protection in the Broadcasting and Television Industries in the Convergence Era		2.66	4.00 (Relatively High)	3.83 (Relatively High)	3.33 (Moderate)	3.80 (Relatively High)	3.12 (Moderate)	4.00 (Relatively High)	3.68 (Relatively High)
Total Average Score		40	382.28	4.05 (Relatively High)	3.99 (Relatively High)	3.69 (Relatively High)	3.91 (Relatively High)	3.23 (Moderate)	3.73 (Relatively High)	3.77 (Relatively High)

Remarks : 1) A total score ranging from 1.00 to 1.80 is considered low.
2) A range from 1.81 to 2.60 is considered a relatively low level.
3) A range from 2.61 to 3.40 is considered a moderate level.
4) A range from 3.41 to 4.20 is considered a relatively high level.
5) A range from 4.21 to 5.00 is considered a high level.

The Research and Development Fund for Broadcasting, Television, and Telecommunications Services for Public Interest fund (BTFP) has executed comprehensive development initiatives and propelled the nation toward digital transformation to enhance citizen quality of life and advance national communications infrastructure across broadcasting, television, and telecommunications service operations through BTFP's strategic project portfolio that received institutional funding and achieved successful completion within designated operational timeframes implementations completed in 2024, with operational activities systematically organized into four primary institutional domains encompassing.

The Research and Development, Technology Innovation and Infrastructure Facilitation, Service Provisioning with Educational Advancement and Citizen Quality of Life Enhancement, and Policy Formulation with Strategic Planning for Broadcasting, Television, and Telecommunications Service Operations, where each institutional domain demonstrates strategic significance and generates multi dimensional societal benefits. The Research and Development domain emphasizes research initiatives and innovation development to address national security and environmental challenges, featuring prominent exemplary project implementations including the Automatic Suspect Tracking using Multi-camera System initiative, which deploys artificial intelligence technology and advanced image processing capabilities to enhance security operational effectiveness in public spaces, complemented by the solar-powered intelligent unmanned aerial systems project that integrates Internet of Things technology to mitigate PM 2.5 particulate matter contamination in public areas, and the traffic monitoring system development initiative designed to prevent unauthorized theft activities, thereby promoting aviation safety enhancement and national security fortification.

Technology, Innovation, and Infrastructure Facilitation emphasized systems and platforms addressing diverse citizen needs across multiple dimensions, featuring strategic projects including the portable museum tour information management system project capable of operating in areas with limited internet connectivity, the Telecommunications Computer Security Coordination Center initiative providing cyber threat monitoring and response capabilities, the Community-supported Agriculture Platform (CAP) agricultural management system facilitating farmer-consumer connections while promoting community economic development, and the expansion initiative for elderly and disabled person tracking and assistance systems through public benefit communication network devices to enhance healthcare delivery through communication networks supporting vulnerable populations and disadvantaged communities.

Service Delivery, Learning Advancement, and Citizen Quality of Life Enhancement emphasized creating learning societies and comprehensive technology accessibility, featuring strategic initiatives including KidBright Net Communication Network for Education project supporting digital learning advancement and school network connectivity, and the Internet Service Center Expansion Project for Disadvantaged Communities in Advanced Public Health Village Clusters that reduces digital divides while promoting lifelong learning opportunities for remote area populations.

Policy Formulation and Strategic Planning for Broadcasting, Television, and Telecommunications Services emphasized policy development and strategic planning across related domains, featuring strategic projects including the Measures and Recommendations for Policy and Regulatory Framework Development for Consumer Protection in Broadcasting and Television Services during the convergence era initiative for advancing consumer protection measures through updated

regulatory frameworks and fair industry competition promotion, benefiting broadcasting operations and providing recommendations for consumer protection with impact assessment during the media convergence era. In summary, the BTFP’s comprehensive operations across all four domains generate extensive positive impacts on Thai society, encompassing quality of life enhancement, social security strengthening, information access inequality reduction, and national digital communication ecosystem development, collectively serving as crucial foundations for advancing Thailand toward sustainable and resilient societal development.

3. Annual Operational Implementation Guidelines for 2025.

3.1 Policy and Strategy Implementation

Goals In 2025, the Fund Management Committee has established operational goals to drive Fund policy and strategy implementation as follows: 1) Evaluating the four-year action plan for the broadcasting and telecommunications Plan B.E. 2563-2566 (2020 – 2023) to achieve established targets, including studying, analyzing, and preparing the five-year action plan for Broadcasting and Telecommunications Research and Development Fund for Public Interest B.E. 2568-2572

(2025-2029), 2) Developing cooperation approaches with relevant agencies to drive fund allocation distribution to grassroots target groups, proactively implementing knowledge and understanding forums about comprehensive and equitable fund allocation to target groups, reviewing and improving fund allocation processes including regulations, notifications, and grant contracts to align with Fund Management Committee policy directions requiring proactive work, including establishing multi-directional communication channels to respond to inquiries or concerns about fund allocation requests and utilizing research results through integration and extension for sustainable national development benefits, and 3) Establishing budget allocation frameworks and timeframes for fund allocation in 2025.

3.2 The NBTC Fund Allocation Objectives During Committee at the 30th Meeting of 2024 on December 18, 2024, and 31th Meeting of 2024 (continuation session) on December 24-26, 2024, institutional approval was granted for establishing the Fund’s resource allocation budget framework for 2025 within an aggregate budget framework of 1,100 million baht, as presented in Table 28.

Table 28: The Budget Framework and the Fund Allocation Policies for the Year 2025

No.	Budget Framework for Allocation for the Year 2024	Amount (million baht)
1	Category 1 : projects proposed by eligible grantees, requesting promotion and funding support in alignment with the objectives of the BTFP under Sections 52 (1), (2), (3), and (4) of the Act on the Organization, and its amendment	300.00
2	Category 2 : projects specified by the Fund Management Committee to achieve the objectives of the BTFP under Sections 52 (1), (2), (3), and (4) of the Act on the Organization, and its amendment	300.00
	2.1 Projects in alignment with the Fund Management Committee’s policy (Terms of Reference: TOR)	200.00
	2.2 Ongoing Grant Projects (by agreements with granted agencies) to facilitate the further development of projects previously supported by the Fund	100.00
3	Category 3 :	.. ²²
	3.1 Projects in alignment with the NBTC’s policy (Terms of Reference: TOR)	
	3.2 Projects in alignment with relevant laws (the Broadcasting Business Act and the Telecommunications Business Act)	
4	Category 4 : Projects: supporting legal proceedings of the Thai Media Fund according to Section 52 (5) of the Act on the Organization, B.E. 2553 (2010) and its amendment	500.00
Total		1,100.00

Source : Research and Development Fund Bureau, Office of the NBTC

²² Unlimited budget limit

3.3 Fund Expenditure Performance Monitoring and Assessment Targets

The BTFP will continuously advance management systems to achieve greater efficiency and security than previous years through systematic Fund asset administration and preservation for sustainable growth and financial stability, while developing comprehensive rules, regulations, and operational criteria to ensure modern, consistent, and integrated alignment with other relevant strategic plans, featuring comprehensive work process coverage, transparency, accountability, and good governance framework implementation, developing Real-time Monitoring systems for systematic monitoring and evaluation, establishing international standard risk assessment and internal control systems, implementing monitoring and evaluation mechanism verification with cross-checking protocols for project duplication prevention between relevant agencies, and deploying information technology solutions in operational practices to enhance operational efficiency for the Research and Development Fund Bureau and grant

beneficiaries, including developing comprehensive the BTFP Fund Grant Manual for distribution through digital platforms and printed publications to enhance procedural understanding and operational process comprehension for grant applicants and stakeholders, while strengthening Research and Development Fund Bureau personnel development capabilities to effectively support the BTFP policy and strategic plan implementation for goal achievement across skill and experience domains including policy and strategic analysis, project evaluation and assessment, financial and accounting management, research outcome administration and intellectual property management, and foreign language proficiency, establishing comprehensive Knowledge Management Portal for lesson sharing and best practice dissemination, complemented by promoting public awareness of Fund operational achievements, funded research outcomes supported by the BTFP, socially beneficial information, and the BTFP institutional recognition enhancement.





Significant Resolutions of the NBTC 2024

Business Merger Monitoring Between True Corporation Public Company Limited and Total Access Communication Public Company Limited.

Implementation of Regulatory Monitoring and Compliance Oversight Related to Mobile Phone Service Rate Supervision According to Specific Merger Conditions and Regulatory Measures in Corporate Consolidation Between True Corporation Public Company Limited and Total Access Communication Public Company Limited.

The NBTC during the 5th NBTC Board Meeting No. of 2022 on October 20, 2022, resolved to approve specific merger conditions and measures for business consolidation between True Corporation Public Company Limited and Total Access Communication Public Company Limited, where specific conditions and measures related to mobile service regulation encompass: 1) Average service reduced by 12 percent utilizing new average pricing methodology with user-weighted calculations for each promotional package (WEIGHTED AVERAGE) within 90 days following business merger completion, and 2) provision of specially discounted promotional packages for low-income and socially disadvantaged populations with comprehensive outreach campaigns to target demographics.

In 2024, the Office of the NBTC implemented systematic monitoring and compliance oversight of both specific merger conditions and measures as delegated by the Subcommittee for Business Merger Monitoring and Performance Evaluation according to the Notification of the NBTC on Regulatory Measures for Merging for Mergers and Acquisition in the Telecommunications Sector (Monitoring Subcommittee) as follows:

1) Conducted monitoring and oversight of the 12 percent average service rate reduction through systematic calculations of average service decreases,

including periodic monitoring of the 12 percent service rate reduction implementation as delegated by the Monitoring Subcommittee meetings.

2) Conducted monitoring and oversight of the provision of specially discounted promotional packages for low-income and socially disadvantaged populations using the following verification methodologies:

- Have specially discounted promotional packages been made available for low-income and socially disadvantaged populations?
- Have comprehensive outreach initiatives been implemented to inform target populations?

The Office of the NBTC conducted verification inspections and prepared the aforementioned inspection results for submission to the Monitoring Subcommittee for review and presentation to the NBTC meeting for consideration during the 2nd NBTC Meeting of 2025 on January 24, 2025, where the NBTC meeting resolved as follows:

1. Determined it appropriate for True Corporation Public Company Limited to implement promotional service packages with special service rates for low-income and socially disadvantaged populations, including promotional packages offering 10 GB internet access (FUP 64 Kbps) priced at 47 baht and promotional packages providing 30 minutes calling time plus 10 GB internet priced at 49 baht, through implementation of such promotional packages for low-income users and socially disadvantaged populations, with total pricing including VAT not exceeding 66.67 baht per person per month, based on average household income according to state welfare card eligibility criteria of 100,000 baht per household

annually, where telecommunications expenditure calculations according to ITU recommendations result in average household expenditure of 166.67 baht per month or 66.67 baht per person per month.

2. Expand outreach channels as recommended by the Office of the NBTC by incorporating additional channels that typically provide mobile service offerings, including all True service centers nationwide, Call Center service facilities 1242, 1678 (available 24 hours daily), online platforms through website <https://service.truecorp.co.th/> and Mobile Application platforms including True iService and dtac Application, while enhancing outreach through organizations and foundations serving low-income and socially disadvantaged populations.

3. Regarding existing promotional service packages with automatic service renewal that are inconsistent with Article 17 the Notification of the NBTC on Determination and Regulatory of Domestic Mobile Service Rate Structure (Notification) requiring service users to express their intention to continue service utilization, therefore requesting True Corporation

Public Company Limited to implement adjustments for compliance with the Notification requirements.

4. Determined it appropriate to add supplementary conditions to extend number usage validity periods for promotional service packages targeting low-income and socially disadvantaged populations, including one-time top-up enabling number usage for up to six months or one year with accumulation not exceeding one year.

The Office of the NBTC coordinated and expedited True Corporation Public Company Limited to implement the NBTC meeting resolutions while conducting continuous monitoring and oversight of such operational activities, where the 2nd NBTC Meeting of 2025 on January 14, 2025, resolved to approve the provision of specially discounted promotional packages for low-income and socially disadvantaged populations and delegated True Corporation Public Company Limited to expedite outreach campaigns for comprehensive awareness among low-income and disadvantaged populations.

Business Merger Monitoring Between Advanced Wireless Network Company Limited and Triple T Broadband Public Company Limited.

Corporate Merger Between Advanced Wireless Network Company Limited (AWN) and Triple T Broadband Public Company Limited (TTTBB).

The NBTC, during 12th Special Board Meeting of 2023 on November 10, 2023, resolved to authorize the corporate merger and establish specific regulatory measures according to the Notification of the NBTC on Measures to Prevent Monopolistic or Anti-Competitive Practices in Telecommunications B.E. 2549 (2006), and approved specific conditions and measures for AWN and TTTBB implementation.

The Office of the NBTC is currently conducting monitoring and oversight of implementation according to specific conditions and measures of the aforementioned corporate merger, with inspection

and evaluation of the corporate merger through monitoring and operations conducted jointly with the Subcommittee for Corporate Merger Monitoring and Inspection in the case of the corporate merger between Advanced Wireless Network Company Limited and Triple T Broadband Public Company Limited (AWN and TTTBB case), where the Office of the NBTC serving as Subcommittee Secretariat has reported progress and implementation according to various specific conditions and measures to the NBTC meetings every three months, with the Subcommittee conducting three meetings during August-December 2024 to consider issues related to corporate merger monitoring and performance evaluation as follows:

1) Monitoring and oversight methodologies for implementation by corporate merger notification parties, operational timeframes for implementation according to the NBTC meeting resolutions and submission requirements for separate telecommunications business accounting reports and business performance reports, and legal enforcement procedures in cases where corporate merger notification parties fail to submit reports within designated timeframes.

2) Definition of low economic value geographic areas for use in monitoring and oversight of implementation according to the NBTC resolution during 12th Special Board Meeting of 2023 on November 10, 2023, regarding Fixed Broadband Access network expansion plans to low economic value regions.

Additionally, the Office of the NBTC has conducted monitoring and expedited implementation by corporate merger entities according to the NBTC

resolution during 12th Special Board Meeting of 2023 on November 10, 2023, through coordination with corporate merger entities to clarify implementation according to specific conditions and measures across all issues, including expediting submission of separate telecommunications business accounting reports, business performance reports, and Fixed Broadband Access network expansion plans to low economic value regions, where for data submitted by licensed operators, the Office of the NBTC has presented to Subcommittee meetings for consideration within institutional authority scope, and in cases where licensed operators submit unclear or incomplete data, the Office of the NBTC has issued official communications requesting licensed operators to provide clarification or complete actions within designated timeframes.



PART 3 REPORT ON MARKET ANALYSIS AND COMPETITION IN BROADCASTING, TELEVISION, TELECOMMUNICATIONS, AND SATELLITE SERVICES IN 2024



Market Analysis and Competition in Broadcasting, Television, Telecommunications, and Satellite Services in 2024

Market Analysis and Competitive Environment in Telecommunications Services.

The telecommunications market comprises three primary service categories: Fixed Telephone Services, Mobile Telephone Services, and Internet Access Services, detailed as follows.

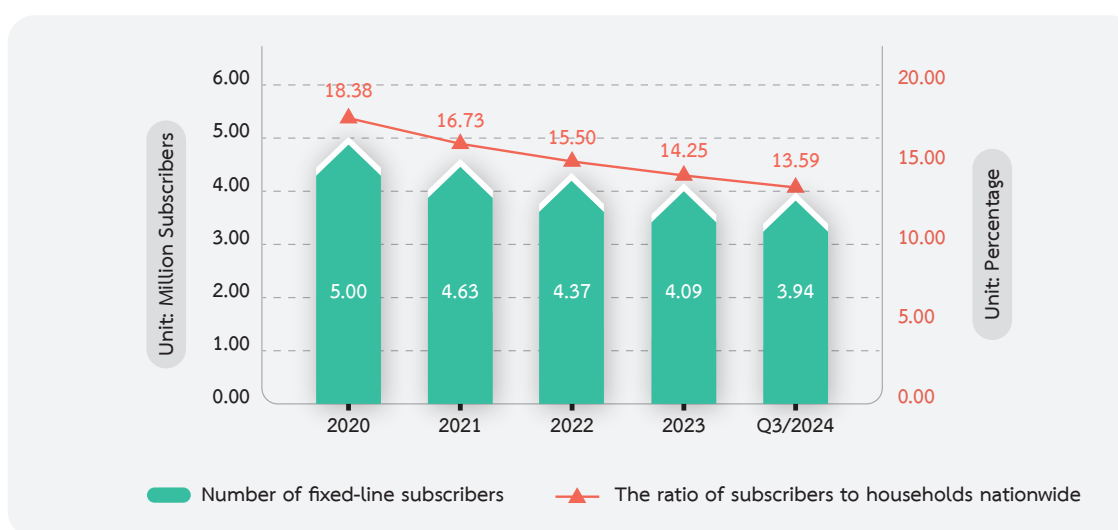
1. Fixed-Line Telephone Service Market.

The Fixed-Line Telephone Services market in Thailand has exhibited a sustained decline in subscribers since 2020, attributed to behavioral migration patterns and technology substitution favoring Mobile Network Services, which demonstrate superior accessibility, performance metrics, and cost-effectiveness. Fixed-line telephone services maintain critical infrastructure relevance for enterprise

communications and Public Administration entities, functioning as primary interfaces for citizen access.

The third quarter of 2024 statistics indicate 3.94 million Fixed Line Subscribers, reflecting a 2.67 percent decrease compared to 2023. The household penetration density measures 13.59 per household. Market concentration analysis for the third quarter of 2024 reveals: National Telecom Public Company Limited (NT) maintains a dominant position at 64.69 percent market share, True Internet Corporation Limited (TICC) holds 29.60 percent, and Advanced Wireless Network Limited (AWN) accounts for 5.47 percent, as presented in Chart 9 and Table 29.

Chart 9 : Number of Fixed-Line Subscribers from 2020 to the third quarter of 2024



Source: Telecommunications Policy and Resources Management Bureau, Office of the NBTC.

Table 29 : Market Share of the Fixed-Line Telephone Service Sector, Classified by Operators.

Market Share of the Fixed-Line Telephone Service Market	2023 (Percentage)	Q3/2024 (Percentage)
National Telecom Public Company Limited (NT)	65.42	64.69
True Internet Corporation Company Limited (TICC)	29.03	29.60
Advanced Wireless Network Company Limited (AWN)*	5.23	5.47
Otaru World Corporation Company Limited (OTW)	0.32	0.23
True Move H Universal Communication Company Limited (TUC)**	Combine with TICC***	Combine with TICC***

Remarks: * Advanced Wireless Network Company Limited and Triple T Broadband Public Company Limited announced their merger in the broadband internet business on November 22, 2023.

** Formerly DTAC TriNet Company Limited (DTN), TUC merged with DTN on August 3, 2023.

*** TUC and TICC are subsidiaries of True Corporation Public Company Limited; therefore, their market shares are combined.

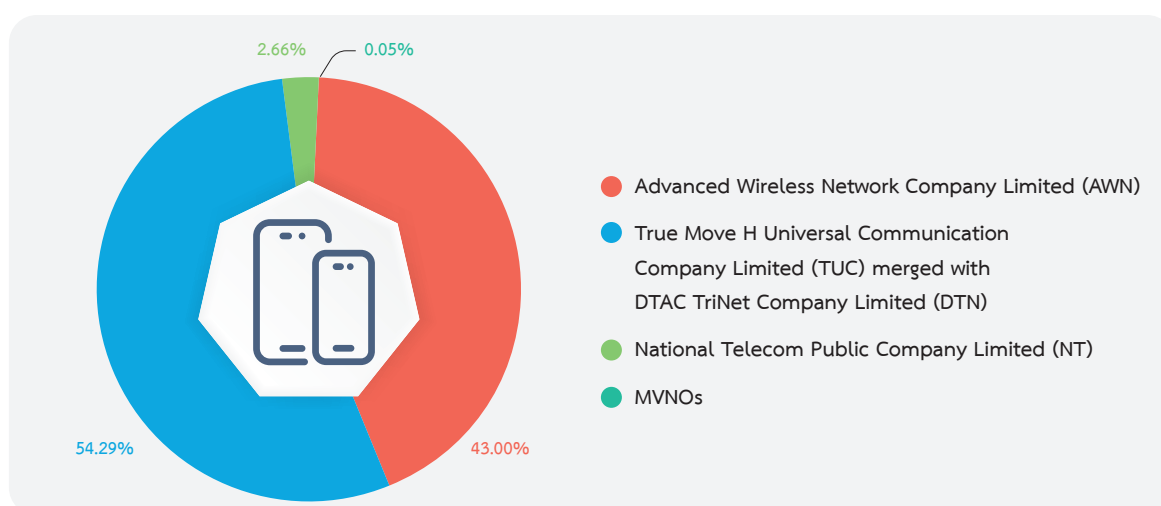
Source: Telecommunications Policy and Resources Management Bureau, Office of the NBTC.

2. Mobile Phone Service Market.

Mobile subscribers in third quarter of 2024 totaled 115,927,985, representing a 4.13 percent decline compared to 2023. The mobile penetration rate reached 175.73 subscribers per 100 inhabitants. Market share analysis for the third quarter of 2024

reveals TUC holding the dominant position with 54.29 percent, followed by AWN at 43.00 percent, as presented in Chart 10 and Table 30. The mobile market's Herfindahl-Hirschman Index (HHI) decreased from 4,848 in 2023 to 4,803 in the third quarter of 2024.

Chart 10 : Market Share of Mobile Phone Services



Remark: True Move H Universal Communication Company Limited (TUC) merged with DTAC TriNet Company Limited (DTN) on August 3, 2023. At the NBTC meeting on October 20, 2022, the NBTC resolved that TUC and DTN shall continue to operate under separate service branding for a period of three years.

Source: Telecommunications Policy and Resources Management Bureau, Office of the NBTC.

Table 30 : Market Share of Mobile Phone Services by Operators

Market Share of the Mobile Phone Service Market	2023 (Percentage)	Q3/2024 (Percentage)
Advanced Wireless Network Company Limited (AWN)	43.05	43.00
True Move H Universal Communication Company Limited (TUC+DTN)	54.68	54.29
National Telecom Public Company Limited (NT)	2.23	2.66
Mobile Virtual Network Operators (MVNOs)	0.04	0.05

Source: Telecommunications Policy and Resources Management Bureau, Office of the NBTC.

3. Internet Service Market.

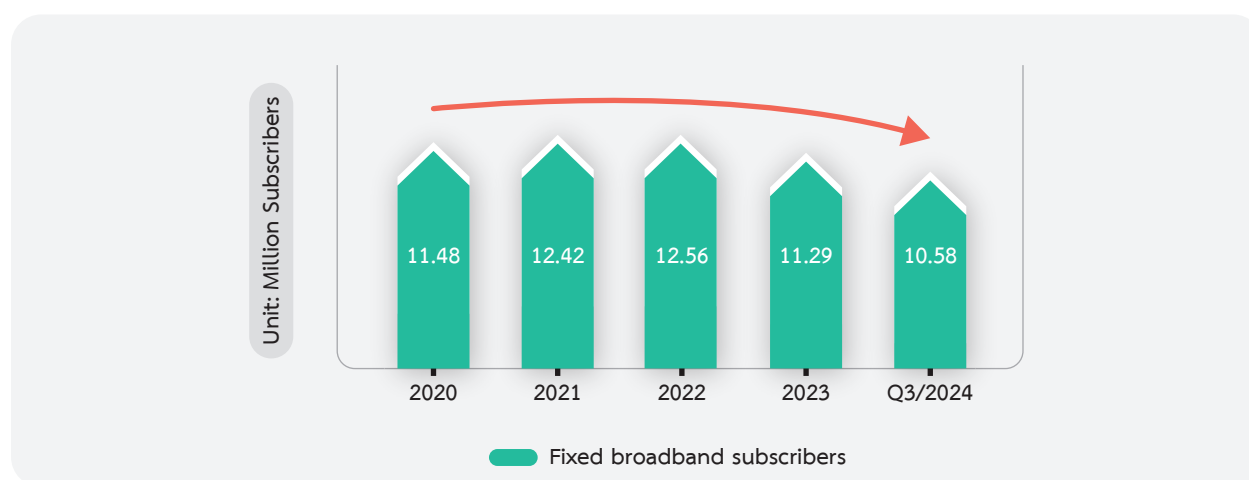
Thailand's internet services currently offer multiple delivery channels, with service providers continuously enhancing signal quality, service standards, and deploying advanced technologies to meet diverse user demands and accommodate growing traffic volumes. Most users access services through two primary channels: fixed high-speed internet services and mobile high-speed internet services, as follows:

3.1 Fixed High-Speed Internet Services (Fixed Broadband).

Fixed broadband services have predominantly transitioned to FTTP (Fiber to the Premises) technology, with fiber optic networks extending from network origins to end-user premises and small businesses across nearly the entire market. The third quarter of 2024 recorded 10.58 million fixed

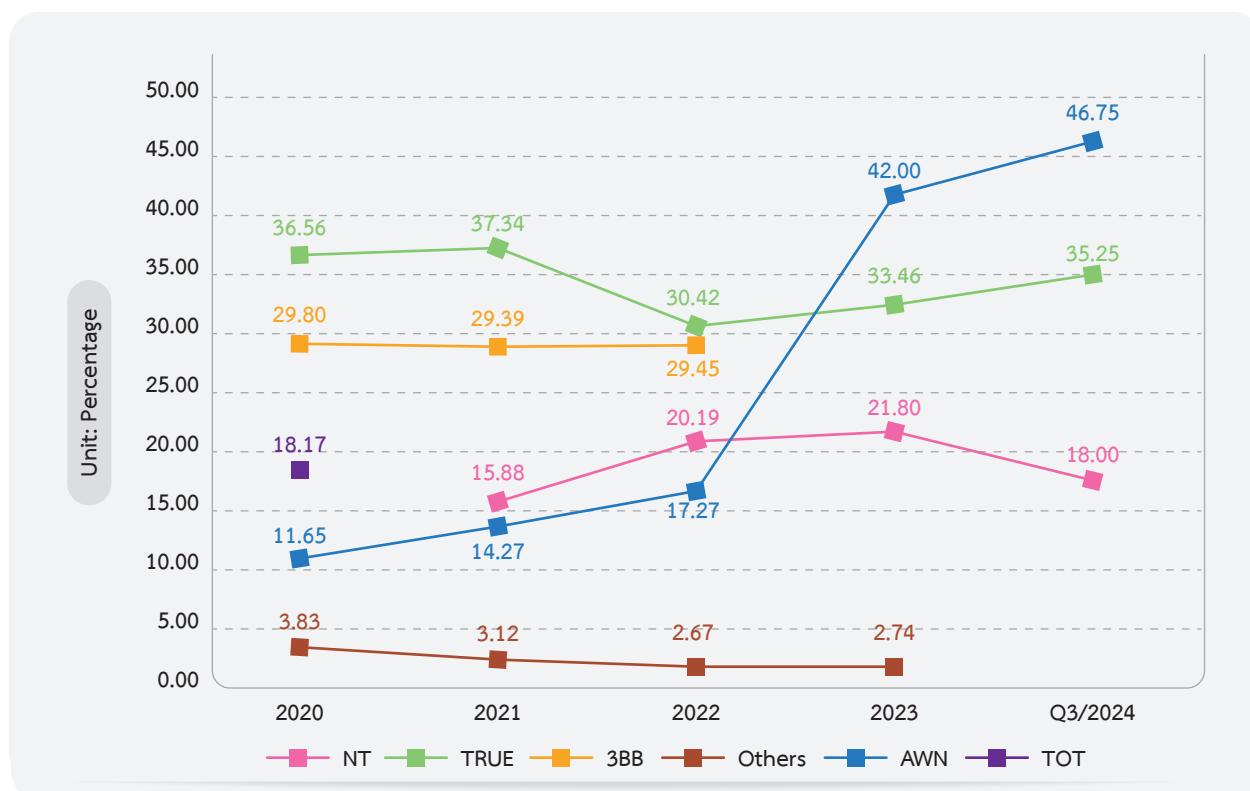
broadband subscribers, representing a 6.32 percent decline from 2023. Nevertheless, fixed broadband remains essential for bandwidth-intensive applications such as high-definition streaming, large-scale data downloads, and connectivity in areas with limited mobile coverage, where bandwidth consumption continues to grow steadily. Latest traffic data from the first quarter of 2024 indicates international connectivity at approximately 23.78 million Mbps and domestic connectivity at 15.22 million Mbps, as presented in Chart 11. Fixed broadband penetration in the third quarter of 2024 reached 16.03 percent per 100 inhabitants or 36.45 percent per 100 households nationwide. Additionally, market leadership belongs to AWN with 46.75 percent share, followed by TRUE at 35.25 percent, as presented in Chart 12. The market's HHI in the third quarter increased from 3,366 in 2023 to 3,752 in 2024, indicating rising concentration.

Chart 11 : Number of Fixed Broadband Subscribers from 2020 to the third quarter of 2024



Source: Telecommunications Policy and Resources Management Bureau, Office of the NBTC.

Chart 12 : Market Share of Fixed Broadband Services from 2020 to the third quarter of 2024



- Remarks:
1. TOT Public Company Limited merged with CAT Telecom Public Company Limited into the National Telecom Public Company Limited in 2021.
 2. Advanced Wireless Network Company Limited and Triple T Broadband Public Company Limited announced their merger in the broadband internet business on November 22, 2023.
 3. In 2024, the reporting was revised to include only major fixed broadband internet service providers.

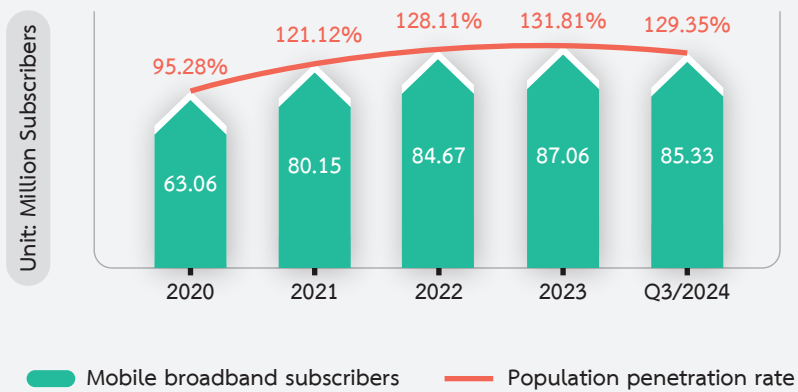
Source: Telecommunications Policy and Resources Management Bureau, Office of the NBTC.

3.2 Mobile High-Speed Internet Services (Mobile Broadband).

Mobile broadband subscribers totaled 85.33 million subscribers in the third quarter of 2024, representing 1.99 percent decline from 2023, as detailed in Chart 13. The subscriber growth patterns have alternated between contraction and expansion phases, reflecting evolving usage behaviors. From 2023 through 2024, mobile broadband adoption

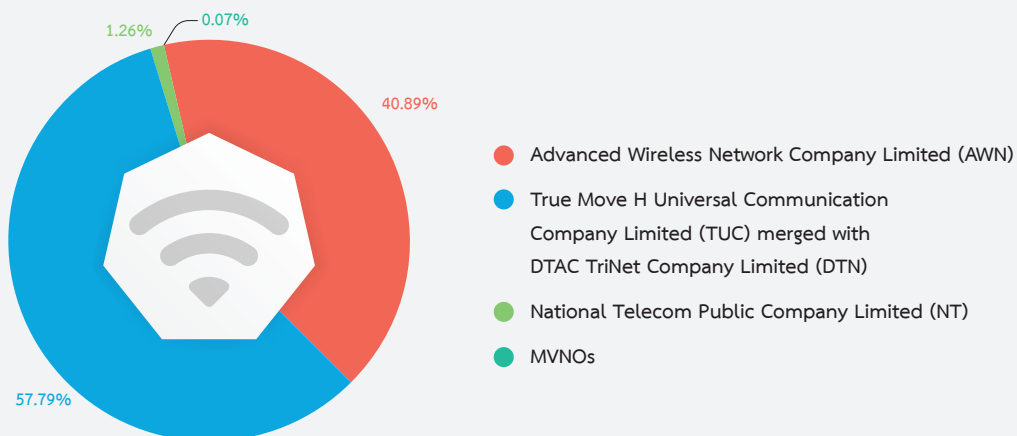
demonstrated gradual growth trajectories, with penetration rates reaching 131.81 percent before declining slightly to 129.35 percent in the third quarter of 2024. Market share analysis for the third quarter of 2024 shows TUC (TUC-DTN) maintaining dominance at 57.79 percent, followed by AWN at 40.89 percent, as presented in Chart 14. The HHI in the third quarter decreased from 5,083 in 2023 to 5,013 in 2024, indicating increased market concentration.

Chart 13 : Number of Mobile Broadband Subscribers from 2020 to the third quarter of 2024



Source: Telecommunications Policy and Resources Management Bureau, Office of the NBTC.

Chart 14 : Market Share of Mobile Broadband Services in the third quarter of 2024,
Calculated based on the Number of Active Mobile Broadband Subscriptions



Remark: True Move H Universal Communication Company Limited (TUC) merged with DTAC TriNet Company Limited (DTN) on August 3, 2023. At the NBTC meeting on October 20, 2022, the NBTC resolved that TUC and DTN shall continue to operate under separate service branding for a period of three years.

Source: Telecommunications Policy and Resources Management Bureau, Office of the NBTC.



1. Broadcasting Services Market Analysis and Competitive Assessment for 2024.

1.1 Radio Content Consumption and Music Listening Behavior.

The Office of the NBTC, in collaboration with the National Statistical Office of Thailand (NSO) and the Ministry of Digital Economy and Society, conducted a 2024 survey on radio and television media access, finding that 43.30 percent of the population nationwide consumes radio programs and/or music through various channels, including terrestrial radio

waves, online radio, and music streaming platforms, while 56.70 percent not listen to radio programs and/or listen to music. Demographic investigation reveals that the 18-24 age group demonstrates the highest consumption rate at 59.70 percent, followed by the 25-42 age group at 51.00 percent, the 43-57 age group at 39.10 percent, and the 58-76 age group showing the lowest engagement at 28.40 percent, as presented in Charts 15 and 16.

Chart 15 : Proportion of Radio and/or Music Listening Nationwide in 2024

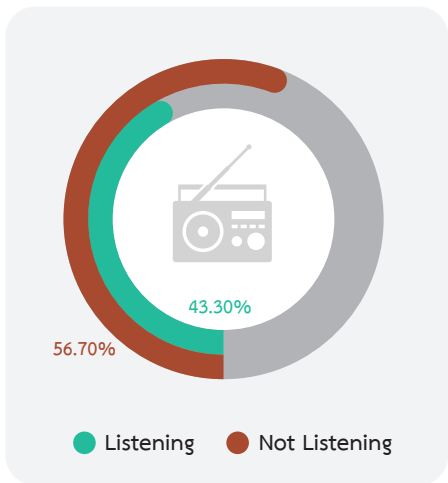
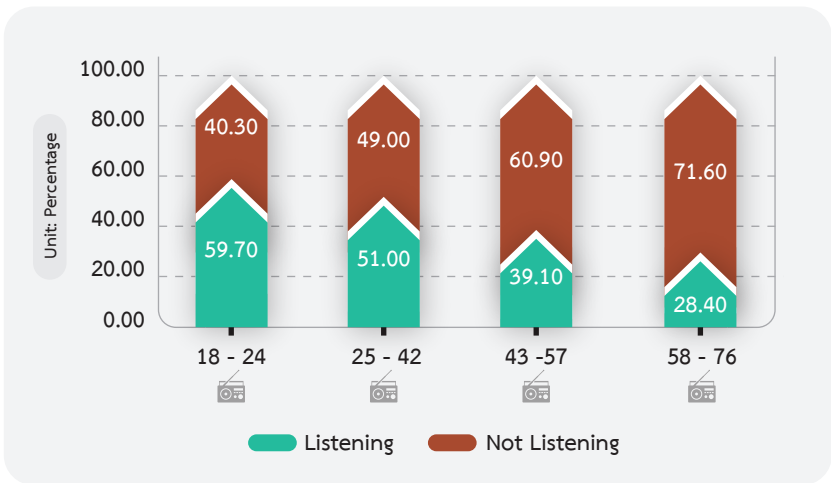


Chart 16 : Proportion of Radio and/or Music Listening Nationwide in 2024, Classified by Age Group



FM Broadcasting Services demonstrate market dominance with 32.00 percent of nationwide audio consumption, while 68.00 percent do not engage with FM radio programming. Demographic analysis shows the 56-76 age group demonstrates the highest

FM radio engagement at 54.70 percent, followed by the 43 - 57 age group at 38.50 percent, the 25 - 42 age group at 25.20 percent and the 18 - 24 age group showing the lowest participation at 16.40 percent, as detailed in Charts 17 and 18.

Chart 17 : FM Radio Listenership
Nationwide 2024

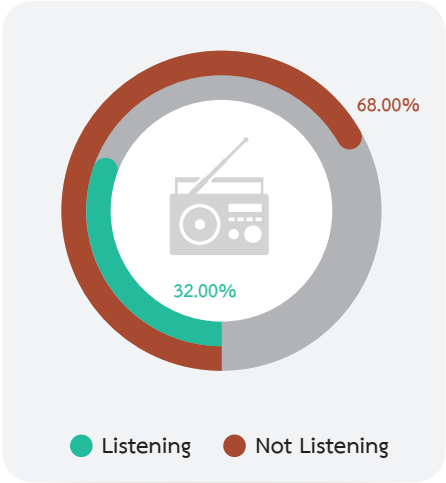
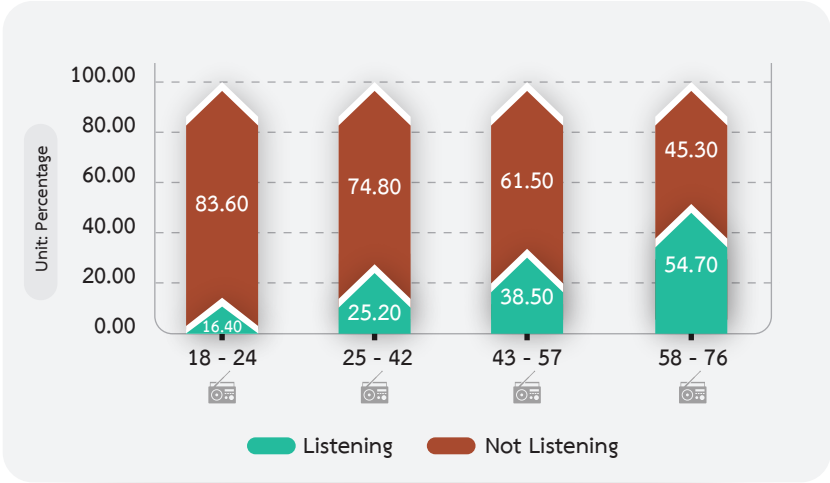


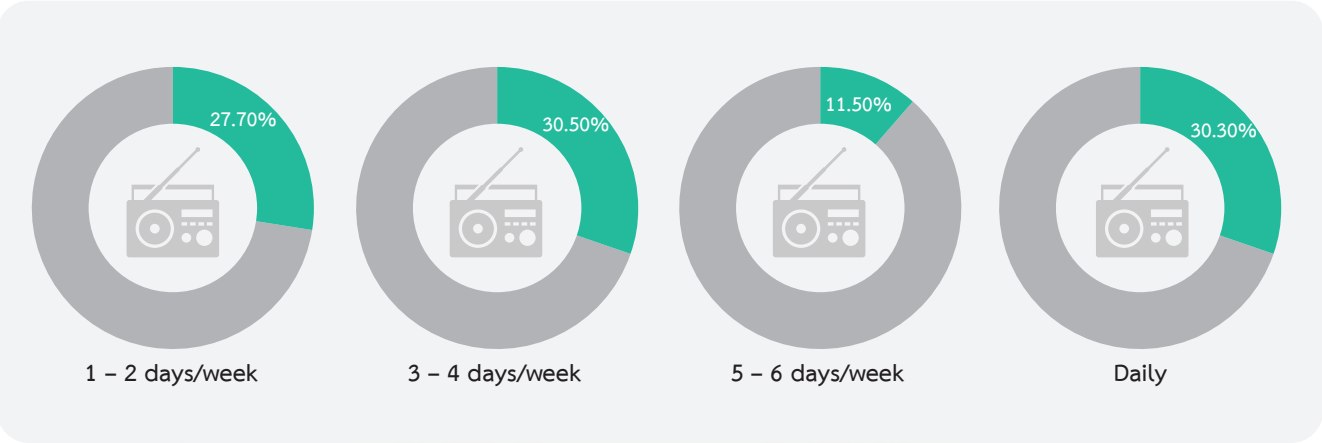
Chart 18 : FM Radio Listenership Nationwide 2024,
Classified by Age Group



FM Broadcasting Services consumption frequency analysis reveals optimal engagement patterns clustered around moderate usage: three to four days weekly demonstrates peak adoption at 30.50 percent, with daily consumption registering comparable at 30.30 percent. Light engagement

patterns one to two days weekly constitute 27.70 percent of the user base, while intensive consumption behaviors five to six days weekly represent minimal market penetration at 11.50 percent, as presented in Chart 19.

Chart 19 : Weekly Frequency of FM Radio Listening Nationwide 2024



AM Broadcasting Services reveals substantially diminished market penetration at 4.90 percent national adoption, with 95.10 percent demonstrating non-engagement with AM radio content. Demographic segmentation analysis reveals pronounced age-stratified consumption patterns: Senior demographic, 58 - 76 years, exhibits peak AM

engagement at 10.60 percent, Middle-aged cohort, 43 - 57 years, registers 5.70 percent, Young Adult segment, 25 - 42 years, demonstrates 3.40 percent adoption, while Youth demographic, 18 - 24 years, shows minimal AM utilization at 2.30 percent, as presented in Charts 20 and 21.

Chart 20 : AM Radio Listenership
Nationwide 2024

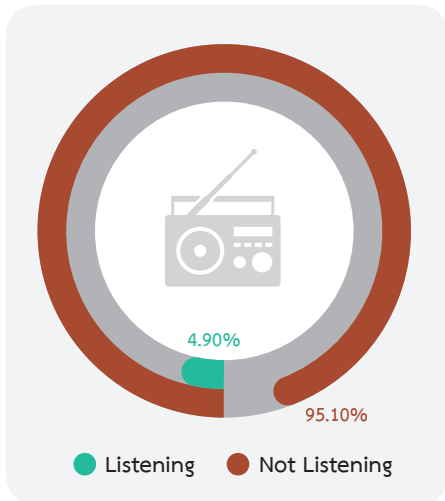
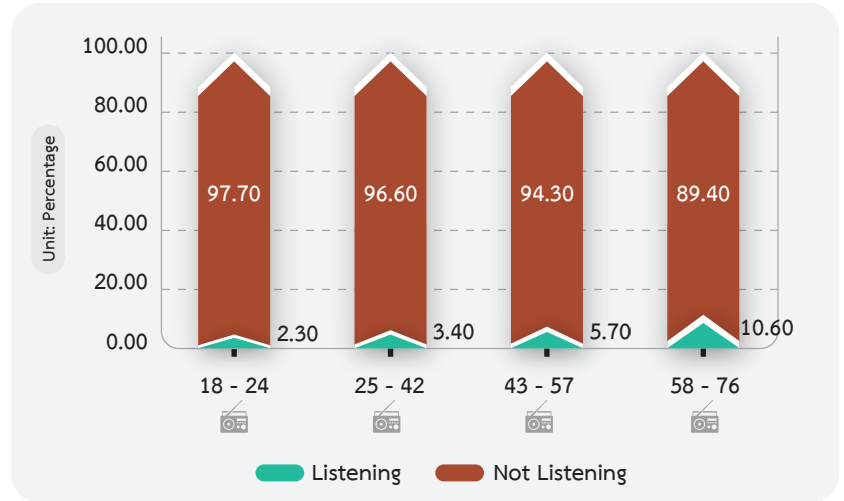


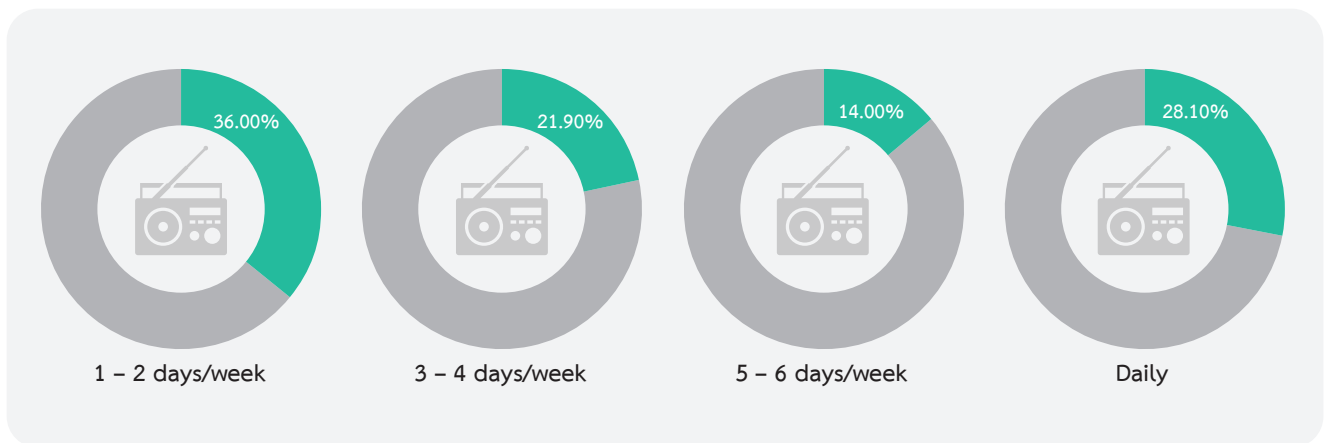
Chart 21 : AM Radio Listenership Nationwide 2024,
Classified by Age Group



AM Broadcasting Services consumption frequency distribution demonstrates predominantly occasional engagement patterns: Light usage, one to two days weekly, constitutes the dominant consumption behavior at 36.00 percent, Daily engagement registers 28.10 percent penetration, Moderate usage patterns,

three to four days weekly, represent 21.90 percent of the active user base, while intensive consumption, five to six days weekly, exhibits minimal adoption at 14.00 percent, as presented minimal market penetration in Chart 22.

Chart 22 : Weekly Frequency of AM Radio Listening Nationwide 2024



Internet protocol radio services and online broadcasting platforms register 11.30 percent national penetration, with 88.70 percent demonstrating non-adoption of IP-based audio delivery systems. Demographic segmentation analysis reveals pronounced inverse age-stratification patterns: Youth demographic, 18 - 24 years, exhibits peak digital audio

adoption at 14.50 percent, Young Adult cohort, 25 - 42 years, registers 12.90 percent, Middle-aged segment, 43 - 57 years, demonstrates 9.70 percent, while Senior demographic, 58 - 76 years, shows minimal IP Radio engagement at 6.50 percent, as presented in Charts 23 and 24.

Chart 23 : Online Radio/IP Radio Listenership Nationwide 2024

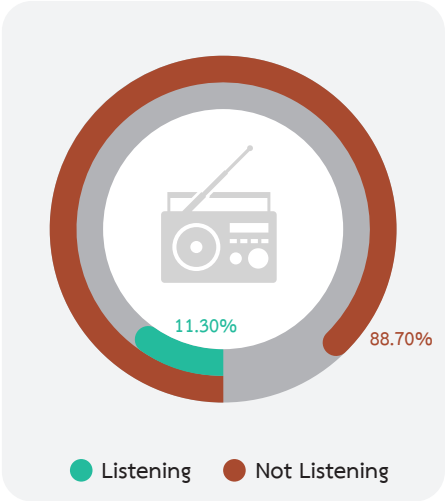
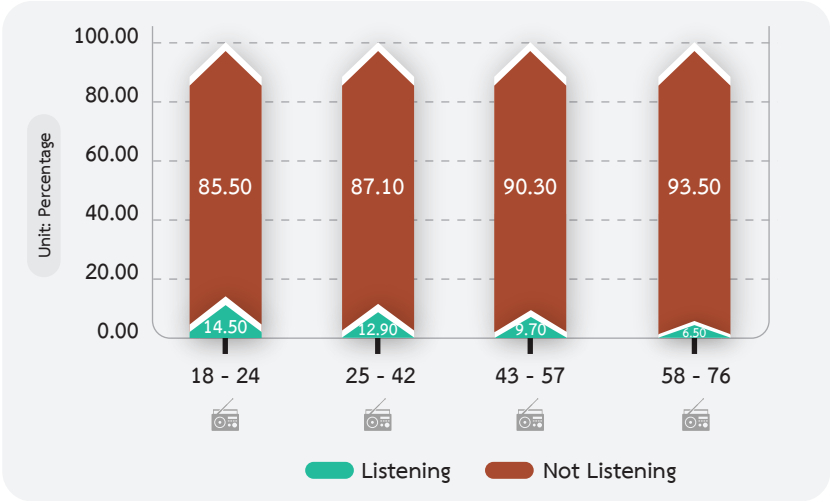


Chart 24 : Online Radio/IP Radio Listenership Nationwide 2024, Classified by Age Group



Internet Protocol Radio Services exhibit predominantly occasional consumption patterns: Light usage, one to two days weekly, constitutes 33.50 percent of active users, Moderate engagement, three to four days weekly, registers 25.50 percent, Daily consumption accounts for 22.90 percent, while Intensive usage, five to six days weekly demonstrates 18.10 percent, represents the minimal market penetration, as presented in Chart 25.

Throughout 2024, Over-The-Top (OTT) music streaming platforms achieve substantial market dominance with 77.40 percent national penetration, including services such as **Joox**, **YouTube Music**, and **Spotify**, with 22.60 percent non-adoption rates. Demographic analysis reveals robust cross-generational engagement: Youth demographic, 18 - 24 years,

exhibits peak adoption at 90.40 percent, Young Adult cohort, 25 - 42 years registers 85.80 percent, Middle-aged segment, 43 - 57 years, demonstrates 71.90 percent, while Senior demographic, 58 - 76 years, maintains significant engagement at 49.50 percent, as presented in Charts 26 and 27.

Music streaming consumption frequency distribution indicates habitual usage behaviors: Daily engagement constitutes the dominant pattern at 40.10 percent, Moderate usage, three to four days weekly, represents 28.30 percent, Casual consumption, one to two days weekly, accounts for 23.30 percent, while Intensive patterns, five to six days weekly, exhibit 8.30 percent at the least prevalence, as presented in Chart 28.

Chart 25 : Weekly Frequency of Online Radio/IP Radio Listening Nationwide 2024

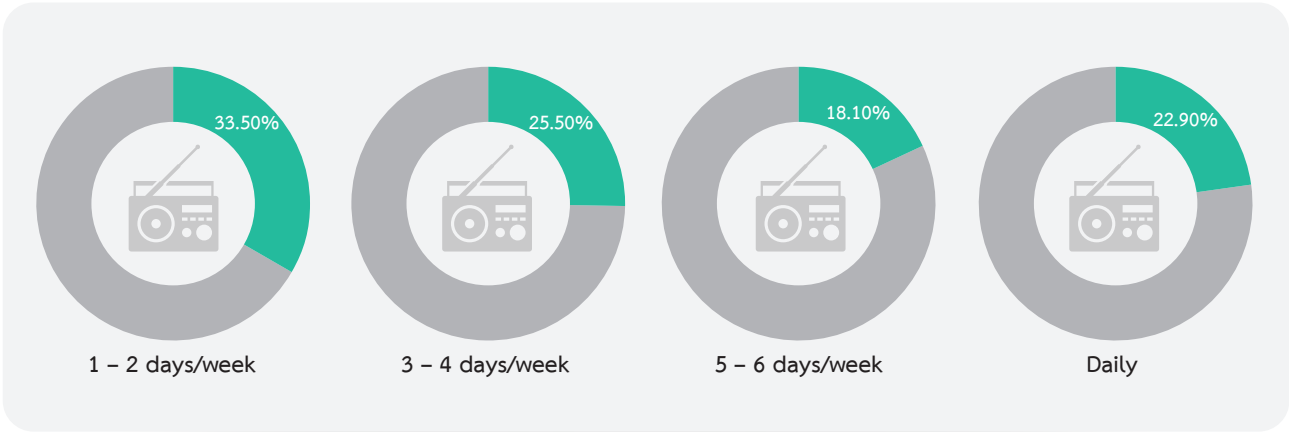


Chart 26 : Music Streaming Listenership Nationwide 2024

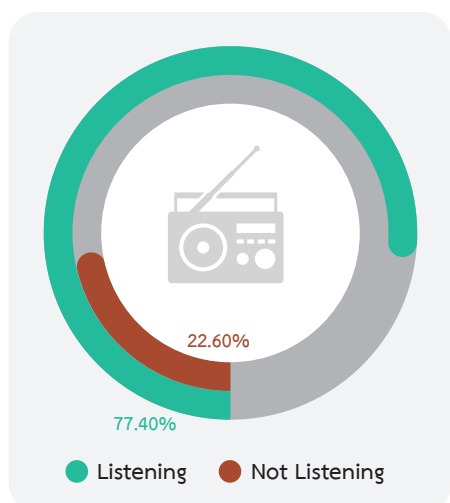


Chart 27 : Music Streaming Listenership Nationwide 2024, Classified by Age Group

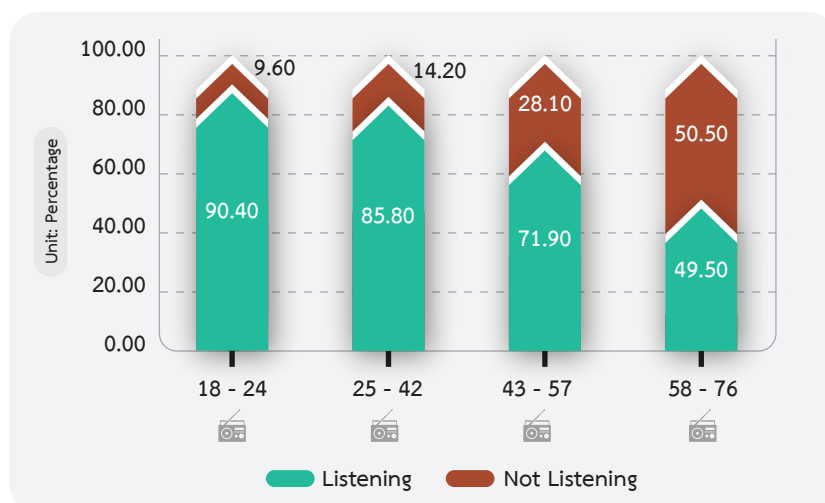
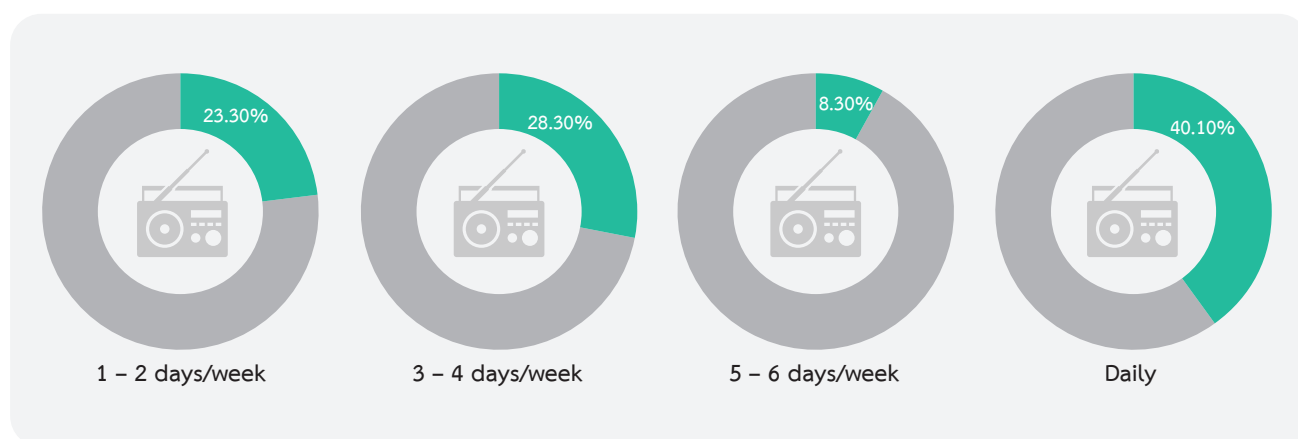


Chart 28 : Weekly Frequency of Music Streaming Listening Nationwide 2024



1.2 Broadcasting Services Market Analysis for 2024.

Broadcasting Services market structure demonstrates substantial regulatory transition dynamics, with trial broadcasting authorizations constituting the predominant operational framework. FM radio broadcasting data as of December 31, 2024, indicates 3,675 trial FM broadcasting stations comprising: Commercial Broadcasting Services totaling 2,982 stations, Public Service Broadcasting totaling 548 stations, and Community Broadcasting Services totaling 145 stations. Definitely licensed FM Broadcasting operators total 306 authorizations: Commercial Broadcasting licenses totaling 68, and Public Service Broadcasting licenses totaling 238. Regulatory transition mandates trial broadcasting

cessation by January 31, 2025. Transitional provisions permit continued trial operations for applicants who have submitted frequency authorization requests during the licensing evaluation period. Pursuant to Transitional Provision Article 39 of Notification of the NBTC of Licensing Criteria and Procedures for Radio or Television Broadcasting Services.

2. Television Services Market Analysis and Competitive Assessment for 2024.

2.1 Television Content Consumption Behavior.

The Office of the NBTC, in partnership with the National Statistical Office of Thailand (NSO) and the Ministry of Digital Economy and Society,

executed a comprehensive Television and Radio Media Access Survey for 2024, findings indicate 85.30 percent national television content consumption penetration, with 14.70 percent demonstrating non-engagement with television services. Demographic segmentation analysis reveals age-stratified consumption patterns: Senior demographic, 58 - 76 years, exhibits 88.70 percent engagement, Middle-aged cohort, 43 - 57 years, registers 87.90 percent. The Young Adult segment, 25 - 42 years, demonstrates 83.20 percent, while the Youth demographic, 18 - 24 years, shows comparatively

reduced engagement at 77.00 percent, as presented in Chart 29. Television content delivery platform analysis for 2024 demonstrates multi-platform ecosystem dynamics: Satellite set-top boxes dominate at 49.30 percent market share, Over-The-Top (OTT) internet delivery platforms achieve near-parity at 48.00 percent, Terrestrial Digital Television Broadcasting infrastructure accounts for 38.40 percent, Internet Protocol Television (IPTV) services register 8.70 percent, and Cable Television Systems maintain 4.20 percent market presence, as presented in Chart 30.

Chart 29 : Proportion of Television Viewing Nationwide in 2024, Classified by Age Group

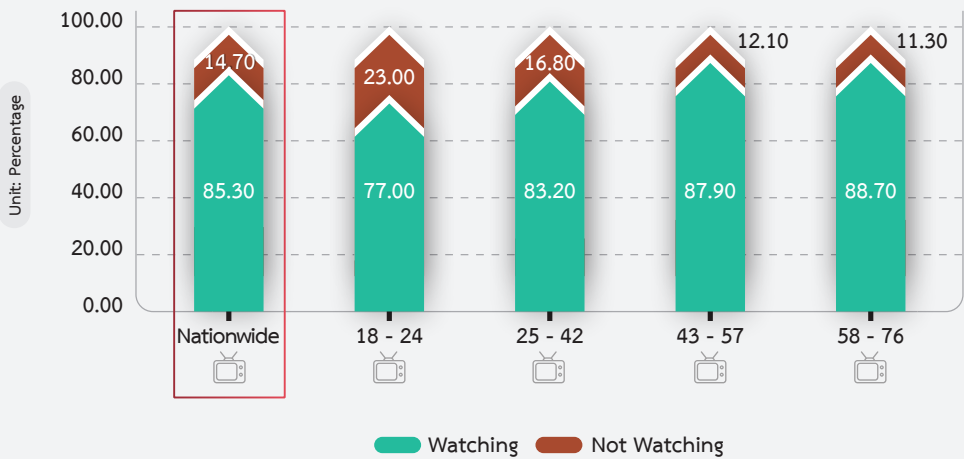
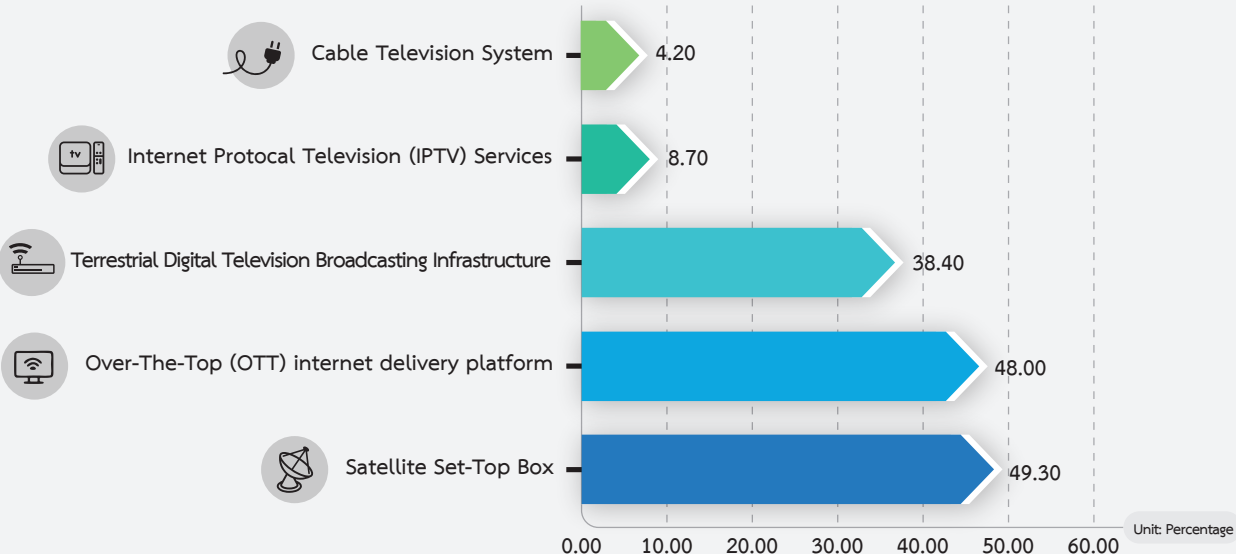


Chart 30 : Nationwide Television Viewing Platforms 2024



Throughout 2024, Television Broadcasting Services. Television Broadcasting service consumption analysis reveals 90.20 percent of the population follows scheduled television programming nationwide, while 9.80 percent do not engage with television content. Demographic segmentation reveals inverse age-correlation patterns: Senior demographic, 58 - 76 years, exhibits peak engagement at 95.80 percent, Middle-aged cohort, 43 - 57 years, registers 91.70 percent scheduled viewing penetration, Young Adult segment, 25 - 42 years, demonstrates 87.00 percent consumption, while Youth demographic, 18 - 24 years, shows reduced scheduled viewing at 83.90 percent.

Television consumption distribution indicates habitual engagement dominance: Daily consumption

constitutes 53.80 percent of viewing patterns, Moderate engagement, three to five days weekly, represents 24.60 percent, Casual consumption, one to two days weekly, accounts for 12.50 percent, while Intensive patterns, five to six days weekly, exhibit 9.10 percent at the least prevalence, as presented in Charts 31 and 32.

The top five content genre preference analytics reveal hierarchical consumption patterns: News Programming achieves 90.10 percent with the highest views, Drama/Series Content registers 71.80 percent engagement, Variety Programming demonstrates 48.00 percent, Film Content accounts for 31.50 percent, and Sports Programming maintains 29.50 percent viewership, as presented in Chart 33.

Chart 31 : Proportion of Viewing Scheduled Television Broadcast Programming Nationwide in 2024, Classified by Age Group

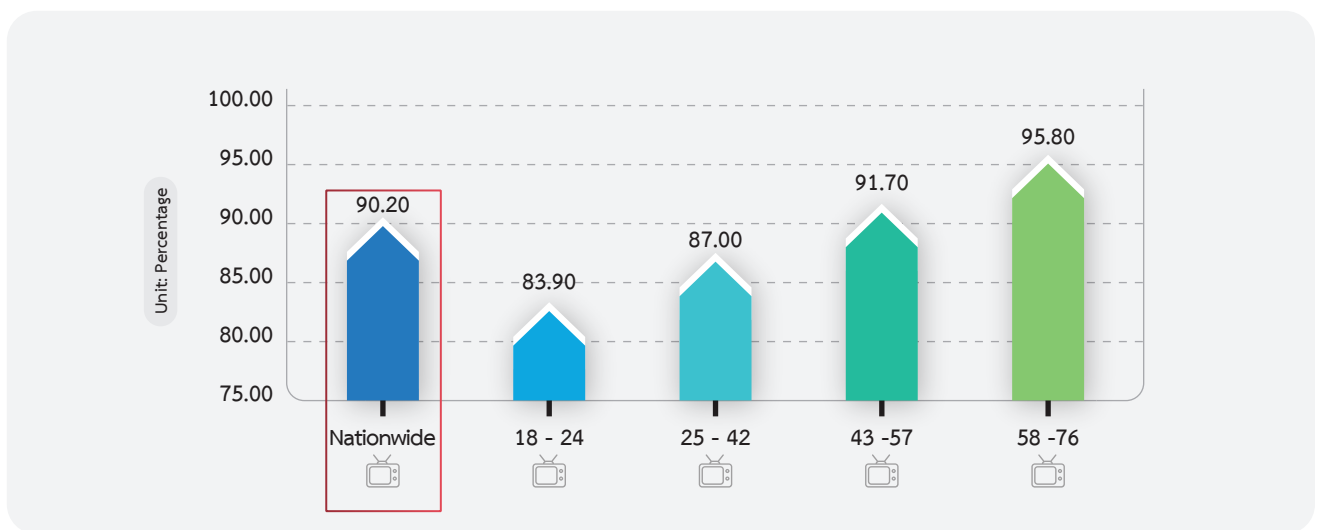


Chart 32 : Weekly Frequency of Viewing Scheduled Television Broadcast Programming Nationwide 2024

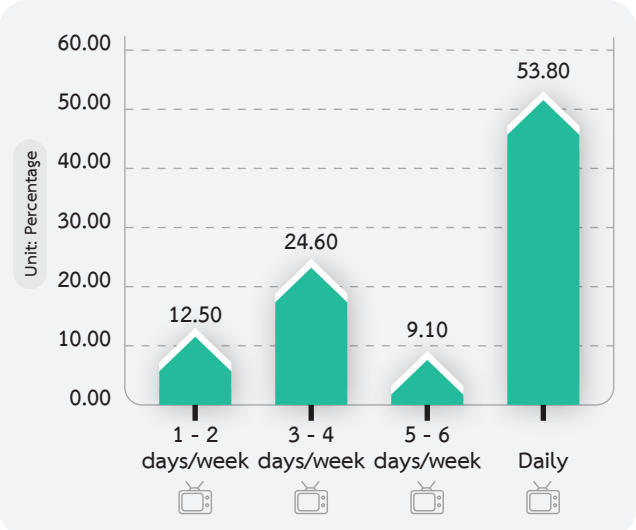
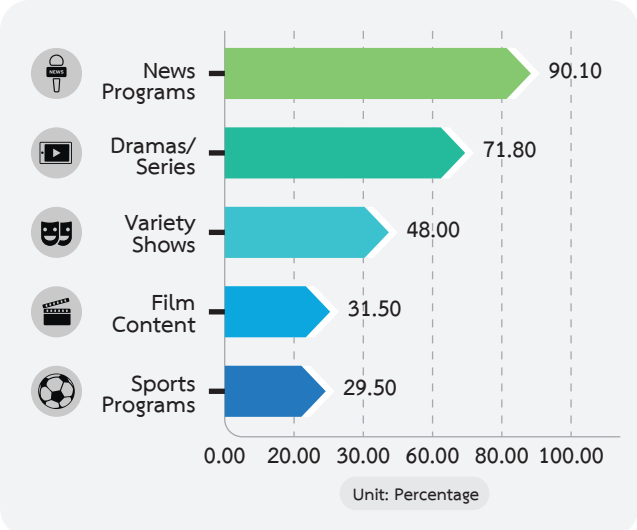


Chart 33 : The Five Most-Watched Television Program Genres of 2024



In 2024, Time-Shifted Television Content Consumption registers 32.50 percent nationwide, with 67.50 percent maintaining do not engage with television content behaviors. Demographic segmentation analysis reveals pronounced inverse age-stratification compared to consumption patterns: Youth demographic, 18 - 24 years, exhibits peak time-shifted engagement at 51.90 percent, Young Adult cohort, 25 - 42 years, demonstrates 44.10 percent, Middle-aged segment, 43 - 57 years, registers 28.00 percent, while Senior demographic, 58 - 76 years, shows minimal time-shifted consumption at 12.30 percent.

Over-The-Top (OTT) platform distribution demonstrates YouTube’s dominant position in catch-up television delivery at 77.90 percent, Social Media Platforms (Facebook) account for 36.00 percent, Short-Form Video Platforms (TikTok) register 31.60 percent, Official Broadcaster Applications constitute 17.90 percent, and Alternative Digital Channels including broadcaster websites represent 11.50 percent.

Time-shifted consumption frequency distribution indicates predominantly casual engagement: Light usage, one to two days weekly, constitutes 40.50 percent, Moderate consumption, three to four days weekly represents 34.20 percent, Daily engagement accounts for 19.90 percent, while Sporadic usage, five to six days weekly, exhibits 5.40 percent at the least prevalence, as presented in Charts 34 - 36.

The top five content genre analytics for time-shifted viewing reveal distinct preferences from television: Drama/Series Content achieves 73.50 percent penetration, News Programming registers 48.00 percent engagement, Variety Content demonstrates 44.40 percent adoption, Film Content accounts for 32.20 percent, and Sports Programming maintains 22.80 percent viewership, as presented in Chart 37.



Chart 34 : Proportion of Watching Television Programs via Catch-Up Services Nationwide in 2024,
Classified by Age Group

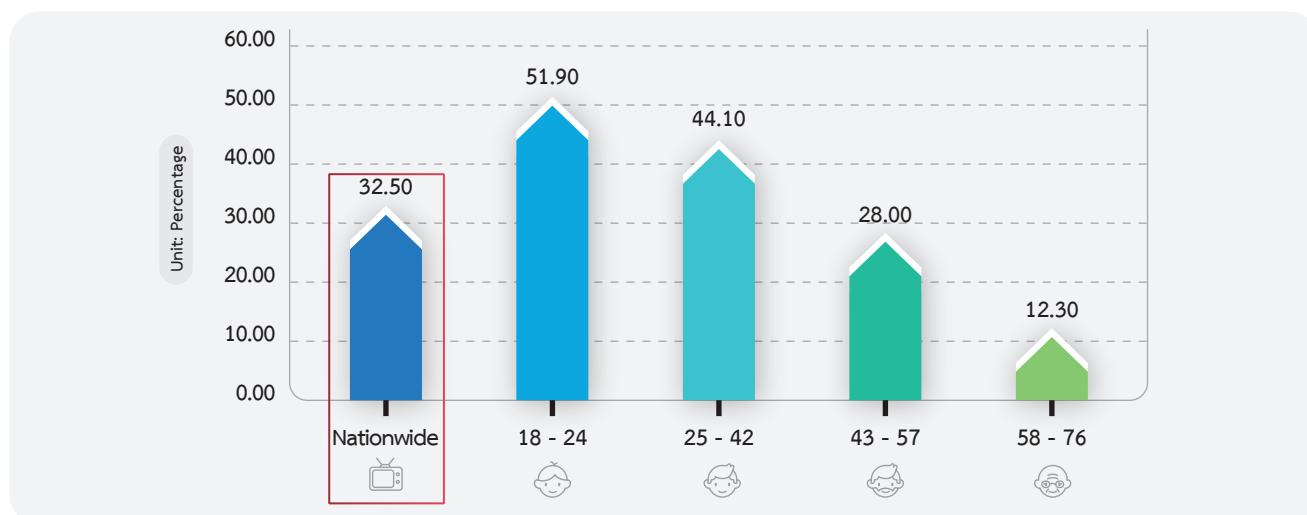


Chart 35 : Platforms for Watching Television Programs
via Catch-Up Services Nationwide 2024

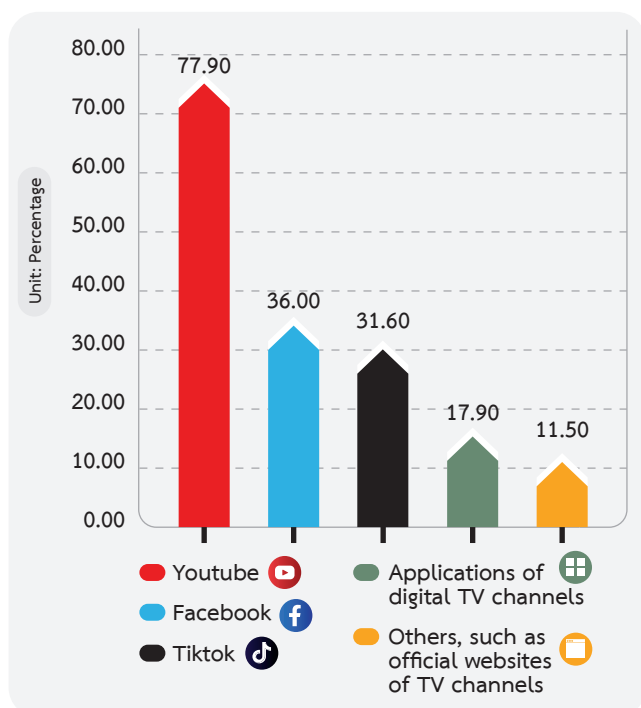


Chart 36 : Weekly Frequency of Watching Television
Programs via Catch-Up Services Nationwide 2024

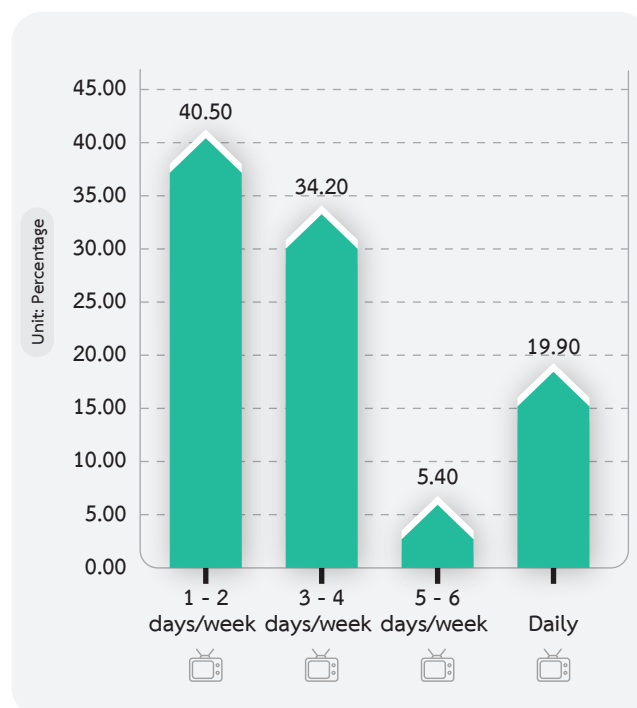
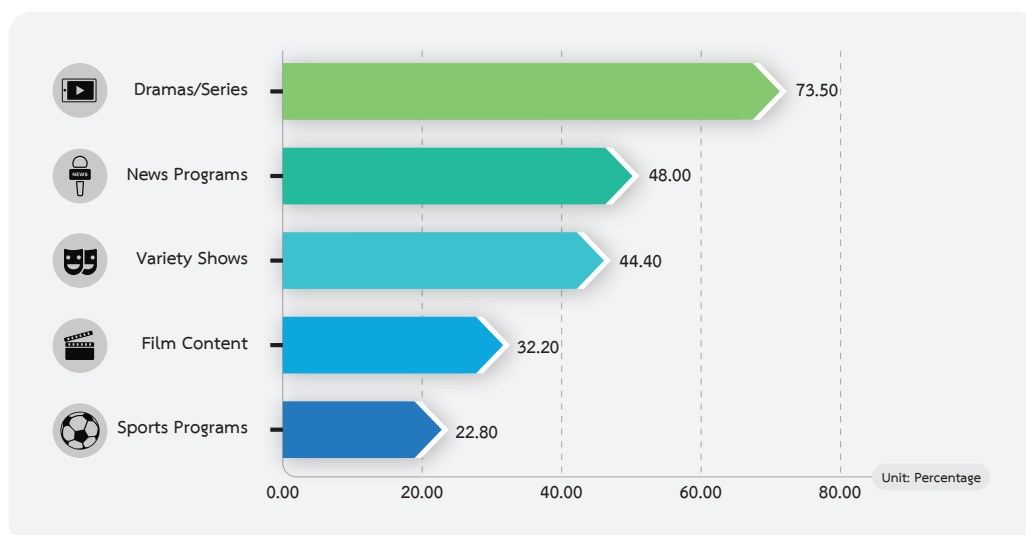


Chart 37 : The Five Most-Watched Television Program Genres via Catch-Up Services of 2024



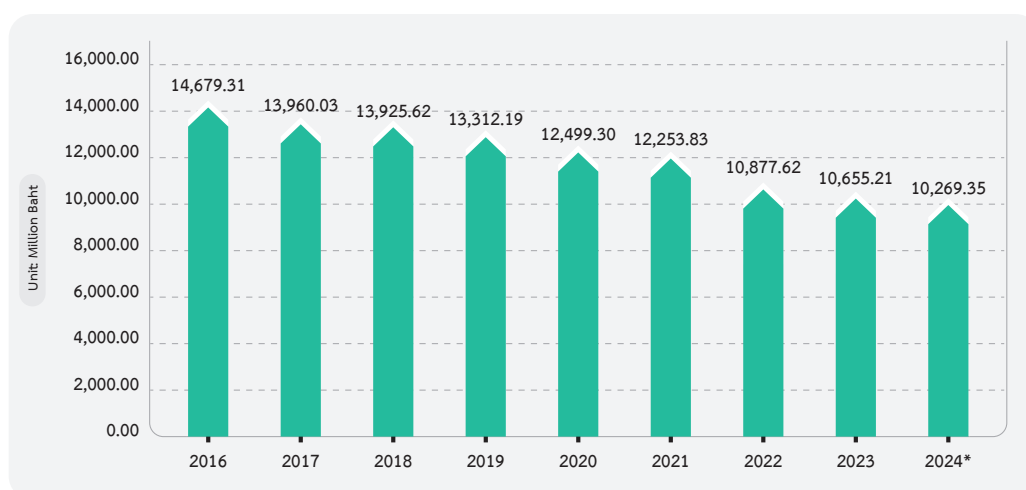
2.2 Television Services Market Analysis and Competitive Assessment for 2024²³

Television Services market competition encompasses two fundamental service categories: Network infrastructure services and Content channel services. Network infrastructure services constitute the transmission and distribution of television signals to end-users via diverse delivery platforms comprising

Terrestrial broadcasting networks, Cable television systems, Satellite broadcasting networks, and Internet Protocol Television (IPTV) delivery networks.

2.2.1 Television Network Infrastructure Services Market. Market valuation analysis of Network²⁴ Infrastructure Services revenue for 2024 indicates an estimated total market value of 10,269.35 million baht, as presented in Chart 38.

Chart 38 : The Total Market Value of Television Network Services



Remarks: 1. Data as of December 31, 2024.

2. *Estimated data.

Source: Data from 2016 to 2023 comes from the Broadcasting Tariff Bureau, Office of the NBTC.

²³ The revenue data for 2024 is based on statistical estimation methods because operators will submit their revenue information to pay their annual fees to the Broadcasting Tariff Bureau, Office of the NBTC, in the middle of the following year.

²⁴ Including facilities for terrestrial networks.

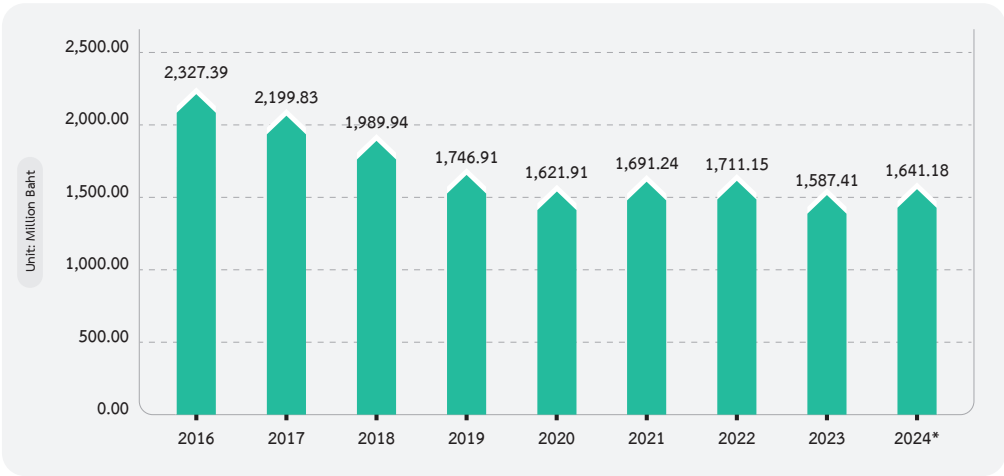
Network infrastructure services market analysis can be segmented by service category as follows:

1) Terrestrial Broadcasting Network Infrastructure and Broadcasting Facilities Services Market.

1.1 Terrestrial Digital Television Multiplexing (MUX) Services Market encompasses signal aggregation and distribution infrastructure, wherein licensed Digital Terrestrial Television (DTT) network operators aggregate multiple Service Provider channels for multiplexed transmission and distribution

to end-user receivers. The current licensing framework comprises four operational entities (holding five MUX licenses) encompassing the Royal Thai Army Radio and Television hold two MUX licenses, Department of Public Relations holds one MUX license, Thai Public Broadcasting Service (Thai PBS) holds one MUX license, and MCOT Public Company Limited (MCOT) holds one MUX license. Market valuation analysis for 2024 indicates projected aggregate revenues of 1,641.18 million baht, with comprehensive market analytics as presented in Chart 39.

Chart 39 : Market Value of Signal Transmission Services through Terrestrial Networks



Remarks: 1. Data as of December 31, 2024.
2. *Estimated data.

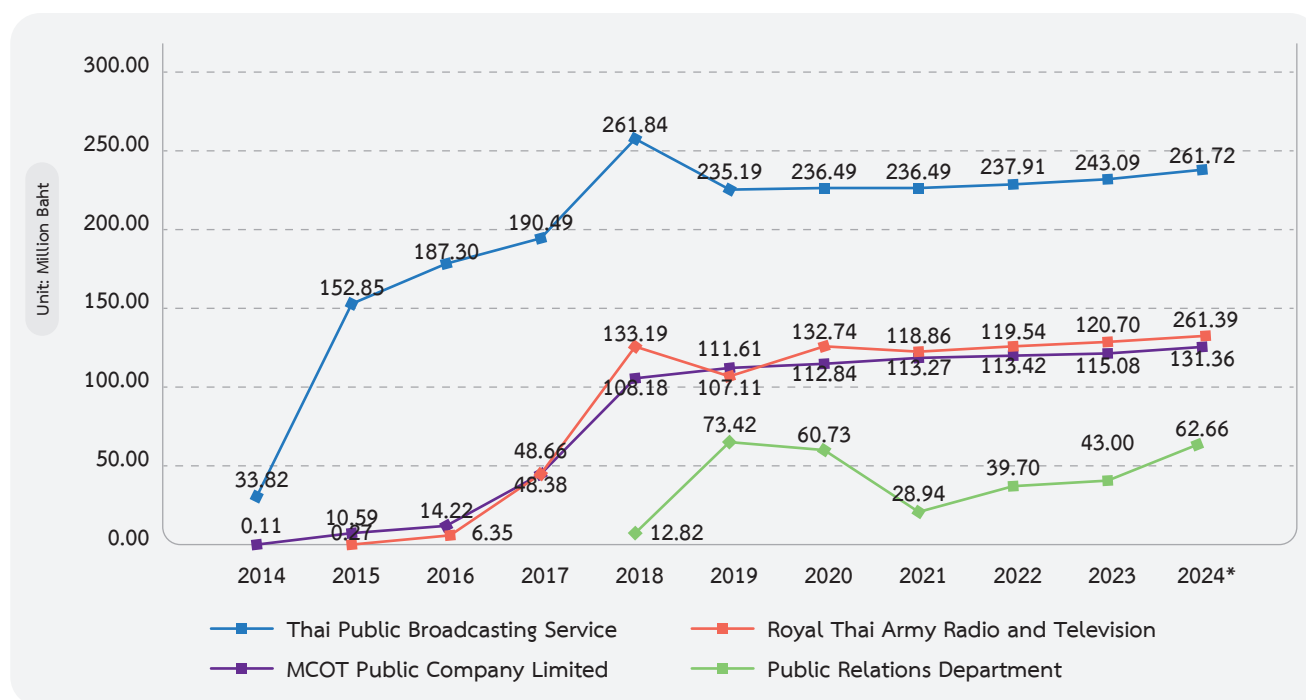
Source: Data from 2016 to 2023 comes from the Broadcasting Tariff Bureau, Office of the NBTC.

1.2 Broadcasting Infrastructure Facilities Services Market encompasses critical transmission infrastructure provisioning for Digital Terrestrial Television (DTT) deployment, including antenna tower infrastructure, Radio frequency transmission systems, cable distribution networks, and technical equipment installation to achieve optimal coverage footprints and facilitate DTT network scalability. Currently, market structure exhibits limited competitive dynamics attributable to significant technical barriers to entry, including site acquisition constraints, Radio frequency propagation optimization requirements, and specialized engineering expertise for signal distribution infrastructure deployment. Market

concentration reflects low service substitutability due to operator-specific technical capabilities and geographic coverage limitations.

Digital Terrestrial Television Infrastructure Services market valuation for 2024 indicates projected aggregate revenues of 594.12 million baht. Competitive landscape analysis through 2023 demonstrates Thai Public Broadcasting Service (Thai PBS) market leadership at 47.00 percent revenue share, Royal Thai Army Radio and Television Station accounts for 23.00 percent, MCOT Public Company Limited (MCOT) holds 22.00 percent, and Department of Public Relations maintains 8.00 percent market presence, as presented in Chart 40.

Chart 40 : Market Value of Facility Services for Digital Terrestrial Television Primary Stations



Remarks: 1. Data as of December 31, 2024.
2. *Estimated data.

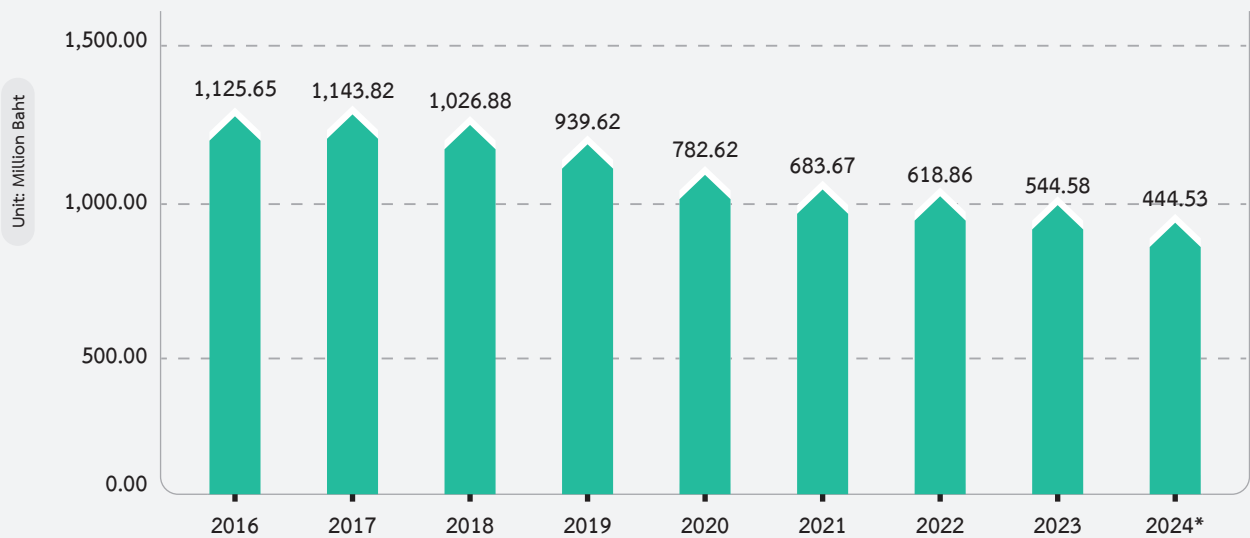
Source: Data from 2016 to 2023 comes from the Broadcasting Tariff Bureau, Office of the NBTC.

2) Cable Television Network Infrastructure Services Market.

Cable Television Network Infrastructure Services operate as spectrum-exempt telecommunications services, wherein licensed operators provide television content distribution via coaxial and fiber-optic cable infrastructure to subscriber premises. Service architecture comprises three operational categories: (1) Signal multiplexing and distribution through cable network infrastructure to Customer Premises Equipment (CPE), (2) Head-end infrastructure sharing and facility leasing services for multi-operator access, and (3) Broadband Internet Access Services delivered over cable television

infrastructure (Cable Internet services). Market valuation analysis for Cable Television Infrastructure Services in 2024 indicates projected aggregate revenues of 444.53 million baht. Market concentration analysis demonstrates sustained contraction over seven years in both operator population and revenue generation, as presented in Chart 41, attributable to consumer migration toward Over-The-Top (OTT) streaming platforms and cord-cutting behaviors. Market concentration analysis utilizing HHI methodology yields 883.68 points, substantially below the 1,000-point concentration threshold, indicating competitive market structure with effective inter-operator competition, as presented in Chart 42.

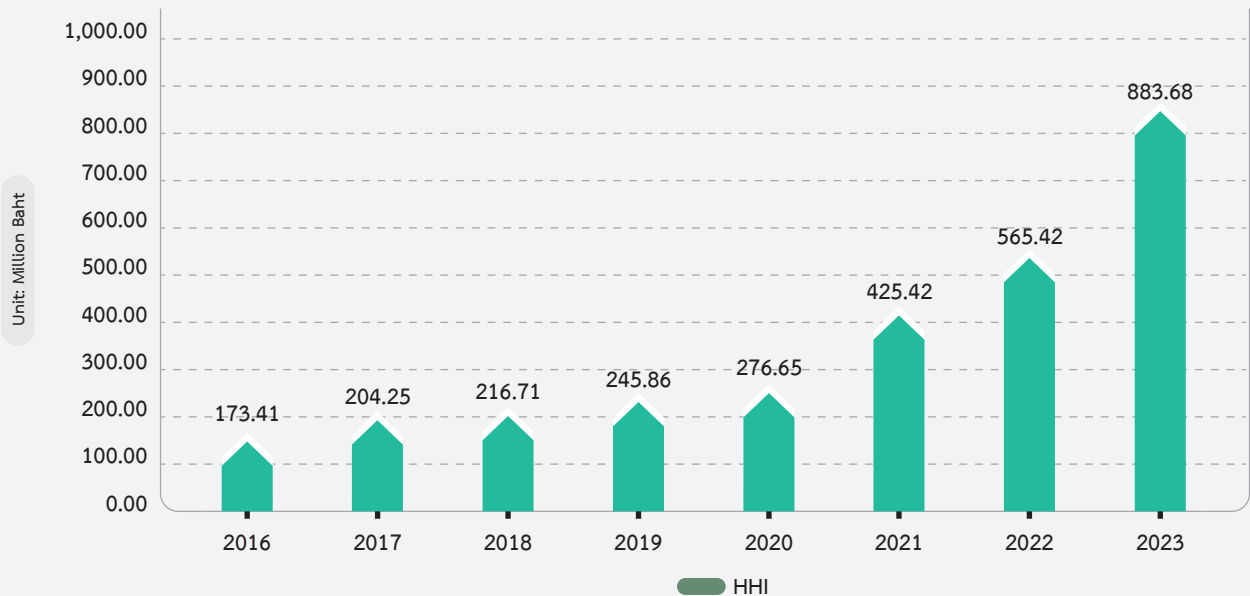
Chart 41 : Market Value of Cable Television Transmission Services²⁵



Remarks: 1. Data as of December 31, 2024.
2. *Estimated data.

Source: Data from 2016 to 2023 comes from the Broadcasting Tariff Bureau, Office of the NBTC.

Chart 42 : Herfindahl - Hirschman Index (HHI) for the Cable Television Transmission Service Market



Remark: Data as of December 31, 2024.

Source: Broadcasting Competition, Promotion and Self-Regulation Bureau, Office of the NBTC.

²⁵ This excludes the revenue of True Visions Group Company Limited, which provides integrated network services and does not report revenue by individual network segments.

3) Satellite Television Broadcasting

Services Market

Satellite Television Broadcasting

Services utilize Direct-To-Home (DTH) satellite delivery infrastructure, wherein licensed operators provide television content distribution via geostationary satellite transponders. Satellite Broadcasting Infrastructure encompasses three operational service categories, including Signal Multiplexing Services (MUX operations), Electronic Program Guide and Channel Management Services (Over-The-Air: OTA), and Satellite Uplink Transmission Services for content delivery to orbital assets.

Market valuation analysis for 2024 indicates projected aggregate revenues of 1,370.83 million baht, as presented in Chart 43.

The revenue contraction trends signify structural industry transformation attributable to multiple market dynamics, such as consumer migration toward Over The Top (OTT) streaming platforms, market maturation and subscriber saturation, and significant barriers to market entry, advanced satellite technology expertise, and regulatory compliance frameworks. Market concentration analysis utilizing Herfindahl-Hirschman Index methodology yields 4,325.12 points, substantially exceeding the 1,800-point highly concentrated market threshold, indicating an oligopolistic market structure with dominant market leadership concentrated among limited major operators, as presented in Chart 44.

Chart 43 : Market Value of Satellite Network Services²⁶

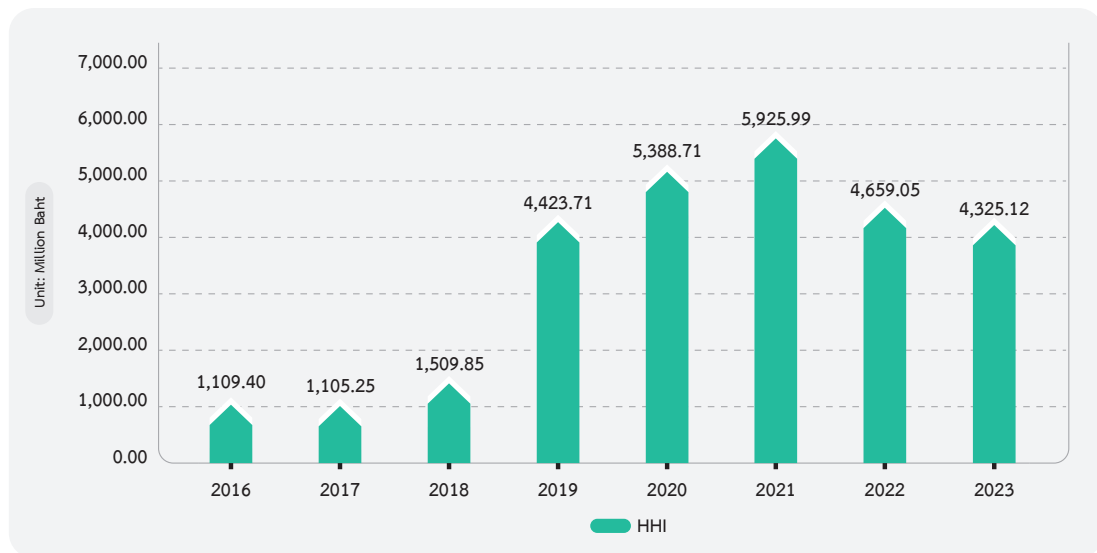


Remarks: 1. Data as of December 31, 2024.
2. *Estimated data.

Source: Data from 2016 to 2023 comes from the Broadcasting Tariff Bureau, Office of the NBTC.

²⁶ This excludes the revenue of True Visions Group Company Limited, which provides integrated network services and does not report revenue by individual network segments.

Chart 44 : Herfindahl - Hirschman Index (HHI) for the Satellite Television Transmission Service Market



Remark: Data as of December 31, 2024.

Source: Broadcasting Competition, Promotion and Self-Regulation Bureau, Office of the NBTC.

4) Internet Television Signal Transmission Services Market (Internet Protocol Television: IPTV)

Internet Protocol Television (IPTV) Services constitute a strategic component of Thailand's digital media ecosystem, exhibiting robust growth trajectories aligned with broadband infrastructure deployment from 2016 to 2023. Market valuation demonstrates exponential expansion: revenues increased from 271.17 million baht in 2016 to 1,950.67 million baht in 2023, attributable to consumer behavioral migration toward IP-based television consumption facilitated by extensive fiber-optic broadband network rollout.

The Projected 2024 market valuation indicates 2,152.22 million baht in aggregate operational revenues, as presented in Chart 45.

Market structure analysis utilizing Herfindahl-Hirschman Index methodology yields 4,986.92 points, substantially exceeding the 1,800-point highly concentrated market threshold, with market leadership concentrated at 54.21 percent single-operator dominance. Market configuration exhibits pronounced Oligopoly driven by structural market dynamics: limited licensed operator population, incumbent operator advantages, and substantial barriers to market entry including infrastructure investment requirements, content licensing costs, and regulatory compliance frameworks. Market concentration levels potentially constrain consumer welfare through reduced service differentiation and pricing flexibility limitations, as presented in Chart 46.

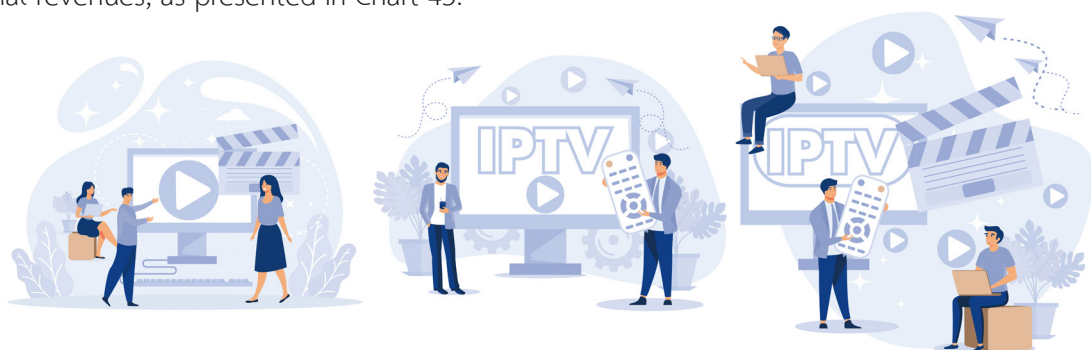
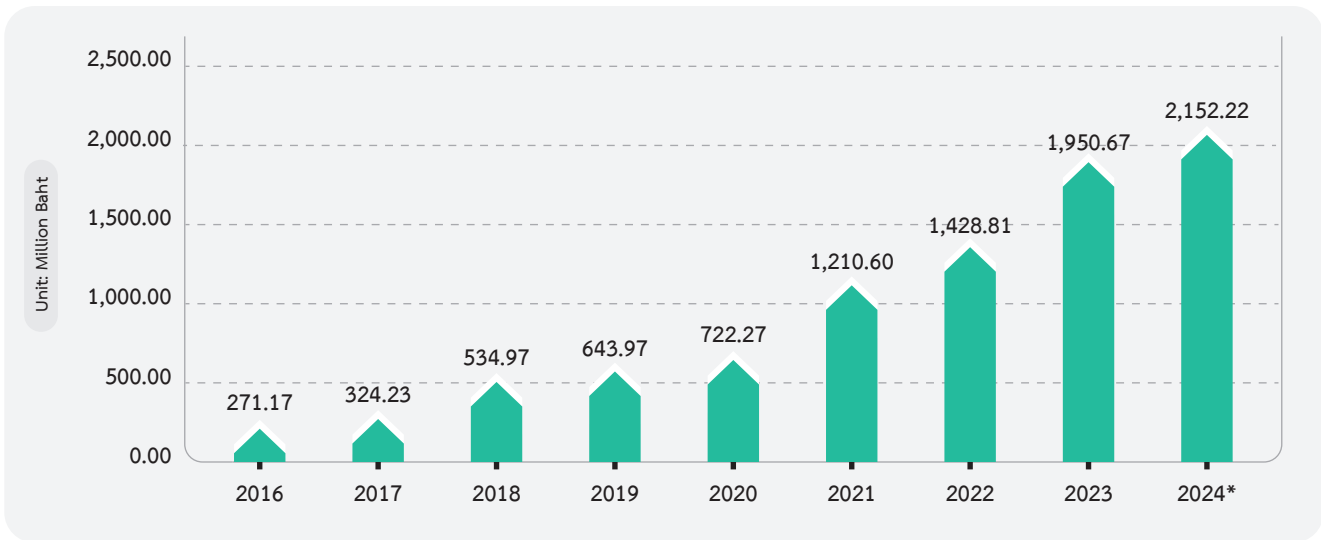


Chart 45 : Market Value of the Internet Protocol Television Services²⁷

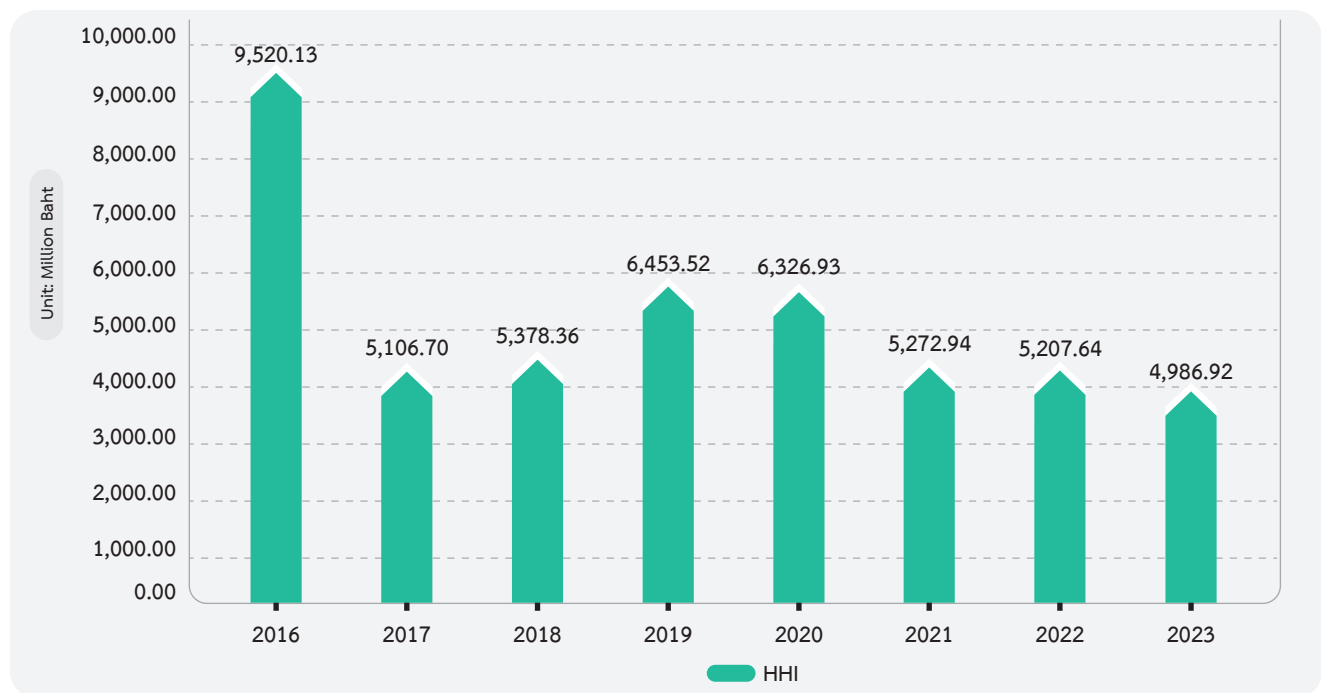


Remarks: 1. Data as of December 31, 2024.

2. *Estimated data.

Source: Data from 2016 to 2023 comes from the Broadcasting Tariff Bureau, Office of the NBTC.

Chart 46 : Herfindahl - Hirschman Index (HHI) for the Internet Protocol Television Service Market



Remark: Data as of December 31, 2024.

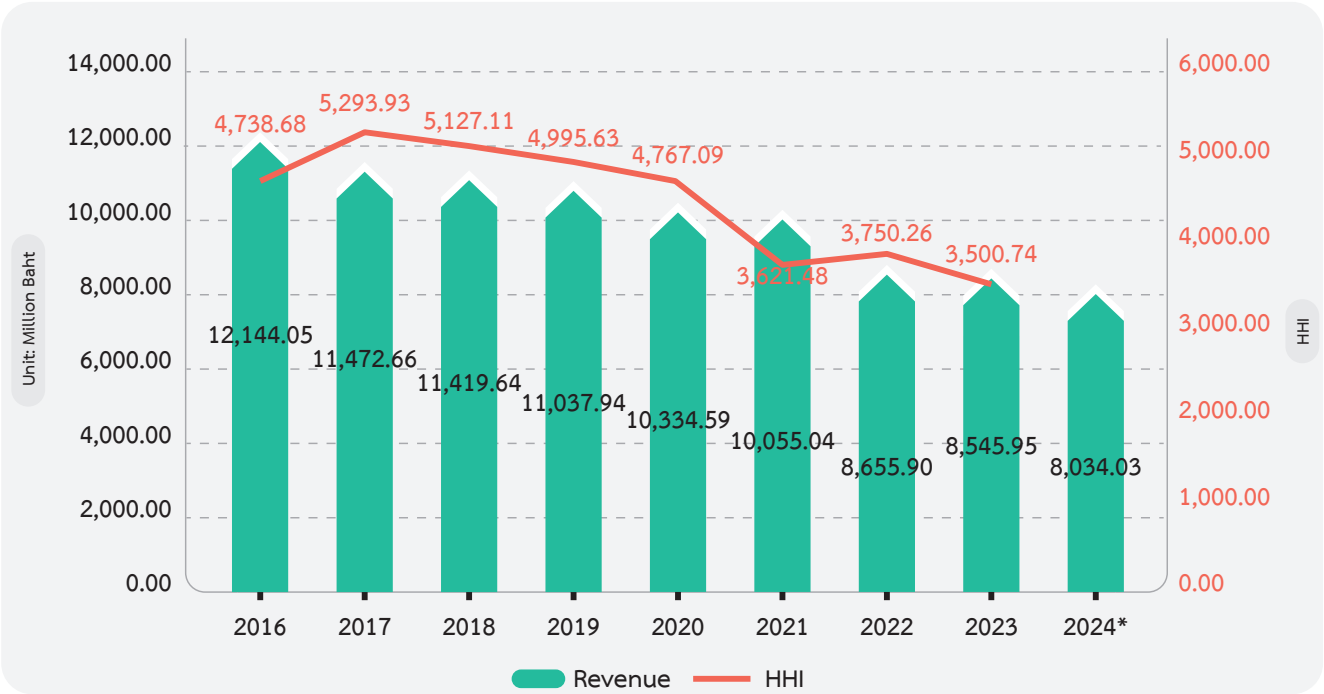
Source: Broadcasting Competition, Promotion and Self-Regulation Bureau, Office of the NBTC.

²⁷ This excludes the revenue of True Visions Group Company Limited, which provides integrated network services and does not report revenue by individual network segments.

Comprehensive analysis of Non-Frequency Network infrastructure services markets indicates 2023 aggregate market valuation of 8,545.95 million bath. Market concentration analysis reveals five dominant operator positioning: True Visions Group maintains market leadership at 56.55 percent revenue share, Super Broadband Network holds 12.37 percent, JAS Television Network accounts for 10.33 percent, PSI Broadcasting Services represents 4.15 percent, and A Broadcasting Network constitutes 3.83 percent of total market revenues.

The Projected 2024 market contraction to 8,034.03 million baht reflects industry-wide revenue pressures. Market structure assessment utilizing Herfindahl-Hirschman Index methodology yields 3,500.74 points, substantially exceeding the 1,800-point highly concentrated market threshold, indicating oligopolistic competitive conditions. Longitudinal HHI analysis demonstrates sustained decentralization trends since 2018, signaling gradual competitive intensification and market structure improvement, as presented in Chart 47.

Chart 47 : Market Value and Market Concentration Index Values (HHI)
for the Non-Frequency-Based Network Service Market



Remarks: 1. Data as of December 31, 2024.
2. *Estimated data.

Source: Broadcasting Tariff Bureau, and Broadcasting Competition, Promotion and Self-Regulation Bureau, Office of the NBTC.

2.2.2 Television Content Channel Services Market.

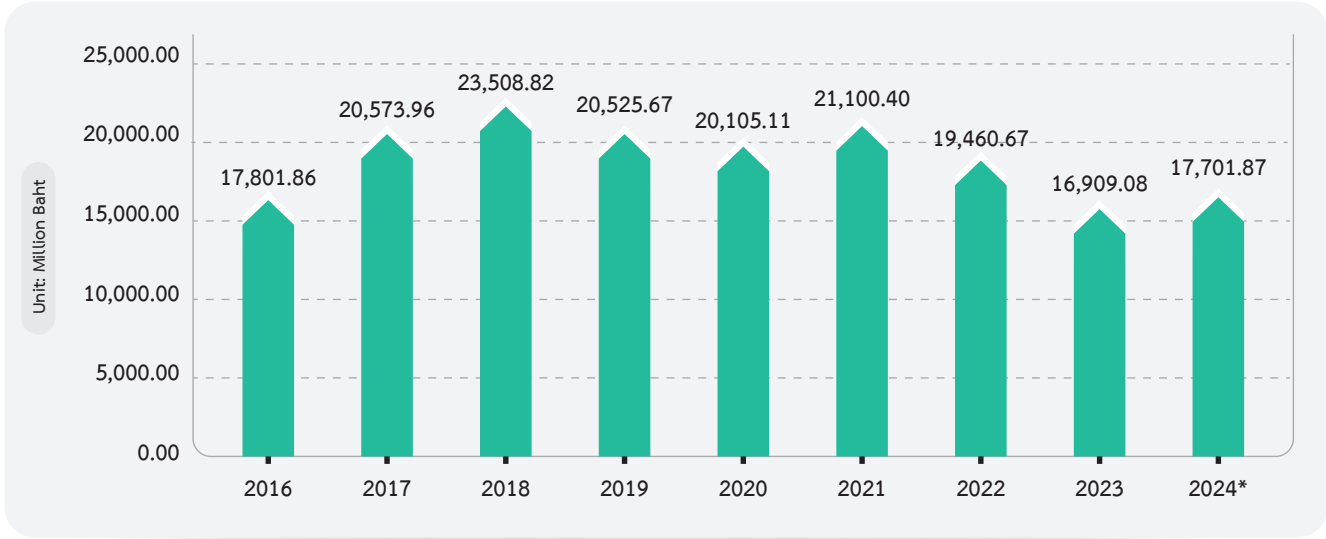
Television Content Channel Services encompass two operational categories: Frequency-Based Channel Services (Digital Terrestrial Television networks) and Non-Frequency Channel Services (cable, satellite, IPTV platforms). Channel

operators perform content aggregation and programming schedule curation to establish branded channel offerings pursuant to the NBTC licensing and content regulations. Content sourcing methodologies comprise: (1) Original Content Production, (2) Commissioned Content Development, (3) Co-Production Partnerships,

(4) Airtime Leasing Services, and (5) Third-Party Content Licensing and Acquisition Channel Services market valuation analysis for 2024 indicates projected aggregate revenues of 17,701.87

million baht, representing the content programming and channel operations segment distinct from network infrastructure services, as presented in Chart 48.

Chart 48 : Total Market Value of the Television Channel Services



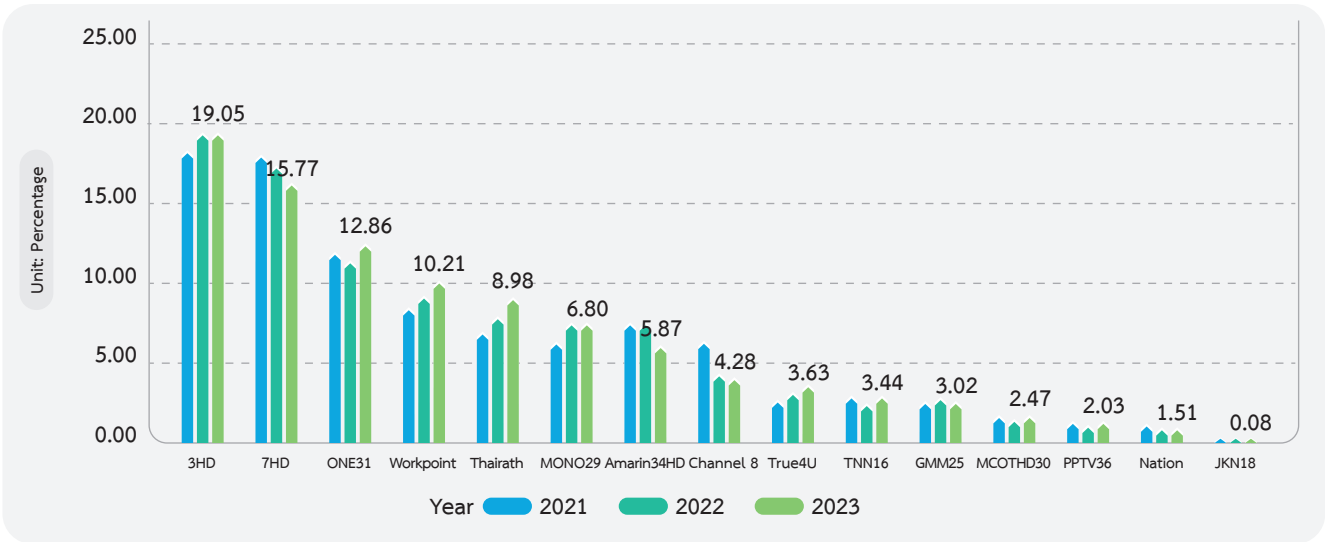
Remarks: 1. Data as of December 31, 2024.
2. *Estimated data.

Source: Data from 2016 to 2023 comes from the Broadcasting Tariff Bureau, Office of the NBTC.

1) Frequency-Based Television Channel Services (Digital Terrestrial Television Broadcasting Channels) Digital Terrestrial Television Channel Authorization encompasses two service classifications: 1) National Commercial Broadcasting Services in total comprising 15 channel authorizations, and 2) Public Service Broadcasting comprising 10 channel authorizations, comprising National Public Broadcasting comprising six channels and Regional Public Broadcasting comprising four channels. Therefore, the top five Commercial Broadcasting Services competitive landscape analysis based on

advertising revenue market shares identifies dominant operators: BEC-Multimedia Company Limited (Channel 3HD) maintains market leadership at 19.05 percent revenue share, Bangkok Television and Radio Company Limited (Channel 7HD) holds 15.77 percent, One Thirty One Company Limited (Channel ONE31) accounts for 12.86 percent, Thai Broadcasting Company Limited (Channel Workpoint) represents 10.21 percent, and Triple V Broadcast Company Limited (Channel Thairath TV) constitutes 8.98 percent of commercial terrestrial television revenues, as presented in Chart 49.

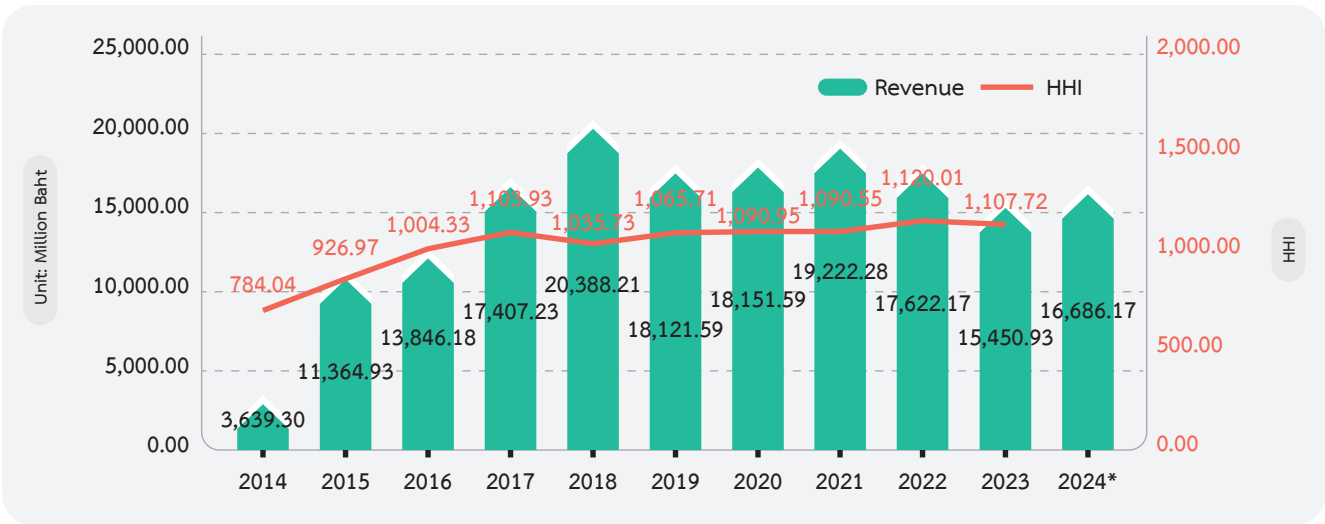
Chart 49 : Market Share of Television Channel Services through Frequency-Based Networks from 2021 to 2023



Remark: Data as of December 31, 2024.
Source: Broadcasting Tariff Bureau, Office of the NBTC.

Market structure assessment utilizing Herfindahl-Hirschman Index methodology for 2023 yields 1,107.72 points, indicating moderate market concentration within the established 1,000 - 1,800 threshold range, signifying competitive market conditions with limited concentration concerns, as presented in Chart 50.

Chart 50 : Market Value and Market Concentration Index Values (HHI) for the Television Channel Services through Frequency-Based Networks



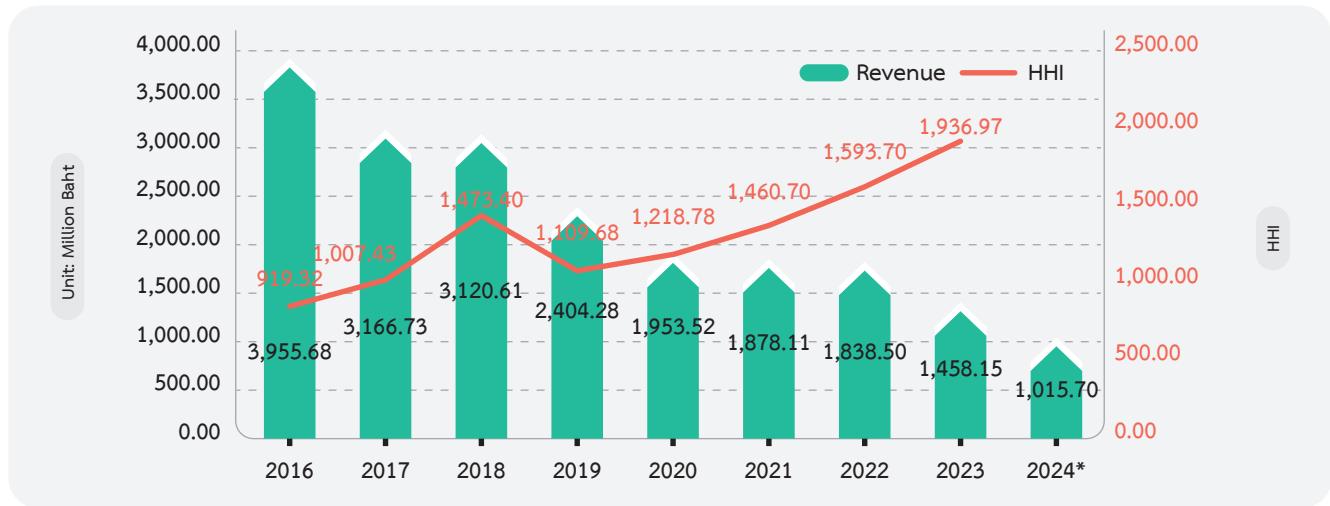
Remarks: 1. Data as of December 31, 2024.
2. *Estimated data.
Source: Broadcasting Tariff Bureau, and Broadcasting Competition, Promotion and Self-Regulation Bureau, Office of the NBTC.

2) Non-Spectrum Television

Channel Services, licensing registry on December 31, 2024, indicates 94 authorized service providers. Market valuation demonstrates revenue contraction from 1,458.15 million baht in 2023 to projected 1,105.70 million baht in 2024, Market structure analysis utilizing Herfindahl-Hirschman Index methodology yields

1,936.97 points in 2023, substantially exceeding the 1,800-point highly concentrated market threshold, indicating oligopolistic market conditions. Market concentration intensification attributable to provider population reduction and subsequent revenue distribution consolidation among remaining operators, as presented in Chart 51.

Chart 51 : Market Value of the Television Channel Services through Non-Frequency-Based Networks



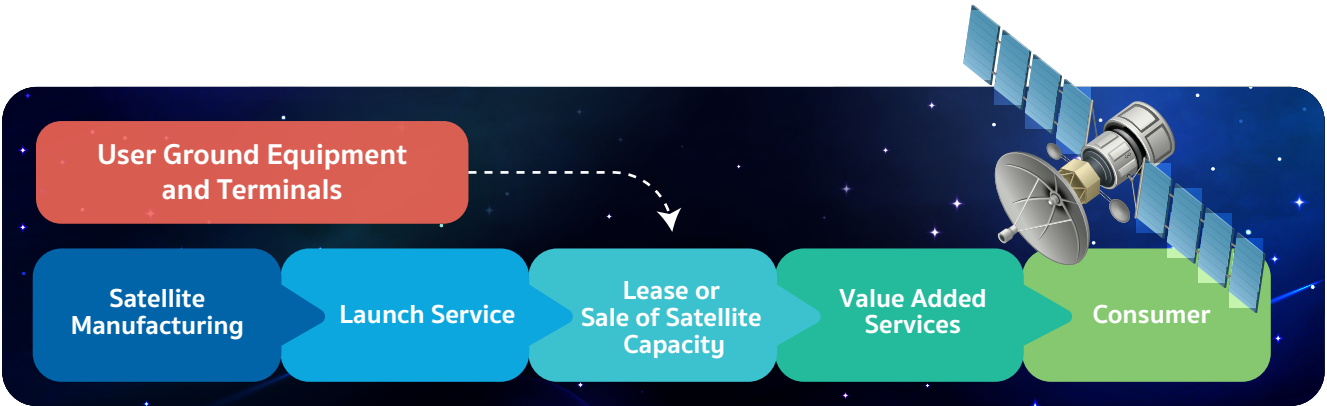
- Remarks:
1. Data as of December 31, 2024.
 2. *Estimated data.

Source: Broadcasting Tariff Bureau, and Broadcasting Competition, Promotion and Self-Regulation Bureau, Office of the NBTC.



Satellite Industry Market Structure adheres to a comprehensive Value Chain Analysis framework, segmented across three primary market tiers: Upstream Satellite Manufacturing, Midstream Satellite Operations,

and Downstream Satellite Applications and End-User Services. Detailed Value Chain Architecture and market segmentation analytics are illustrated in the referenced schematic diagram, as follows:



Thailand’s Satellite Industry Market Structure encompasses two primary segments: Upstream Satellite Manufacturing and Service Operations (Midstream/Downstream). The domestic manufacturing sector represents nascent Small Satellite Industry development initiatives. Market ecosystem participants include: Government sector entities, Geo-Informatics and Space Technology Development Agency (Public Organization) - GISTDA, National Astronomical Research Institute of Thailand (Public Organization) - NARIT, Defense Sector organizations, and Academic Research Institutions, and Private Sector operators, including EOS Orbit conducting Logsats-II satellite testing protocols. Logsats-II constitutes a component of Thailand’s Satellite Constellation Development Program, providing Real-Time earth observation and data services for communications infrastructure development, geospatial data management, environmental monitoring solutions, and digital economy network infrastructure support. Thailand’s satellite manufacturing market remains in research and development phases without commercial service deployment timelines, precluding competitive market dynamics assessment.

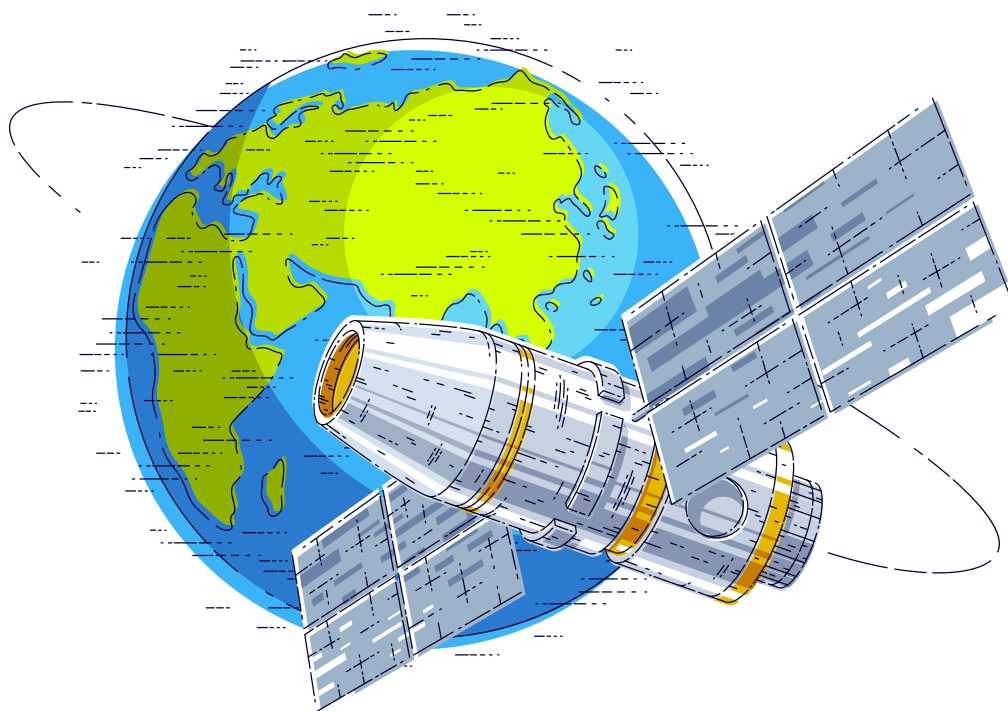
Nevertheless, Thailand’s Satellite Services Market encompasses two primary service categories comprising, Satellite Transponder Capacity Sales and Leasing Services, and Ground Station Infrastructure Leasing Services, with market duopoly comprising Thaicom Public Company Limited and National Telecom Public Company Limited. The market experiences a structural transformation from legacy transponder-based television broadcasting and rural telecommunications services toward New Space Economy paradigms, emphasizing High-Throughput Satellite (HTS) internet connectivity and Software-Defined Ground Infrastructure.

In addition, Global satellite industry convergence demonstrates vertical integration strategies through Mobile Network Operator partnerships and Over-The-Top content provider alliances, represented by Globalstar’s Direct-to-Device satellite messaging integration with Apple, Inc. via iPhone 14 with Emergency SOS functionality. Satellite Communications Technology roadmaps emphasize Position, Navigation, and Timing (PNT) integration with communication capabilities supporting diverse applications: Precision Agriculture, Emergency Response Systems, Geographic

Information Systems, and Telecommunications Infrastructure. Thai satellite operators encounter competitive pressures from international New Space providers regarding technological innovation and Capital Expenditure requirements. Domestic satellite utilization encompasses communications services and Earth Observation applications for natural resource management through THEOS-I and THEOS-II Earth Observation satellites.

Thus, Satellite Services Market competitive assessment within the current market transformation and liberalization framework indicates Foreign Direct Investment by technologically advanced and well-capitalized international satellite operators, while

domestic Thai satellite companies leverage incumbent advantages including established telecommunications infrastructure and legacy customer portfolios. Thailand’s satellite industry development necessitates International Technology Transfer partnerships and Knowledge Exchange mechanisms with foreign satellite technology providers. The Office of the NBTC has commissioned “A Study of Satellite Industry Competitiveness and Regulatory Measures” research initiative to conduct comprehensive market structure analysis and competitive dynamics assessment. Research outcomes will provide evidence-based policy intelligence for the NBTC.





Market Dominance Assessment: Anti-Competitive Practices in Broadcasting, Television, and Telecommunications Services with Adverse Impact on Public Interest and National Welfare.

1. Market Dominance Assessment: Anti-Competitive Practices in Broadcasting and Television Services with Adverse Impact on Public Interest and National Welfare.

The Office of the NBTC issued the Notification of the NBTC on Regulatory Measures for Merging for Mergers and Acquisition in the Telecommunications Sector, promulgated in the Royal Gazette on August 20, 2018. Chapter 2: “Market Dominance by Affiliated Entities” establishes regulatory authority to address direct and indirect market control by parties with common economic interests that may result in monopolistic market structures, competitive restraint, or market access limitations through specific regulatory interventions preventing anti-competitive practices and unfair competition.

During 2024, Market Structure Assessment identified intra-group consolidation within true corporation affiliated entities demonstrating no adverse competitive impact, with Broadcasting and Television Service Licensees exhibiting No Evidence of Market Dominance Conduct constituting Monopolistic Behavior, Competitive Restraint, or Market Access Restriction within Broadcasting and Television Services markets.

2. Market Dominance Assessment: Anti-Competitive Practices in Telecommunications Services with Adverse Impact on Public Interest and National Welfare.

Telecommunications Services operations necessitate substantial Capital Expenditure (CAPEX) for Network Infrastructure deployment and acquisition of scarce telecommunications resources including Radio Frequency Spectrum, resulting in Natural Monopoly or Oligopoly market structures. Incumbent telecommunications operators possessing Significant Market Power (SMP) may engage in market power

abuse through Exploitative Conduct (extracting consumer surplus) and Exclusionary Conduct (foreclosing competitive entry), including Predatory Pricing strategies, Margin Squeeze tactics, and Essential Facility Access Denial, collectively distorting competitive market dynamics. The NBTC implements Ex-Ante Regulatory Frameworks for significant market power designation and merger control procedures to prevent anti-competitive market concentration. Since 2023, major telecommunications sector consolidations include:

1) On March 1, 2023, True Corporation Public Company Limited (TRUE) effectuated statutory merger registration with Total Access Communication Public Company Limited (Dtac) pursuant to Section 146, Public Limited Companies Act B.E. 2535 (1992), along with its amendments. The consolidation proceeded following the 5th NBTC Special Meeting on October 20, 2022, which acknowledged the corporate merger transaction, addressed five regulatory Points of Concern, and approved conditional regulatory measures. The merger resulted in corporate entity dissolution of both predecessor companies and new entity registration under the consolidated designation True Corporation Public Company Limited, creating Thailand’s largest Mobile Network Operator through horizontal integration. Consequently, August 3, 2023: True Move H Universal Communication Company Limited (TUC) and Dtac TriNet Company Limited (DTN), both Licensed Telecommunications Service Providers, executed corporate amalgamation proceedings through the Department of Business Development (DBD), Ministry of Commerce. The Statutory Amalgamation resulted in DTN’s Corporate Dissolution with TUC designated as the Surviving entity, effectuating universal succession of all DTN assets, liabilities, contractual rights,

regulatory obligations, and legal responsibilities from the effective registration date, consolidating Thailand's Mobile Network Infrastructure and Service Operations under unified corporate structure.

2) Corporate consolidation between Advanced Wireless Network Company Limited (AWN) and Triple T Broadband Public Company Limited (TTTBB) received Conditional Regulatory Approval via the 12th NBTC Special Meeting on November 10, 2023, implementing specific regulatory conditions pursuant to the Notification of the NBTC on Measure to Prevent Monopolistic and Unfair Competition Practices in Telecommunications B.E. 2549 (2006).

The Office of the NBTC maintains Post-Merger Monitoring through specialized Merger Compliance Subcommittees: Subcommittee for TRUE-Dtac Merger Oversight and Subcommittee for AWN-TTTBB Consolidation Oversight. The Office of the NBTC provides Systematic compliance reporting on conditional approval implementation and regulatory measure effectiveness to the NBTC as a monitoring Subcommittees, regarding implementation progress of conditional approval requirements and specific regulatory measures across both corporate consolidation cases.





Trend of Broadcasting, Television, Telecommunications, and Satellite Communications Industry in 2025.

Trend of Broadcasting and Television Services Industry.

Television Services Market Analysis indicates projected revenue decline for Digital Terrestrial Television (DTT) Channel Services, consistent with broader Non-Frequency Television Network trends. The cable television network operator population demonstrates a sustained contraction, while satellite broadcasting service providers exhibit a gradual market reduction, attributable to the business environment's transformation toward Over The Top (OTT) content consumption. Internet Protocol Television (IPTV) Services maintain robust growth trajectories, driven by Major Operator Infrastructure Expansion and Consumer Adoption Acceleration.

The broadcasting industry confronts technology disruption challenges with future business model diversification requirements for competitive sustainability and the accommodation of evolving consumer demand. Broadcasting and Television service providers encounter multi-dimensional Market Pressures: Cross-platform competition corresponding to consumer digital platform migration, online media platform growth, and User-Generated Content (UGC) producer proliferation. Specialized content development for niche market segmentation addresses consumer behavioral transformation has been created increasingly. Social media and short-form video content consumption patterns impact traditional broadcasting metrics, including audience share, ratings performance, advertising revenue, and market share distribution.

Global technology corporations implementing Accelerated Artificial Intelligence (AI) deployment throughout 2024 introduce AI-Assisted content production and broadcasting operations management: AI news presenter technology, real-time translation services, and automated content creation/post-production. The AI Integration Era presents dual impact scenarios: positive outcomes including enhanced content appeal and personalized viewer experiences and negative implications encompassing Intellectual property rights concerns and embedded digital bias in AI production workflows. Broadcasting operators must balance AI service enhancement with ethical framework compliance and corporate social responsibility.

Industry adaptation requirements necessitate technology advancement accommodation and industry context transformation response. The Office of the NBTC implements regulatory framework evolution supporting digital broadcasting and television industry transformation, including AI application readiness programs for personnel technology competency development, AI-Enhanced content monitoring for sustainable regulatory efficiency, digital platform access feasibility assessment for terrestrial television services, and television industry strategic Roadmap development for future operational planning framework establishment.

The Thailand Telecommunications Market Assessment for 2024 demonstrates a continued decline in fixed telephone services since 2019. Mobile telephone services experienced a continuous decline from late 2022, with a slight recovery in late 2023. Major mobile operators implemented service fee adjustments in 2023, combined with stricter mobile number identity verification measures and a strategic focus on quality subscribers rather than subscriber volume growth, contributing to mobile user decline through the first half of 2024.

Mobile broadband services showed growth from 2017 through late 2023, declining slightly in 2024. Fixed broadband services experienced a decline in users since late 2022, with 2023 seeing business consolidation among fixed internet providers and refined subscriber counting methodologies similar to mobile services. Throughout 2025, Thailand's telecommunications industry is projected to experience growth driven by enhanced connectivity between services and devices, AI technology integration for service capability enhancement, cloud service and data center expansion, and Low Earth Orbit (LEO)

satellite deployment for underserved areas. The government's Digital Government Development Plan B.E. 2566 - 2570 (2023 - 2027) aims to elevate public services and business competitiveness through flexible, agile digital government operations, promoting citizen participation, convenience, accessibility, and government data transparency while creating business value-add. A comprehensive national telecommunications infrastructure serves as a key investment consideration factor for leading domestic providers and global companies investing in Thailand.

These investments address demands for efficient data services, stable connectivity, and high-level security standards, driving digital business transformation. Currently, service alignment leverages big data analytics through Generative AI and Quantum Computing applications in service delivery, cloud system implementation for data management and service provision, and emerging Low Earth Orbit (LEO) satellites will create alternative service models. These include satellite internet services reducing remote area connectivity limitations, enhanced connectivity capabilities, and new business opportunities.



The satellite industry is inherently international, driven by satellite technology requirements, investment cost-effectiveness, satellite network resource optimization, and spectrum utilization for maximum benefit. Satellite communications represent the most competitive segment, with 98 major global players serving maritime, transportation, and logistics industries. High-Throughput Satellite (HTS) technology drives satellite communications growth by providing high-density, high-capacity data transmission for broadband internet services, supporting expanded media and entertainment industry development to meet rising consumer demands. The satellite communications market has created paradigm shifts in telecommunications through data transmission and network connectivity services offering enhanced speed and stability. Advances in Non-Geostationary Orbit (NGSO) Low Earth Orbit (LEO) satellite technology utilizing small satellite constellations enable high-speed, low-cost satellite broadband, particularly valuable for remote areas where terrestrial infrastructure is uneconomical.

Furthermore, Satellite broadband integration with terrestrial 5G technology enhances communication efficiency, supporting smart city development and intelligent systems including autonomous vehicles and diverse Internet of Things (IoT) applications. Geostationary Orbit (GSO) technology development continues expanding high-speed internet service capabilities. Growing private satellite operators alongside satellite communication and commercial satellite innovation for global coverage drive market competition.

Currently, technology enables direct device connectivity through Direct-to-Device and Direct-to-Cell capabilities. Satellite communications applications integrate with Global Navigation Systems (GPS), Earth Observation, and Remote Sensing satellites supporting agricultural activities, environmental conservation, monitoring, and emergency management. Competition and growth challenges in the satellite communications market include the following factors:

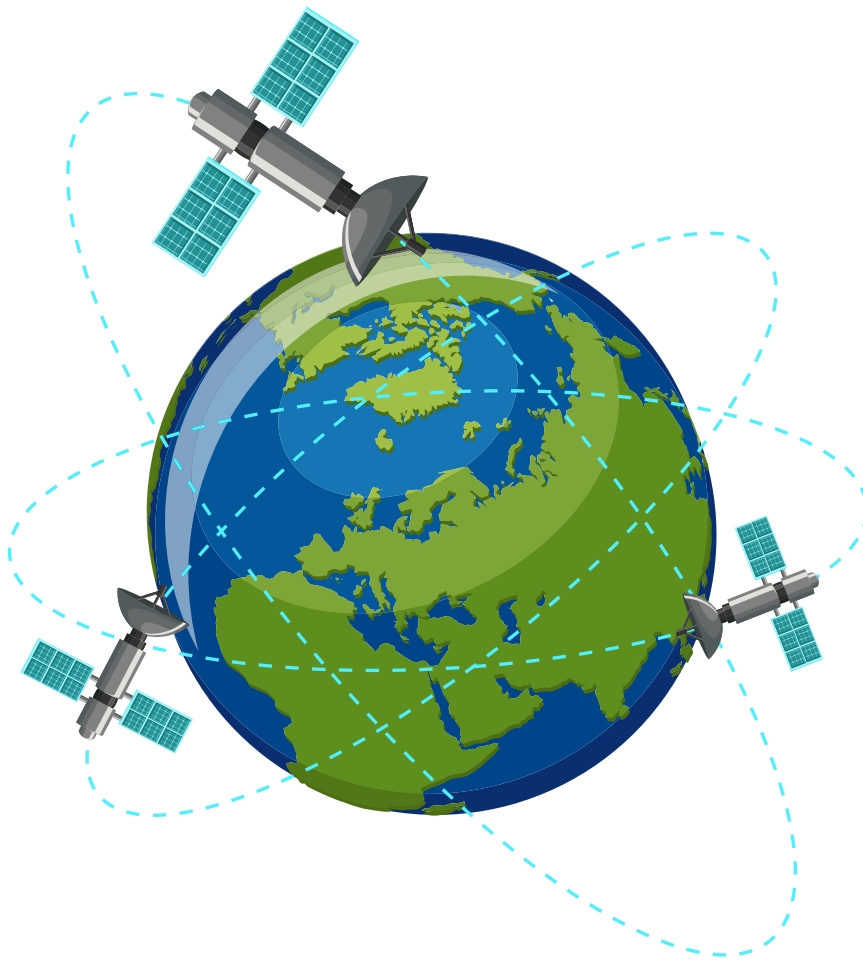
1. Satellite Technology Development and Innovation.

Low Earth Orbit (LEO) small satellite constellation development exemplifies how satellite communication technology innovation transforms satellite ecosystems and enhances signal transmission efficiency for faster internet services, driving increased broadband demand, particularly in remote areas and IoT applications. The Satellite technology advancement includes integration capabilities with 5G networks for connectivity services and telecommunications infrastructure. The convergence of satellite communications, Global Navigation Systems (GPS), Earth Observation, and Remote Sensing technologies enables agricultural applications and environmental management through satellite imagery analysis, including forest water monitoring, wildfire analysis, water change tracking, sea level monitoring, and ice melt assessment. Hence, Satellite imagery applications extend to natural disaster mitigation, providing damage assessment data and supporting more efficient recovery operations.

2. Satellite Communications Industry Regulatory Oversight.

Market entry and competitive service provision face complex and varying regulatory frameworks across different countries. However, satellite technology and service delivery models have evolved significantly. Currently, satellite ground station technology enables multiple operational functions within a single device. Terminal equipment can simultaneously serve as satellite transmission-reception stations for

ground-to-space communications, provide Telemetry, Tracking, and Command (TT&C) capabilities for remote object monitoring, and function as Gateways for network connectivity and signal distribution to terrestrial networks. Existing regulatory frameworks do not adequately address these technological capabilities, creating a regulatory loophole.





Quality of Service Performance and Service Rate Analysis for Essential Public Telecommunications Services.

The NBTC implements Telecommunications Service Regulation through Quality of Service (QoS) standards establishment and service rate regulation frameworks to ensure consumers receive standardized service quality at equitable pricing. The NBTC has produced notable achievements and key performance indicators in 2024, including;

1. Quality of Service Regulatory Oversight.

In 2024, the Office of the NBTC announcement on Telecommunications Service Quality Standards, which mandate licensees to provide telecommunications services meeting quality standards specified in the announcement's annexes²⁸. Licensees must conduct service quality measurements and submit quarterly reports to the Office of the NBTC. Additionally, inspections are conducted when services fail to meet telecommunications service quality standards, including annual routine inspections and random additional inspections following consumer complaints.

The Office of NBTC cooperates with operators to investigate issues raised through complaints. Summary results of service quality monitoring and inspection compliance are as follows:

1.1 Telecommunications Service Quality Assessment Based on Operator Service Quality Inspection Reports.

1.1.1 Fixed Network Telecommunications Service Quality Performance.

This includes fixed telephone services and public telephone services. Service quality reports from 45 fixed telecommunications licensees²⁹ submitted to the Office of the NBTC show that all providers achieved service quality indicators meeting targets specified in the relevant Notification of the NBTC. This demonstrates operational efficiency across telecommunications networks, service activation, repair services, and accurate, convenient customer contact processes, as presented in Table 31.

²⁸ The service quality indicators as specified in the appendix attached to the Notification of the NBTC on Quality-of-Service Standards for Telecommunications Services, published in the Royal Gazette on October 25, 2019, Volume 136 Special Part 265 Ngor, are as follows:

- 1) Telecommunications services through fixed telecommunications networks refer to services provided via fixed telecommunications infrastructure, such as copper wire networks, fiber optic networks, or a combination of both. These include fixed-line telephony, public telephone, and data services. The service quality indicators cover (1) general service quality, (2) voice service quality, and (3) telecommunications data quality.
- 2) Telecommunications services through mobile networks refer to services through mobile telecommunications networks under the Land Mobile Service. The service quality indicators include (1) general service quality, (2) voice service quality, and (3) telecommunications data quality.

²⁹ Data as of the third quarter of 2024.

Table 31 : Results of the 2024 Quality-of-Service Report from Fixed Telecommunications Licensees

Clause ³⁰	Service Quality Indicators	Target	Service Quality Indicators		
			Minimum	Average	Maximum
General Service Quality Indicators					
1.1.1	Duration for service activation	≤10 business days	1 day	2.19 days	10 days
1.1.2	Percentage of successful service installations within the specified timeframe	≥90%	90.00	96.46	100.00
1.1.3	Error report per 100 users	≤5 times per 100 users	0.00	1.58	4.50
1.1.4	Time taken for repairs	≤24 hrs.	1 hr.	7.79 hrs.	24 hrs.
1.1.5	Percentage of complaints regarding billing errors	≤0.30%	0.00	0.03	0.29
1.1.6	Waiting time for call center services	≤60 seconds	2 seconds	32.61 seconds	60 seconds
1.1.7	Availability of public telephones	≥90.00% in Bangkok and its vicinity	100.00	100.00	100.00
		≥85.00% in other provinces	99.50	99.82	99.99
Voice Service Quality Indicators					
1.2.1	On-Net Successful Call Ratio	≥90.00%	94.09	97.26	99.00
1.2.2	Off-Net Successful Call Ratio	≥85.00%	85.00	95.11	99.00
Data Service Quality Indicators					
1.3.1	Percentage of total downtime of terminal signal distribution equipment per month	≤1.00%	0.00	0.16	1.00

Remark: Data as of Quarter 3/2024.

Source: Telecommunications Technology and Standard Bureau, Office of the NBTC.

1.1.2 Mobile Network Telecommunications Service Quality Performance.

Mobile telecommunications service quality reports from 9 licensed mobile providers³¹ were submitted to the Office of the NBTC for first to third of 2024, comprising Mobile Network

Operators (MNOs) with proprietary infrastructure and Mobile Virtual Network Operators (MVNOs). All licensees achieved service quality indicators meeting targets established in relevant the Notification of the NBTC, as presented in Tables 32 and 33.

³⁰ Clause hereby means the clause of indicators specified in the Notification of the NBTC on Quality-of-Service Standards for Telecommunications Services.

³¹ 1) The three mobile network operators (MNOs) include (1) National Telecom Public Company Limited (NT), (2) Advanced Wireless Network Company Limited (AWN), and (3) True Move H Universal Communication Company Limited (TUC).
2) The six mobile virtual network operators (MVNOs) include (1) Loxley Public Company Limited, (2) Loxley Mobile Company Limited, (3) The White Space Company Limited, (4) Feels Telecom Corporation Company Limited, (5) redONE Network (Thailand) Company Limited, and (6) Bangkok Pay Company Limited.

Table 32 : Results of the 2024 Quality of Service Report from Mobile Telecommunications Service Operators

Clause	Service Quality Indicators	Target		Service Quality Indicators		
				Minimum	Average	Maximum
General Service Indicators						
2.1.1	Duration for service activation	Pre-paid: ≤3 hrs. for 90.00% of service activation		99.77	99.86	100.00
		Post-paid: ≤5hrs. for 90.00% of service activation		99.63	99.85	100.00
2.1.2	Percentage of complaints regarding billing errors	≤0.30%		0.001	0.02	0.05
2.1.3	Waiting time for call center services	≤60 seconds		38 seconds	47.66 seconds	55 seconds
2.1.4	Frequency of total out-of-service signal transmission cells in base stations for more than four hrs. in one month, per total cells in all base stations	≤10 times/100 cells/month		2.89 times	6.52 times	8.98 times
2.1.5	Percentage of total downtime of signal transmission cells in base stations more than 24 hrs. per month	≤3.00%		0.49	1.03	1.30
2.1.6	Percentage of total downtime of all cells in base stations in one month, per total service time	≤1.00%		0.14	0.30	0.44
Voice Service Quality Indicators						
2.2.1	On-Net Successful Call Ratio	≥90.00% during 10.00 – 13.00 hrs. Every 3 months		96.28	97.40	99.40
		≥90.00% during 16.00 – 19.00 hrs. Every 3 months		96.15	97.36	99.31
2.2.2	Off-Net Successful Call Ratio	≥90.00% during 10.00 – 13.00 hrs. Every 3 months		93.85	96.19	98.25
		≥90.00% during 16.00 – 19.00 hrs. Every 3 months		95.03	96.82	98.29
2.2.3	Drop Call Rate	≤2.00% during 10.00 – 13.00 hrs. Every 3 months		0.04	0.10	0.16
		≤2.00% during 16.00 – 19.00 hrs. Every 3 months		0.04	0.12	0.19
2.2.4	Mean Opinion Score (MOS)	≥2.5 (90.00% of samples in all regions)	98.50	99.50	100.00	100.00
			97.24	98.52	100.00	100.00
			98.27	99.03	100.00	100.00
			96.04	97.71	100.00	100.00

Remark: Data as of Quarter 3/2024.

Source: Telecommunications Technology and Standard Bureau, Office of the NBTC.

Table 33 : Results of Quality-of-Service from Telecommunications Service Operators Quality Indicators
for Data Telecommunications Services via Mobile Networks 2024

Clause	Service Quality Indicators	Target	Area	Measurement Location	Service Quality Indicators		
					Minimum	Average	Maximum
Quality of Data Service Indicators							
2.3.1	Round - Trip Time (RTT)	For 3G technology, ≤500 ms, with a target indicator of no less than 80.00%	Regional (Central/East)	Main routes and minor routes	92.08	97.32	98.77
				Community areas	93.07	97.32	98.77
			Bangkok and the neighborhood	Main routes and minor routes	89.05	94.92	98.81
				Surveillance areas	98.16	97.32	99.53
		For 4G technology, ≤150 ms, with a target indicator of ≥ 80.00%	Regional (Central/East)	Main routes and minor routes	97.56	98.84	99.68
				Community areas	98.61	98.84	99.68
			Bangkok and the neighborhood	Main routes and minor routes	98.81	99.39	99.46
				Surveillance areas	100.00	98.84	100.00
		For 5G technology (NSA and SA not using 2600 MHz), ≤150 ms, with a target indicator of ≥80.00%	Regional (Central/East)	EEC	97.87	98.09	98.31
				Bangkok	97.84	98.92	100.00
		For 5G technology (SA using 2600 MHz), the target is ≤110 ms, with an indicator of at least 80.00%	Regional (Central/East)	EEC	95.35	97.68	100.00
				Bangkok	96.30	97.06	97.81
2.3.2	FTP Success Ratio	3G Download: ≥80.00%	Regional (Central/East)	Main routes and minor routes	96.55	98.67	99.27
				Community areas	97.72	98.67	99.27
			Bangkok and the neighborhood	Main routes and minor routes	97.32	99.44	99.70
				Surveillance areas	97.61	98.67	99.50

Clause	Service Quality Indicators	Target	Area	Measurement Location	Service Quality Indicators		
					Minimum	Average	Maximum
		4G Download: ≥80.00%	Regional (Central/East)	Main routes and minor routes	97.96	99.38	99.55
				Community area	98.82	99.38	99.55
			Bangkok and the neighborhood	Main routes and minor routes	99.13	99.50	99.55
				Surveillance areas	99.61	99.38	100.00
		5G Download (not using 2600 MHz): ≥80.00%	Central/East	EEC	100.00	100.00	100.00
				Bangkok	97.73	98.87	100.00
		5G Download (using 2600 MHz): ≥80.00%	Central/East	EEC	100.00	100.00	100.00
				Bangkok	91.16	95.58	100.00
		3G Upload: ≥70.00%	Regional (Central/East)	Main routes and minor routes	98.58	98.41	99.70
				Community areas	97.07	98.41	99.44
			Bangkok and the neighborhood	Main routes and minor routes	95.05	97.91	99.60
				Surveillance areas	99.25	98.41	100.00
		4G Upload: ≥70.00%	Regional (Central)	Main routes and minor routes	99.62	99.31	99.60
				Community areas	98.15	99.31	99.60
			Bangkok and vicinity	Main routes and minor routes	97.80	98.97	97.80
				Surveillance areas	99.02	99.31	100.00
		5G Upload (not using 2600 MHz): ≥70.00%	Central/East	EEC	98.11	98.70	99.29
				Bangkok	97.09	97.38	97.67
		5G Upload (using 2600 MHz): ≥70.00%	Central/East	EEC	97.12	97.15	97.18
				Bangkok	92.54	94.49	96.43

Clause	Service Quality Indicators	Target	Area	Measurement Location	Service Quality Indicators		
					Minimum	Average	Maximum
2.3.3	FTP ratio subjected to the specified data rate	3G Download: ≥750 Kbps for 75.00% of FTP successful transmission within the specified time (Timeout)	Regional (Central/East)	Main routes and minor routes	96.55	98.77	99.27
				Community areas	97.88	98.77	99.27
			Bangkok and the neighborhood	Main routes and minor routes	96.83	98.39	99.27
				Surveillance areas	97.61	98.77	99.50
		4G Download: ≥2.5 Mbps for 75.00% of FTP successful transmission within the specified time (Timeout)	Regional (Central/East)	Main routes and minor routes	97.78	98.73	99.36
				Community areas	98.08	98.73	99.36
			Bangkok and the neighborhood	Main routes and minor routes	98.33	98.99	99.76
				Surveillance areas	99.28	98.73	99.61
		5G Download (not using 2600 MHz): ≥2.5 Mbps for 75.00% of FTP successful transmission within the specified time (Timeout)	Central/East	EEC	98.53	99.27	100.00
				Bangkok	97.73	98.87	100.00
		5G Download (using 2600 MHz): ≥5 Mbps for 75.00% of FTP successful transmission within the specified time (Timeout)	Central/East	EEC	100.00	100.00	100.00
				Bangkok	89.76	94.88	100.00
		3G Upload: ≥300 Kbps for 75.00% of FTP successful transmission within the specified time (Timeout)	Regional (Central/East)	Main routes and minor routes	98.62	97.04	99.76
				Community areas	95.98	97.04	99.39
			Bangkok and the neighborhood	Main routes and minor routes	96.70	98.62	99.76
				Surveillance areas	99.28	97.04	100.00
		4G Upload: ≥500 Kbps for 75.00% of FTP successful transmission within the specified time (Timeout)	Regional (Central/East)	Main routes and minor routes	99.33	98.83	99.76
				Community areas	97.58	98.83	99.60
			Bangkok and the neighborhood	Main routes and minor routes	99.45	99.60	99.76
				Surveillance areas	99.38	98.83	100.00

Clause	Service Quality Indicators	Target	Area	Measurement Location	Service Quality Indicators		
					Minimum	Average	Maximum
		5G Upload (not using 2600 MHz): ≥500 Kbps for 75.00% of FTP successful transmission within the specified time (Timeout)	Central/East	EEC	98.11	98.88	99.64
				Bangkok	97.67	98.11	98.55
		5G Upload (using 2600 MHz): ≥1.25 Mbps for 75.00% of FTP successful transmission within the specified time (Timeout)	Central/East	EEC	97.18	97.51	97.84
				Bangkok	92.91	94.67	96.43
2.3.4	HTTP Success Ratio	For 3G, ≥90.00%, with the specified time not exceeding three minutes	Regional (Central/East)	Main routes and minor routes	98.45	99.67	100.00
				Community areas	99.37	99.67	100.00
			Bangkok and the neighborhood	Main routes and minor routes	99.22	99.74	100.00
				Surveillance areas	100.00	99.67	100.00
		For 4G and above, ≥90.00%, with the specified time not exceeding one minute	Regional (Central/East)	Main routes and minor routes	100.00	99.66	100.00
				Community areas	98.99	99.66	100.00
			Bangkok and the neighborhood	Main routes and minor routes	100.00	99.86	100.00
				Surveillance areas	100.00	99.66	100.00
		For 5G (NSA and SA not using 2600 MHz), ≥90.00%, with the specified time being one minute	Central/East	EEC	100.00	100.00	100.00
				Bangkok	100.00	100.00	100.00
		For 5G (SA using 2600 MHz), ≥90.00%, with the specified time being 25 seconds	Central/East	EEC	99.09	99.55	100.00
				Bangkok	97.53	98.77	100.00
2.3.5	Streaming Access Ratio	For 3G (Resolution 360p), ≥80.00%	Regional (Central/East)	Main routes and minor routes	-	-	-
				Community areas	96.84	98.38	99.44
			Bangkok and the neighborhood	Main routes and minor routes	98.09	99.22	100.00
				Surveillance areas	-	-	-

Clause	Service Quality Indicators	Target	Area	Measurement Location	Service Quality Indicators		
					Minimum	Average	Maximum
		For 4G and above (Resolution 720p), ≥85.00%	Regional (Central/East)	Main routes and minor routes	-	-	-
				Community areas	99.40	99.52	99.74
			Bangkok and the neighborhood	Main routes and minor routes	98.84	99.55	100.00
				Surveillance areas	-	-	-
		For 5G (NSA and SA not using 2600 MHz, Resolution 720p), ≥85.00%	Central/East	EEC	99.24	99.62	100.00
				Bangkok	100.00	100.00	100.00
		For 5G (SA using 2600 MHz, Resolution 1080p), ≥90.00%	Central/East	EEC	100.00	100.00	100.00
				Bangkok	93.48	96.74	100.00
2.3.6	VDO Streaming Success Ratio	For 3G (Resolution 360p), ≥80.00%	Regional (Central/East)	Main routes and minor routes	-	-	-
				Community areas	86.98	91.40	93.75
			Bangkok and the neighborhood	Main routes and minor routes	94.22	97.86	100.00
				Surveillance areas	-	-	-
		For 4G and above (Resolution 720p), ≥85.00%	Regional (Central/East)	Main routes and minor routes	-	-	-
				Community areas	95.52	97.39	98.87
			Bangkok and the neighborhood	Main routes and minor routes	95.09	97.33	99.82
				Surveillance areas	-	-	-
		For 5G (NSA and SA not using 2600 MHz, Resolution 720p), ≥85.00%	Central/East	EEC	97.67	98.84	100.00
				Bangkok	95.45	96.58	97.71
		For 5G (SA using 2600 MHz, Resolution 1080p), ≥90.00%	Central/East	EEC	96.95	98.48	100.00
				Bangkok	92.75	94.76	96.77

Clause	Service Quality Indicators	Target	Area	Measurement Location	Service Quality Indicators		
					Minimum	Average	Maximum
2.3.7	Average bit rate for FTP data transfer	5G Download (using 2600 MHz): ≥20 Mbps	Central/East	EEC	124.07 Mbps	151.19 Mbps	175.31 Mbps
				Bangkok	111.71 Mbps	116.56 Mbps	121.40 Mbps
		5G Upload (using 2600 MHz): ≥5 Mbps	Central/East	EEC	19.82 Mbps	23.37 Mbps	26.91 Mbps
				Bangkok	15.12 Mbps	17.81 Mbps	20.49 Mbps

Remark: Data as of Quarter 3/2024.

Source: Telecommunications Technology and Standard Bureau, Office of the NBTC.

Quality of Service (QoS) measurement results publication follows the Notification of the NBTC on Quality-of-Service Standards for Telecommunications Services and the Notification of the Office of the NBTC on Guidelines for Measuring Service Quality Indicators and Surveillance Areas, including report formats and publication of QoS measurement results and indicator levels. These cover fixed telecommunications

services QoS publication and established mobile telecommunications network (mobile phone) QoS measurement guidelines and monitoring areas. As of third quarter of 2024, designated monitoring areas require licensees to measure data service quality indicators (Round-Trip Time (RTT), Transfer Protocol (FTP), and Hypertext Transfer Protocol (HTTP) for mobile telecommunications services, as presented in Table 34.

Table 34 : Surveillance Areas for Telecommunications Services through Mobile Telecommunications Networks 2024

Area	Measurement Location (As of Q1/2024)	Measurement Location (As of Q2/2024)	Measurement Location (As of Q3/2024)
Regional surveillance areas	Measure in the Northeastern region - Main routes and minor routes in regional areas - Routes in community areas	Measure in the Southern region - Main routes and minor routes in regional areas - Routes in community areas	Measure in the Central and Eastern regions - Main routes and minor routes in regional areas - Routes in community areas
Surveillance areas in Bangkok and vicinity	Main routes in Bangkok and its the neighborhood	Main routes in Bangkok and the neighborhood	Main routes in Bangkok and the neighborhood
	Special routes in Bangkok and vicinity 1. Si Rat Expressway 2. Udon Rattaya Expressway 3. Uttarapimuk Expressway 4. Chalerm Maha Nakhon Expressway 5. Chaolong Rat Expressway	Surveillance areas 1. Krung Thep Aphiwat Central Terminal 2. Bangkok Bus Terminal (Moh Chit) 3. Bangkok Bus Terminal (Ekkamai) 4. Bangkok Bus Terminal (Borommaratchachonnani) 5. Don Mueng Airport 6. Suvarnabhumi Airport	Community areas 1. King Mongkut's Institute of Technology Ladkrabang 2. Chulalongkorn University 3. Mahidol University (Salaya Campus) 4. Bangkok University 5. Thammasat University (Rangsit Campus)

Source: Telecommunications Enforcement Bureau, Office of the NBTC.

1.2 Service Quality Verification through the Office of the NBTC Independent Quality Measurement According to Regulatory Standards.

1.2.1 Stationary Network Performance Testing Protocol. The Office of the NBTC established mobile telephone service quality testing equipment at the regional and district the Office of the NBTC, conducting regular monthly testing to monitor mobile networks and ensure service delivery meets standard values and quality specifications established by the Notification of the NBTC, performance assessment results are summarized as follows:

(1) Voice service quality assessment covers both intra-network calls within the same operator and inter-network calls (across different operators), measuring the successful call ratio and drop call rate. At the third quarter of 2024, results show all service providers achieved voice service quality meeting established standards: successful call ratios of 99.72 percent and 99.81 percent, respectively, exceeding the specified target (minimum 90 percent), and a drop call rate of 0.06 percent, well below the specified target (maximum 2 percent), as presented in Table 35.

Table 35 : The Test Results of On-Net and Off-Net Calls 2024

Service Quality Indicators	Target	Test Results of Voice Service of On-Net Calls		
		First Quarter	Second Quarter	Third Quarter
On-Net Successful Call Ratio	≥90.00%	99.92	99.41	99.72
Off-Net Successful Call Ratio	≥90.00%	99.84	99.58	99.81
Drop Call Ratio	≤2.00%	0.04	0.15	0.06

Remark: The tests were conducted in 26 areas, including the Office of the NBTC Headquarters (Sailom), the Regional Offices of NBTC 1 - 4, the District Offices of NBTC 11 - 16, the District Offices of NBTC 21 - 25, the District Offices of NBTC 31 - 35, and the District Offices of NBTC 41 - 45.

Source: Telecommunications Enforcement Bureau, Office of the NBTC.

(2) Data telecommunications service quality assessment covers FTP data reception ratios based on average specified transmission speeds, FTP data transmission success rates, and HTTP loading

success ratios within specified timeframes. Results show all service providers achieved data service quality meeting established standards, as presented in Tables 36 and 37.

Table 36 : Test Results for Data Services on 3G Technology in Telecommunications, 2024

Service Quality Indicators		Target	Test Results of Service with 3G Technology		
			First Quarter	Second Quarter	Third Quarter
FTP: Download	FTP Data Transfer Ratio is subject to the specified average data transfer speed	≥0.750 Mbps	5.11	4.88	4.63
	FTP Successful Data Transfer Ratio	≥80.00%	97.83	99.22	98.14
FTP: Upload	FTP Data Transfer Ratio is subject to the specified average data transfer speed	≥0.300 Mbps	2.11	2.19	2.08
	FTP Successful Data Transfer Ratio	≥70.00%	99.34	99.42	98.40
HTTP	HTTP Successful Ratio within the specified time	≥80.00%	99.98	99.99	99.98

Remark: The tests were conducted in 5 areas, including the District Offices of NBTC 12, 16, 21, 33, and 45.

Source: Telecommunications Enforcement Bureau, Office of the NBTC.

Table 37 : Test Results for Data Services on 4G and 5G Technologies, Not Utilizing the 2600 MHz Spectrum Band in Telecommunications, 2024

Service Quality Indicator		Target	Test Results of Service with 4G and 5G Technologies, Not Utilizing the 2600 MHz		
			First Quarter	Second Quarter	Third Quarter
FTP: Download	FTP Data Transfer Ratio is subject to the specified average data transfer speed	≥2.5 Mbps	22.20	25.70	19.59
	FTP Successful Data Transfer Ratio	≥80.00%	95.40	92.87	97.28
FTP: Upload	FTP Data Transfer Ratio is subject to the specified average data transfer speed	≥0.5 Mbps	6.88	7.52	7.40
	FTP Successful Data Transfer Ratio	≥70.00%	99.53	95.95	99.49
HTTP	HTTP Successful Ratio within the specified time	≥90.00%	99.88	99.91	99.92

Remark: 1) The tests were conducted in 22 areas, including the Office of the NBTC Headquarters (Sailom), the Regional Offices of NBTC 1 - 4, the District Offices of NBTC 11, 13 - 15, the District Offices of NBTC 22 - 25, the District Offices of NBTC 31 - 35, and the District Offices of NBTC 41 - 45.

2) The test results are based on services on 4G and 5G (non-standalone mode: NSA) and 5G (standalone mode: SA), and not utilizing the 2600 MHz spectrum band.

Source: Telecommunications Enforcement Bureau, Office of the NBTC.

1.2.2 Mobile Network Performance

Testing Protocol (Mobility Test).

The Office of the NBTC implemented quarterly testing protocols covering diverse usage scenarios across six designated testing area categories: (1) Primary and secondary national highway infrastructure, (2) Metropolitan Bangkok and suburban major transportation corridors, (3) Community Residential area route networks, (4) Special routes in Bangkok and metropolitan areas/monitoring locations/community sites, (5) Inter-Regional Connectivity Corridors, (6) Economic coverage zone areas. Testing employs random area

selection to verify mobile telephone service quality compliance with established standards.

1) Voice service quality assessment for intra-network calls measured successful call ratio and drop call rate. The third quarter of 2024 results show all service providers achieved voice service quality meeting established standards: successful call ratios exceeded the specified target (minimum 90 percent) and drop call rates remained below the specified target (maximum 2 percent) across all tested areas, as presented in Table 38.

Table 38 : Mobility Test Results of On-Net Calls 2024

Service Quality Indicators	Target	Test Area	Test Results of On-Net Calls		
			First Quarter	Second Quarter	Third Quarter
Successful Call Ratio	≥90.00%	Bangkok and the neighborhood	98.97	99.62	99.32
		Regional	99.19	99.57	99.09
Drop Call Ratio	≤2.00%	Bangkok and the neighborhood	0.33	-	-
		Regional	0.09	0.11	0.08

Remark: Data as of third quarter of 2024.

Source: Telecommunications Enforcement Bureau, Office of the NBTC.

2) Data telecommunications service quality assessment through mobility testing measured FTP data transmission ratios based on specified average transmission speeds, FTP usage

success rates, and HTTP loading success ratios within specified timeframes. Results show all service providers achieved data service quality meeting established standards, as presented in Table 39.

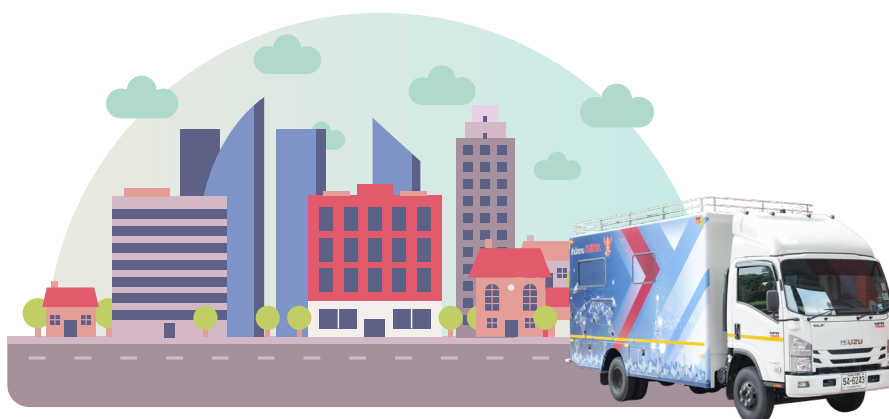


Table 39 : Mobility Test Results for Data Services on 4G and 5G Technologies,
Not Utilizing the 2600 MHz Spectrum Band in Telecommunications, 2024

Service Quality Indicators		Target	Test Area	Service Test Results
FTP: Download	FTP Data Transfer Ratio is subject to the specified average data transfer speed	≥2.5 Mbps	Bangkok and the neighborhood	23.47
			Regional	26.83
	FTP Successful Data Transfer Ratio	≥80.00%	Bangkok and the neighborhood	98.19
			Regional	99.04
FTP: Upload	FTP Data Transfer Ratio is subject to the specified average data transfer speed	≥0.5 Mbps	Bangkok and the neighborhood	14.04
			Regional	13.84
	FTP Successful Data Transfer Ratio	≥70.00%	Bangkok and the neighborhood	99.65
			Regional	99.64
HTTP	HTTP Successful Ratio within the specified time	≥90.00%	Bangkok and the neighborhood	98.96
			Regional	99.01

Remark: Data as of third quarter of 2024.

Source: Telecommunications Enforcement Bureau, Office of the NBTC.

Moreover, the Office of the NBTC executed comprehensive mobile telephone service quality testing operations based on user usage patterns to assess network service potential and operational capabilities for mobile telephone service standards determination across 451 clusters in 72 provinces. Testing operations also supported 115 mobile telephone service quality complaints and generated over 451 reports on mobile telephone service quality testing based on user usage patterns for 5G NSA/SA technology.

2. Telecommunications Service Rate Regulation and Price Control Oversight.

In 2024, telecommunications service rate regulatory oversight was implemented to promote fair

telephone service pricing for users, ensuring quality services at appropriate prices while maintaining fairness between service users and providers with primary consideration for public interest, as follows

2.1 Fixed Telephone Service Rate Regulatory Oversight. As of 2024, seven fixed-line telephone service providers with active users, including Amnex Company Limited (AMX), Advanced Wireless Network Company Limited (AWN), Triple T Broadband Public Company Limited (3BB), Otaro World Corporation Company Limited (OTW), True Internet Corporation Company Limited (TICC), True Move H Universal Communication Company Limited (TUC), operating under the ‘dtac’ brand³², and National Telecom Public Company Limited (NT).

³² According to the merger between True Corporation Public Company Limited and Total Access Communication Public Company Limited, TUC and DTN officially registered their merger with the Department of Business Development under the name TUC. However, due to specific conditions or measures outlined in the NBTC resolution at the 5th meeting of 2022, held on October 22, 2022, the two companies are required to maintain separate service brands for three years.

The first quarter of 2024 data shows 17,024,000 allocated fixed telephone numbers with 4,061,396 active lines, representing a 0.63 percent decrease from the fourth quarter of 2024. NT maintains the largest market share at 84.72 percent, as presented in Table 40.

Nevertheless, continuous decline in fixed telephone numbers reflects changing user behavior, with service cancellations leaving only users who value fixed telephone service for business operations,

residential backup communication, or nighttime call reception. NT continues promotional offerings for fixed telephone services under TOT and CAT brands. Most providers position fixed telephone service as supplementary services bundled with other offerings like fixed broadband internet and TV set-top boxes. Some providers no longer advertise fixed telephone services on their websites, requiring customers to contact them directly for information.

Table 40 : Number of Active Fixed-Line Phone Numbers

Service Providers	Accumulated Allocated Numbers
National Telecom Public Company Limited (NT)	14,422,000
True Internet Corporation Company Limited (TICC)	1,965,000
Advanced Wireless Network Company Limited (AWN)	323,000
Triple T Broadband Public Company Limited (TTTBB)	188,000
Dtac TriNet Company Limited (DTN) *	69,000
Otaru World Corporation Company Limited (OTW)	20,000
Amnexus Company Limited (AMX)	20,000
1-TO-ALL Company Limited	17,000
Total	17,024,000

Remark: 1. *DTAC TriNet Company Limited merged with True Move H Universal Communication Company Limited on August 3, 2023.

2. Data as of December 2024.

Source: Numbering Management Bureau, Office of the NBTC.



2.2 Mobile Telephone Service Rate

Regulatory Oversight. Thailand’s mobile telephone service providers comprise two categories: three Mobile Network Operators (MNOs) with proprietary networks—Advanced Wireless Network Company Limited (AWN), and True Move H Universal Communication Company Limited (TUC), operating True Move H and dtac brands, formerly DTN, and National Telecom Public Company Limited (NT), stating enterprise under Ministry of Finance ownership.

In addition, six Mobile Virtual Network Operators (MVNOs) without spectrum licenses or proprietary infrastructure: Loxley Public Company Limited (Loxley), the White Space Company Limited (WSP), Feels Telecom Corporation Company Limited, RedONE Network (Thailand) Company Limited, Bangkok Tellink Company Limited (AJ Sim) and K4 Communication Company Limited (K4). Additionally, two sub-brands operate under main providers: GOMO by AIS and FINN Mobile.

Service Rate structure regulation applies to AWN, TUC, DTN, and NT under Section 1 of the Notification of the NBTC on Establishing and

Regulating the Tariff Structure for Domestic Mobile Phone Service (“Notification in Tariff Structure”) and the Notification of the NBTC on Tariff Structure for Domestic Mobile Phone Service Rates Beyond the Usage Limits of the Nain Promotional Package (“Notification on Rates Beyond Usage Limits”). Throughout 2024, overall average service rates were: voice services 0.39 baht per minute, SMS 0.65 baht per message, MMS 1.19 baht per message, and mobile internet 0.09 baht per megabyte. All mobile service providers maintained average rates within the Notification of the NBTC on Establishing and Regulating the Tariff Structure for Domestic Mobile Phone Services, as presented in Table 41.



Table 41 : Average Rates for Mobile Phone Services in the Third Quarter of 2024

Service Rate ³³	Voice (Baht/Min)	SMS (Baht/SMS)	MMS (Baht/MMS)	Internet (Baht/MB)
Reference rates according to the Notification of the NBTC on Tariff Structure for Domestic Mobile Phone Services	0.60	0.89	2.33	0.16
Average Service Rates 2023 ³⁴	0.45	0.62	1.50	0.10
Average Service Rates 2024 ³⁵	0.39	0.65	1.19	0.09

Source: Telecommunications Tariff Bureau, Office of the NBTC.

³³ To calculate the average service rate, the method is to average all promotional packages offered or provided in this quarter. This is derived from the average service rate per unit of each promotional package, where the main promotional packages are weighted at 80% (0.8) and the add-on promotional packages at 20% (0.2), based on Section 9 of the Notification of the NBTC Tariff Structure for Domestic Mobile Phone Services.

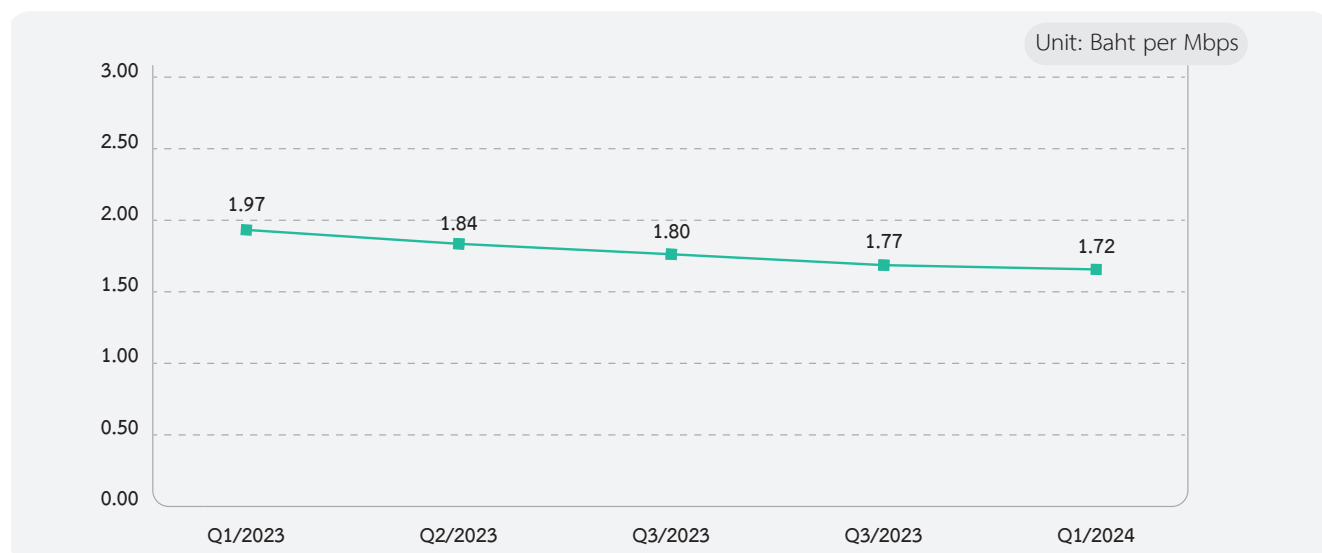
³⁴ Weighted average service rates based on the number of promotional packages offered by operators in 2023.

³⁵ Weighted average service rates based on the number of promotional packages offered by operators in 2024.

2.3 Fixed High-Speed Internet Service Rate Regulatory Oversight. In 2024, fixed broadband internet service rates via FTTx connectivity averaged 1.72 baht per Mbps, representing a 2.55 percent quarterly decline and 12.53 percent decrease from the first quarter of 2023. This reduction stems from intensified fixed broadband market competition and

enhanced technological capabilities enabling providers to offer services at lower rates, while maintaining or increasing service speeds, resulting in declining average per Mbps pricing. Consequently, average FTTx fixed broadband service rates have demonstrated sustained downward trends over recent years, as presented in Chart 52.

Chart 52 : Average Rates for Fixed Broadband Internet Services Connecting through FTTx during the First Quarter of 2023 to the First Quarter of 2024



Source: Telecommunications Tariff Bureau, Office of the NBTC.

2.4 International Telecommunications Service Rate Regulation Oversight. Presently, fixed and mobile telephone service providers also operate as international telephone service providers. International telephone services utilize two technological approaches: (1) International Direct Dialing (IDD) systems enabling users to call directly from mobile phones using number prefixes or '+' symbols, similar to fixed telephone dialing without operator assistance, and (2) economical direct dialing systems offering international calls at reduced rates.

The 2024 international telephone service market comprises 5 providers: NT, AWN, AIN, TUC (operating under the True Move H and the dtac brands³⁶),

and OTARO. These providers offer international services through IDD systems using nine prefix numbers. Additionally, AWN and dtac (TUC) implemented + prefix dialing for international destinations. NT provides Voice over Internet Protocol (VoIP) international calling through its Link service via mobile applications, while OTARO operated international telephone services through two service channels: OTARO Standard and OTARO Premium. However, in February 2024, OTARO reported the discontinuation of both international telephone service channels (OTARO Premium and OTARO Standard) to the Office of the NBTC, as presented in Table 42.

³⁶ Total Access Communication Public Company Limited, also known as DTAC/DTN, has now become True Corporation Public Company Limited (TRUE)/True Move H Universal Communication Company Limited (TUC), following the merger between DTN and TUC, effective August 3, 2023.

Table 42 : International Telephone Service Providers in 2024

No.	Service Providers		Active Numbers	
			IDD	Economical IDD
1.	National Telecom Public Company Limited (NT)		001, 009, 009 for NT Mobile	Link
2.	Advanced Wireless Network Company Limited (AWN)		+, 003	
3.	AIN GlobalComm Company Limited (AIN)		005	00500
4.	True Move H Universal Communication Company Limited (TUC)	True Move H Brand	006	00600
		Dtac Brand		
5.	Otaro World Corporation Company Limited (OTARO) ³⁷		Premium	Standard

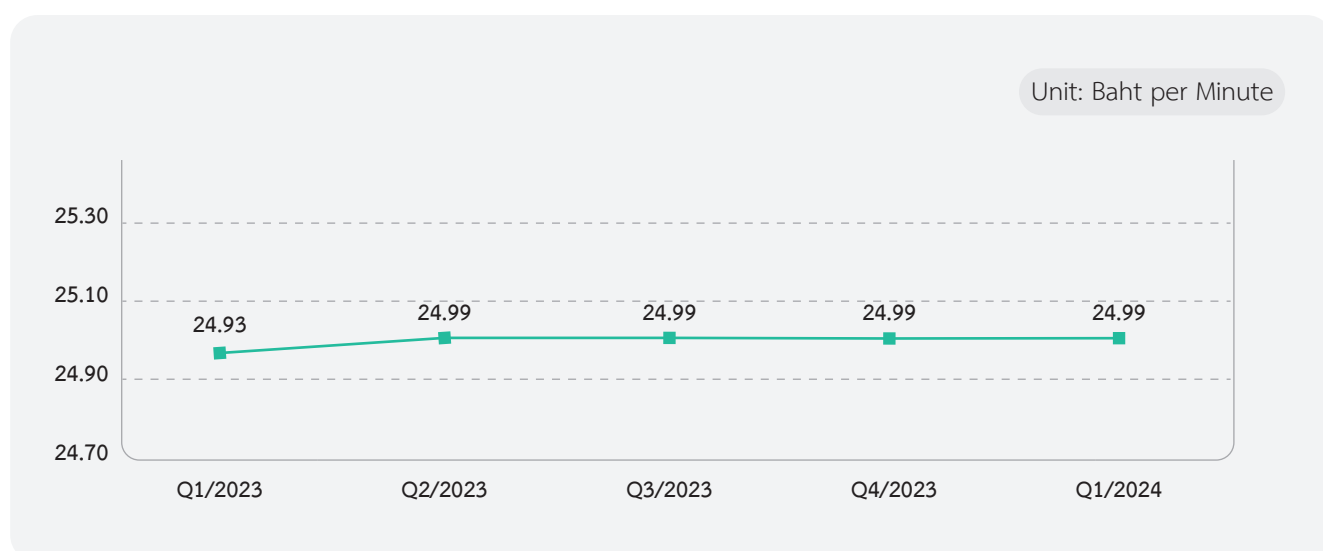
Remark: Data as of first quarter of 2024.

Source: Telecommunications Tariff Bureau, Office of the NBTC.

Considering the average rates for international telephone services across all regions in 2024, the average rate was 24.99 baht per minute, representing a slight increase of 0.003 percent from the previous quarter. When analyzing service rates by region, it was found that calls to ASEAN countries had the lowest rate, averaging 9.15 baht per minute. This was followed by calls to destinations in Asia

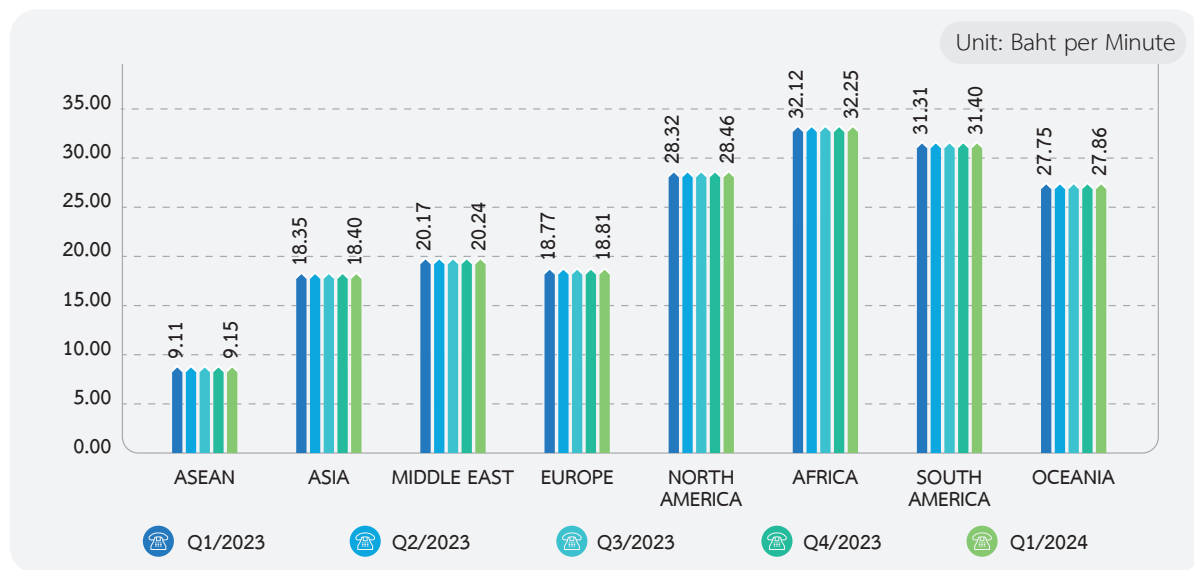
at 18.40 baht per minute, Europe at 18.81 baht per minute, and the Middle East at 20.24 baht per minute. The region with the highest service rate was Africa, averaging 32.25 baht per minute, followed by South America at 31.40 baht per minute, North America at 28.46 baht per minute, and Oceania at 27.86 baht per minute, respectively. as presented in Charts 53 and 54.

Chart 53 : Average Service Rate for International Telephone Services from 2023 to 2024



³⁷ In February 2024, OTARO notified the Office of the NBTC of its decision to discontinue international telephone services through both OTARO Standard and OTARO Premium.

Chart 54 : Average Rates for International Telephone Services by Region from 2023 to 2024



Remark: Data as of first quarter of 2024.

Source: Telecommunications Tariff Bureau, Office of the NBTC.

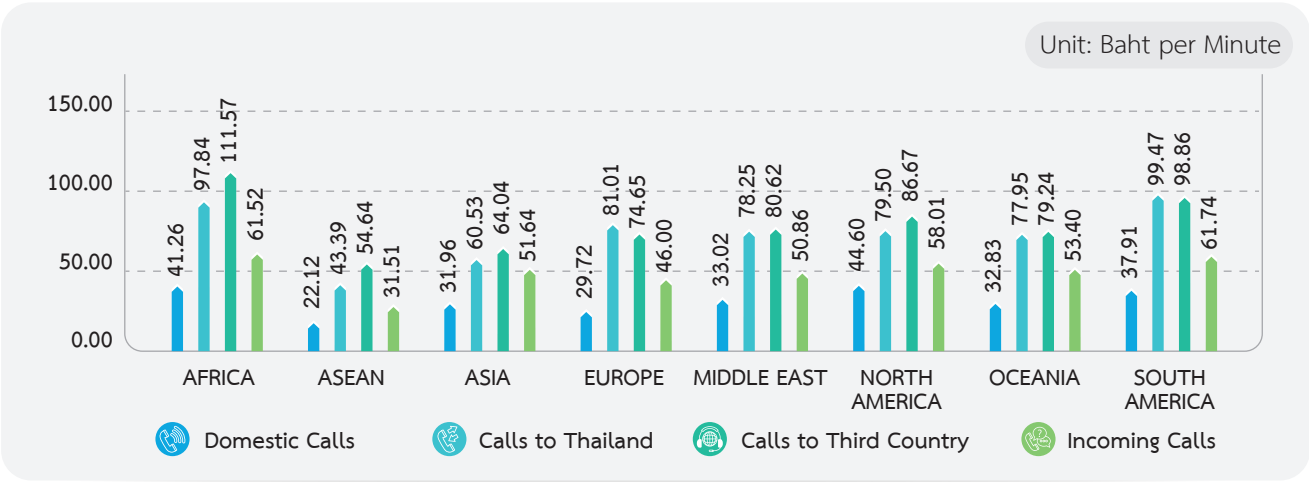
2.5 International Mobile Roaming Service

Rate Regulation Oversight. Currently, international roaming services comprise three service models: Pay-per-Use, Flat Rate packages, and Travel SIM offerings. Each service type employs different pricing structures based on factors including destination country, usage volume, data service speeds, and service duration. International roaming services are provided by the three primary mobile operators: AWN, TUC, and NT, detailed as follows

1) Consumption-Based Billing Model (Pay-per-Use). International roaming service rates comprise six service categories: domestic calling, calls back to Thailand, third-country calling, incoming calls, short messaging, and data roaming services. Domestic calling charges apply when users call local numbers within their foreign destination country. The third quarter of domestic calling rates ranged from 22.12 - 44.60 baht per minute, with ASEAN countries offering the lowest average rate at 22.12 baht per minute and North America the highest rate at 44.60 baht per minute.

Moreover, calls to Thailand services incur charges when users call from abroad, with average rates ranging from 43.39 - 99.47 baht per minute. ASEAN countries offer the lowest average rates at 43.39 baht per minute, up 27.64 percent quarterly, while South America has the highest rates at 99.47 baht per minute, up to 36.52 percent quarterly. Calls to Third Country charges apply when users call destinations other than their home country or current location, averaging 54.64 - 111.57 baht per minute. ASEAN countries provide the lowest third-country rates at 54.64 baht per minute, while Europe has the highest rate at 111.57 baht per minute. Incoming call charges apply when receiving calls while abroad, averaging 31.51 - 61.74 baht per minute. ASEAN countries maintain the lowest incoming rates at 31.51 baht per minute, with South America showing the highest rate at 61.74 baht per minute, as presented in Chart 55.

Chart 55 : Average Service Rates for Domestic Calls, Calls to Thailand, Calls to Third Country, and Receiving Calls

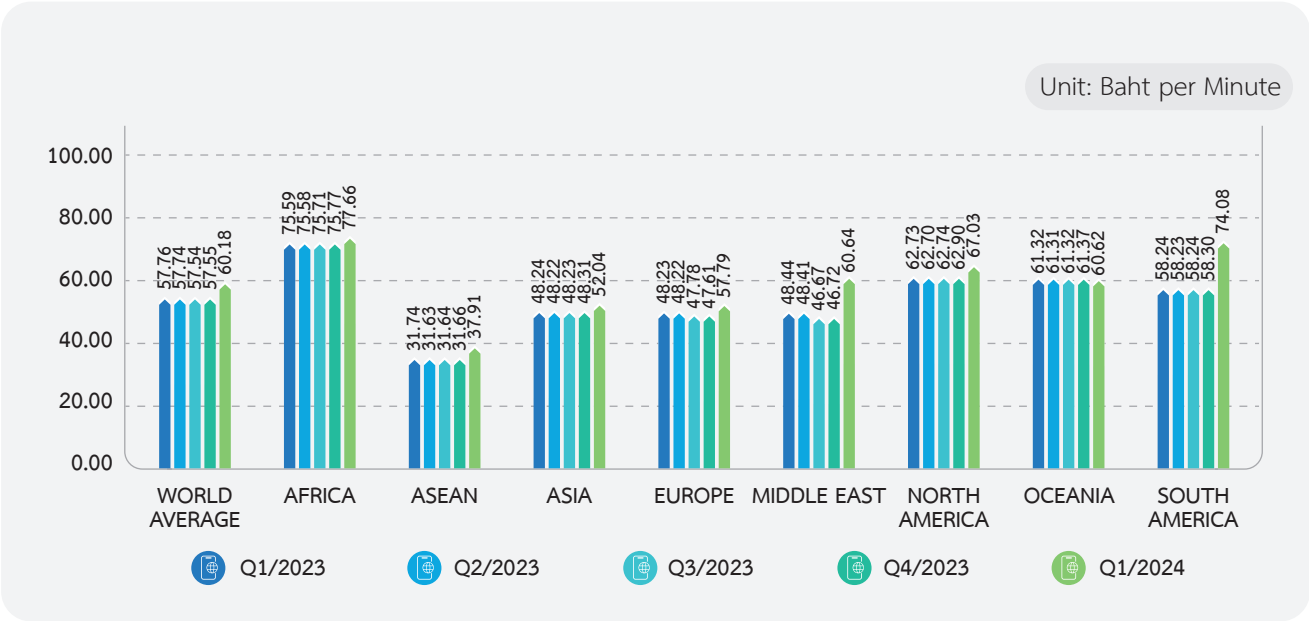


Remark: Data as of first quarter of 2024.
Source: Telecommunications Tariff Bureau, Office of the NBTC.

International roaming call rates encompass four service types: domestic calls within the visited country, calls back to Thailand, calls to third countries, and incoming calls. The first quarter of 2024 demonstrated overall upward rate trends, with South America showing the steepest increase to 27.06 percent, contributing to an overall average

international roaming rate of 60.18 baht per minute, at 4.57 percent increase. A regional comparison reveals that ASEAN countries maintain the lowest average rates at 37.91 baht per minute, while Africa exhibits the highest rates at 77.66 baht per minute, as presented in Chart 56.

Chart 56 : Average International Mobile Roaming Call Service Rates from Q1/2023 to Q1/2024

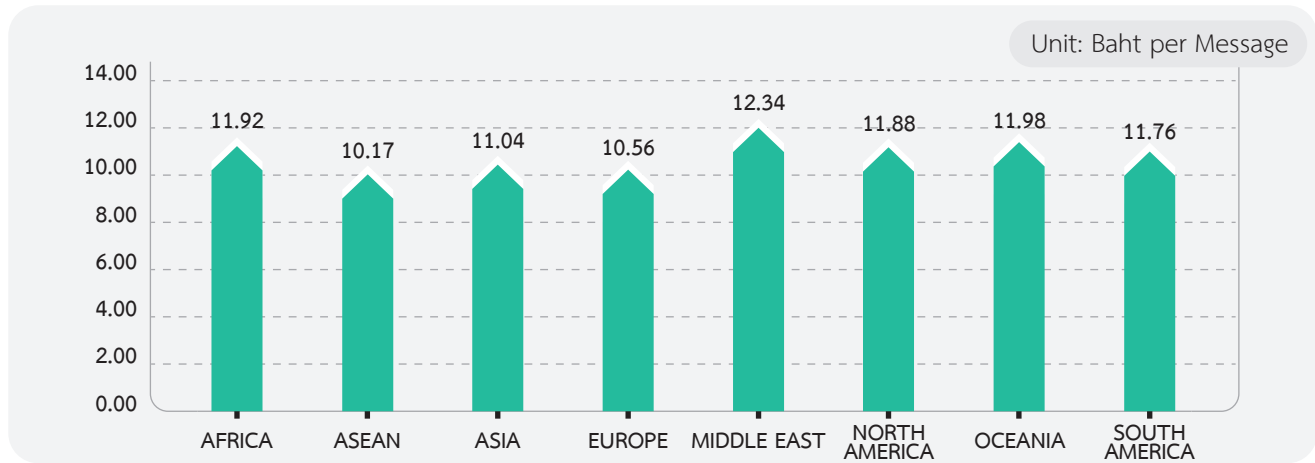


Remark: Data as of first quarter of 2024.
Source: Telecommunications Tariff Bureau, Office of the NBTC.

Short Message Service (SMS) international charges apply when users send short messages while abroad. The first quarter of 2024 data shows ASEAN countries offering the lowest average SMS rates at 10.17 baht per message, followed by Europe

at 10.56 baht and Asia at 11.04 baht. The Middle East region maintains the highest average SMS rates at 12.34 baht per message. Regional rate ranges span from 10.17-12.34 baht per message, as presented in Chart 57.

Chart 57 : Average SMS Service Rates in 2024

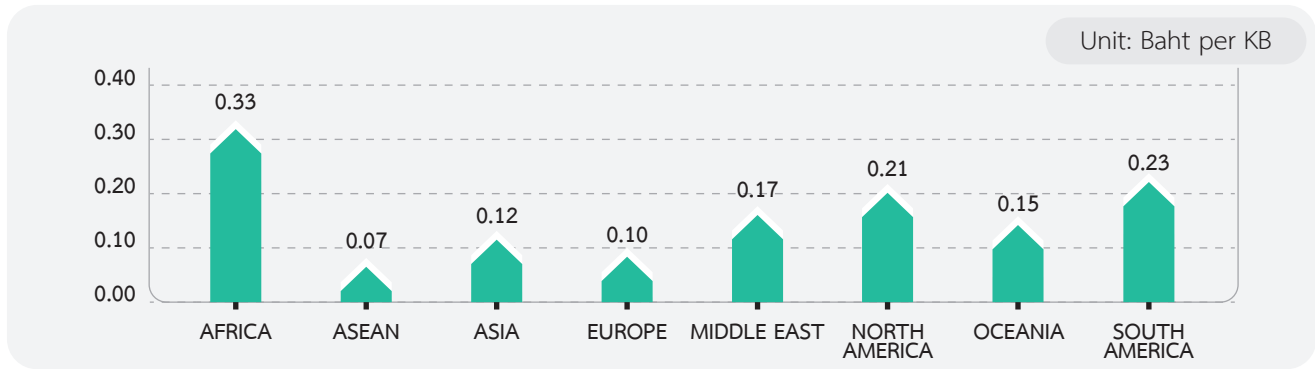


Remark: Data as of first quarter of 2024.
Source: Telecommunications Tariff Bureau, Office of the NBTC.

Average data roaming rates encompass 3G, 4G, and 5G services across regions. The first quarter of 2024 regional analysis demonstrates ASEAN member states providing optimal data roaming rates at 0.07 baht per KB, followed by the European region at 0.10 baht per KB, the Asian region at 0.12 baht per KB, and the Oceanic region at 0.15 baht per KB. The African region exhibits a premium data roaming rate structure at 0.33 baht per KB, with regional rate distribution spanning from 0.07 - 0.33 baht per KB.

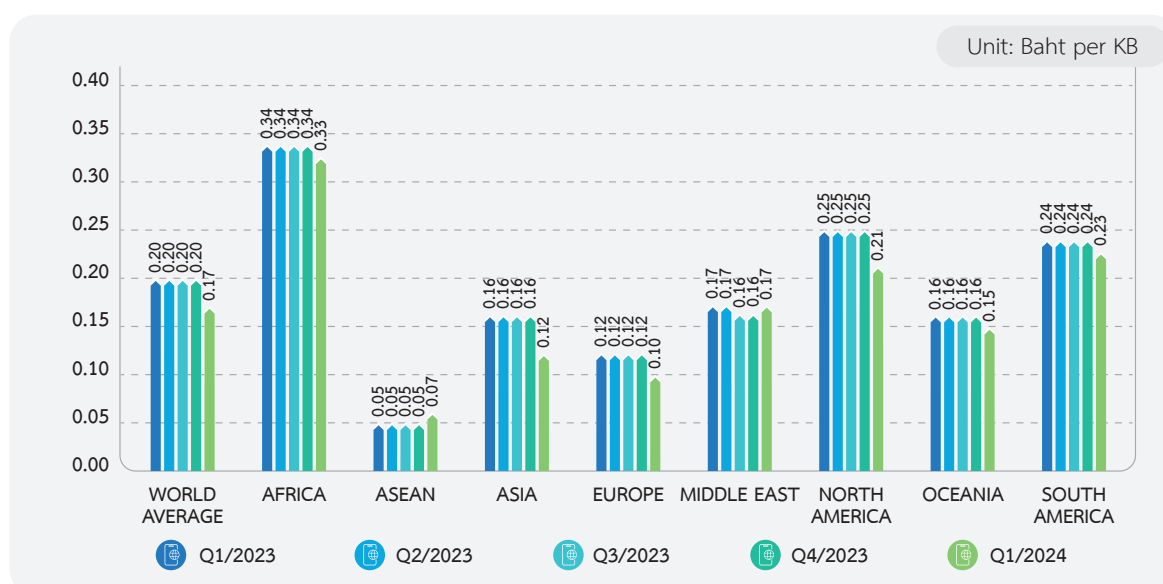
Mobile service providers continue expanding capabilities, driving increased mobile broadband demand. Overall data roaming rates trend downward despite ASEAN and Middle East increases from the fourth quarter of 2023, while other regions have decreased rates. The first quarter of 2024 achieved a 15.00 percent overall reduction to 0.17 baht per KB. However, data roaming remains limited to select countries due to infrastructure constraints supporting mobile broadband services, as presented in Charts 58 and 59.

Chart 58 : Average Data Roaming Service Rates in 2024



Remark: Data as of first quarter of 2024.
Source: Telecommunications Tariff Bureau, Office of the NBTC.

Chart 59 : Average Data Roaming Service Rates from Q1/2023 to Q1/2024



Remark: Data as of first quarter of 2024.

Source: Telecommunications Tariff Bureau, Office of the NBTC.

2) International Roaming Flat Rate Service Charges. International roaming flat rate services in 2023 were provided by two mobile network operators: AWN and TUC-DTN, offering flat rate international roaming across eight regions, including ASEAN member States, the Middle East region, the Europe region, the North America region, the Africa region, the South America region, and the Oceania region. Service categories include voice-only, data-only, and combined voice-data packages. The service utilizes existing phone numbers without requiring SIM card changes. International roaming flat rate charges range from 79 - 9,500 baht across three service

categories: (1) Voice-only services: Range from 350 baht for seven days to 2,200 baht for 30 days. DTN offers seven day packages priced at 350 - 1,200 baht, varying by call allowance (minutes). (2) Data-only services: Range from 79 baht, only ASEAN countries to 9,500 baht, with service periods spanning 1 - 365 days. TUC-DTN maintains the lowest rates across all regions, with each operator offering uniform pricing across regions, a change from the previous quarter. (3) Combined voice-data services: Range from 990 - 3,490 baht between 2–20-day periods, exclusively provided by AWN, as presented in Table 43.

Table 43 : Price Range for Flat-Rate International Roaming Service

Region	Voice-Only	Data-Only	Voice & Data
AFRICA	350 - 2,200 Baht	79 - 9,500 Baht	998 - 3,490 Baht
ASEAN	350 - 2,200 Baht	79 - 9,500 Baht	990 - 3,490 Baht
ASIA	350 - 2,200 Baht	79 - 9,500 Baht	990 - 3,490 Baht
EUROPE	350 - 2,200 Baht	79 - 9,500 Baht	998 - 3,490 Baht
MIDDLE EAST	350 - 2,200 Baht	79 - 9,500 Baht	990 - 3,490 Baht
NORTH AMERICA	350 - 2,200 Baht	79 - 9,500 Baht	998 - 3,490 Baht
OCEANIA	350 - 2,200 Baht	79 - 9,500 Baht	990 - 3,490 Baht
SOUTH AMERICA	350 - 2,200 Baht	79 - 9,500 Baht	990 - 3,490 Baht

Remark: Data as of first quarter of 2024.

Source: Telecommunications Tariff Bureau, Office of the NBTC.

Nevertheless, limited competition in the international roaming market restricts consumer choice. To address this, users may utilize alternative services like OTT platforms for free calling and messaging instead of international roaming services. Travel SIM services in 2024 are provided by two mobile network operators: AWN and TUC-DTN, covering all eight regions including ASEAN member States, the Asia region, the Middle East region, the Europe

region, the North America region, the Africa region, the South America region, and Oceania region. Travel SIMs offer flat-rate data-only packages and pay-per-use voice-only services, requiring physical SIM card replacement. Pricing varies by service duration and country coverage. The first quarter of 2024 travel SIM packages range from 93 - 2,615 baht, with data allowances spanning 1 - 15 GB and validity periods from 2 - 365 days, as presented in Table 44.

Table 44 : Flat-Rate Travel SIM Packages for 2024

Region	Package Price	Data Volume	Usage Duration
AFRICA	93 - 2,615 Baht	1 - 15 GB	2 - 365 days
ASEAN	93 - 2,615 Baht	1 - 15 GB	2 - 365 days
ASIA	93 - 2,615 Baht	1 - 15 GB	2 - 365 days
EUROPE	93 - 2,615 Baht	1 - 15 GB	2 - 365 days
MIDDLE EAST	93 - 2,615 Baht	1 - 15 GB	2 - 365 days
NORTH AMERICA	93 - 2,615 Baht	1 - 15 GB	2 - 365 days
OCEANIA	93 - 2,615 Baht	1 - 15 GB	2 - 365 days
SOUTH AMERICA	93 - 2,615 Baht	1 - 15 GB	2 - 365 days

Remark: Data as of first quarter of 2024.

Source: Telecommunications Tariff Bureau, Office of the NBTC.

PART 4 BUDGET MANAGEMENT FOR THE YEAR 2024



The NBTC Comprehensive Performance Assessment: Annual Implementation Results versus Strategic Operational Plan Targets

The NBTC Policy Implementation Results and Key Operational Plan Performance for 2024

Key Policies

Key Achievements

1

Implementation of Geographic Information System (GIS)-based broadband mapping infrastructure to establish a comprehensive national telecommunications infrastructure geospatial database.



Under preparation for fiscal year budget appropriation requests to support project implementation in the subsequent fiscal period.

2

Implementation of cellular emergency alert broadcasting infrastructure (Cell Broadcasting System/Mobile Alert System) pursuant to critical national emergency preparedness policy directives.



Multi-stakeholder coordination with designated government agencies including the Ministry of Digital Economy and Society, Department of Disaster Prevention and Mitigation, Ministry of Interior, Royal Thai Police, Bangkok Metropolitan Administration, and all licensed mobile network operators for cellular emergency broadcasting system (Cell Broadcast) infrastructure development and deployment.



The NBTC has authorized the financial framework for Cell Broadcast emergency alert system deployment, encompassing Cell Broadcast Center (CBC) infrastructure, Core Network and Radio Access Network support funding, and triennial system maintenance agreement (MA) provisions for Advanced Wireless Network Company Limited and True Move H Universal Communication Company Limited, and ratified the comprehensive Cell Broadcast emergency alert system financial accounting structure.



Executed comprehensive demonstration and proof-of-concept (POC) validation testing of Cell Broadcast emergency alert system infrastructure across the Bangkok Metropolitan Region and provincial jurisdictions, in coordination with designated stakeholder agencies, and completed comprehensive public information dissemination initiatives.

3

Digital transformation of the Office of the NBTC operations toward a comprehensive digital governance framework and enterprise data integration connecting to centralized database infrastructure supporting Management Information Systems (MIS) and Broadband Mapping platforms.



Constituted an Enterprise Architecture (EA) oversight committee to monitor organizational architecture development initiatives. Currently, the activities encompass comprehensive data analysis, regulatory framework assessment, and preparation of a holistic Enterprise Architecture documentation for the NBTC operations, ensuring coverage of all mission-critical organizational functions and processes.



Under development of Digital Action Plan and Master Data Standardization protocols to establish systematic data governance with harmonized standards, facilitating optimal digital technology integration and data utilization efficiency across enterprise operations.

4

Advance sustainability policy initiatives aligned with Sustainable Development Goals (SDGs), encompassing carbon footprint assessment and monitoring, plastic waste minimization programs, and energy efficiency optimization across the Office of the NBTC.



Constituted the NBTC Carbon Footprint Assessment Committee to conduct comprehensive analysis of the (draft) Climate Change Act B.E. ... and associated regulatory frameworks, execute systematic data collection and compilation protocols, establish emission factor constants for operational assessments, and formulate evidence-based policy recommendations and greenhouse gas emission reduction strategic implementation plans for the Office of the NBTC.



Greenhouse Gas Emission Reduction Strategic Plan development.



Completed comprehensive study synthesis and finalized draft implementation guidelines and strategic framework overview for the Office of the NBTC's Greenhouse Gas Emission Reduction Action Plan (Fiscal Years 2025 - 2028).

5

Advance operational transparency and stakeholder engagement through a digital governance platforms and multi-channel citizen participation initiatives, encompassing Traffy Fondue system integration for the Office of the NBTC service delivery and cybersecurity incident response management.



On August 12, 2024, the Office of the NBTC deployed the Traffy Fondue digital platform to provide enhanced public access to complaint management services and cybersecurity incident reporting capabilities, establishing an additional service delivery channel to expedite citizen issue resolution and response times. Platform utilization metrics as of December 31, 2024, indicate the processing of over 4,444 citizen-reported cases through the Traffy Fondue system.

6

Execute comprehensive cybersecurity defense initiatives and develop inter-agency collaborative models for prevention and mitigation of technology-enabled criminal activities across all threat vectors, while advancing cutting-edge technology deployment to enhance user confidence and safeguard national telecommunications infrastructure security.



Collaborated with relevant agencies including NCSA, the Royal Thai Police, AMLO, the Bank of Thailand (BOT), and DSI for cybersecurity protection, and established the Technology Crime Prevention and Suppression Center (TCSD).



Executed the Office of the NBTC annual technology-enabled crime prevention and mitigation protocols, encompassing: enforcement of the Office of the NBTC regulatory directives on mobile subscriber identity authentication and service utilization data requirements; remediation of Sender Name spoofing vulnerabilities; suspension of telecommunications resources associated with voice call fraud schemes and malicious SMS campaigns targeting citizens; and implementation of public cybersecurity awareness programs via the National Cyber Security Agency (NCSA) Massive Open Online Course (MOOC) educational platform.

7

Transition of experimental FM radio stations to a full licensing system in accordance with legal requirements.



Developed guidelines for spectrum usage authorization and spectrum allocation ratios in radio broadcasting services to guide spectrum allocation for FM radio broadcasting license issuance.



Reviewing and updating criteria and notifications related to spectrum licensing and FM radio operations, including the development of the Notification of the NBTC on Criteria and Procedures for Spectrum Licensing in the Broadcasting Sector, and the Notification of the NBTC on Criteria, Procedures, and Conditions for FM Spectrum Auctions for Providing Broadcasting Services in the category of Local Commercial Operation. A briefing session was held to provide procedural guidance and to improve understanding among stakeholders and potential license applicants.

8

Establishing a comprehensive digital audio broadcasting (DAB) licensing framework to facilitate broadcasting service modernization and technological convergence with contemporary digital transmission standards.



Executing digital audio broadcasting (DAB) licensing administration procedures and implementing preparatory frameworks for comprehensive licensing process deployment in fiscal year 2025.



Promoted comprehensive frequency allocation plans and associated technical specification standards for digital audio broadcasting (DAB) network infrastructure provision, and established provisional experimental licensing procedures enabling technically qualified entities to submit trial operation and testing applications for digital broadcasting systems during the interim period preceding comprehensive network authorization processes.



Implemented provisional experimental and pilot testing programs for digital audio broadcasting (DAB) systems across the Bangkok Metropolitan Region and designated provincial coverage areas.



Convened specialized stakeholder consultation meetings to facilitate information exchange, solicit industry feedback, and obtain strategic recommendations concerning digital audio broadcasting (DAB) network infrastructure services and digital broadcasting service operations.

9

Promoting program production in radio and broadcasting television services, including broadcasting content that contributes to social development and serves the public interest, while supervising broadcast content comprehensively across geographic areas and time periods.



Developed (draft) the Notification of the NBTC on Criteria for Supporting Socially Beneficial Programs in the Broadcasting and Television Sectors.



Implement continuous professional development programs for radio broadcasting and television service sector personnel, encompassing comprehensive knowledge enhancement initiatives in content production methodologies. Key activities, include administration of annual certification examinations for broadcast announcer licensing, and delivery of professional development training programs focused on ethical broadcasting practices and adherence to industry professional standards.

10

Preparing to establish future scenarios for the television industry and develop related policies following the expiration of Digital Terrestrial Television (DTT) licenses in 2029.



Conduct scenario analysis of Thailand's future broadcasting industry under evolving industry conditions to develop Digital TV strategic recommendations and scenario plans, including integrated approaches linking spectrum resource allocation, licensing, and future television industry regulation.



Conducted meetings and knowledge exchange activities to develop future broadcasting industry scenarios, promotional and regulatory policy approaches, and resource allocation strategies aligned with the evolving industry landscape.

11

Executing Universal Service Obligation (USO) strategic implementation measures across radio broadcasting, television, and telecommunications service

USO



The (draft) Universal Broadcasting and Television Service Obligations and Social Services Action Plan No. 4 (B.E. 2566 – 2568) (2023 – 2025), under the Universal Broadcasting and Television Service Obligations and Social Services Plan No. 4 (B.E. 2566 – 2568) (2023 – 2025), is with the current status under review process for the NBTC consideration and approval.



Executing the Universal Telecommunications Service Obligations and Social Services Plan No. 3 B.E. 2565 (2022) to advance telecommunications infrastructure development and extend basic service coverage to designated USO target demographics and geographic areas across national territory.

12

Preparing to bring streaming service providers (Video sharing platforms and Video on Demand services) under the NBTC regulatory oversight framework.



Conducted workshops between the NBTC and the Office of NBTC's executives, along with relevant agencies including the Electronic Transactions Development Agency (ETDA), Digital Economy Promotion Agency (DEPA), and Office of the Permanent Secretary of the Ministry of Digital Economy and Society, to discuss OTT service regulatory policies and oversight approaches.



Implemented a comprehensive study project on Thailand's future broadcasting scenarios under evolving industry conditions to analyze future broadcasting industry and related services scenarios, promotional and regulatory policy approaches, resource allocation strategies, and recommendations for regulatory improvements aligned with the changing industry landscape.

13

Accelerating academic and research capacity development to transform the Office of the NBTC into a comprehensive evidence-based regulatory authority grounded in empirical analysis and data-driven decision-making.



Developed academic recommendations for regulatory policy formulation in radio broadcasting, television, telecommunications, and satellite services, including regulatory impact assessment frameworks and technology foresight studies.



Developed academic publications and journals for dissemination to internal and external stakeholders, including presentations at international forums.

Building academic networks with international organizations and facilitating knowledge exchange through international academic conferences and seminars.

14

Legal and regulatory modernization initiatives to ensure adaptive compliance with accelerated digital transformation trajectories and contemporary technological convergence contexts.



Appointed a new Subcommittee for Legal Amendment and Improvement of Broadcasting and Telecommunications Regulatory Laws to review and provide recommendations on legal reforms appropriate for current communications technology, considering technological convergence. In 2024, the subcommittee held 16 meetings to review article-by-article legal amendments, including regulatory scope and authority, criminal penalty provisions, and administrative enforcement mechanisms, with the goal of enhancing national competitiveness in supporting communications and information exchange aligned with future digital technology trends.

15

Providing continuous support for research and development in 5G technology applications, including 5G use cases and 5G private network deployments.



Implementing activities under the Memorandum of Understanding (MOU) with the Bank of Thailand (BOT) to support ongoing academic operations, studies, and research in telecommunications service regulation and related services.

Authorized designated area coordinators for specialized regulatory oversight (Regulatory Sandbox).

16

Efficiently managing the 3500 MHz and developing IMT spectrum allocation plans to support telecommunications resource management.



Developed Thailand's International Mobile Telecommunications (IMT) spectrum allocation plan for the 5-year period (2024 - 2028).

Implementing preparatory processes for International Mobile Telecommunications (IMT) spectrum allocation via simultaneous multi-band spectrum auction mechanisms.

Conducted spectrum valuation studies and spectrum demand assessments to prepare for International Mobile Telecommunications (IMT) spectrum allocation, and utilized these findings in focus group consultations on the draft IMT spectrum allocation plan.

17

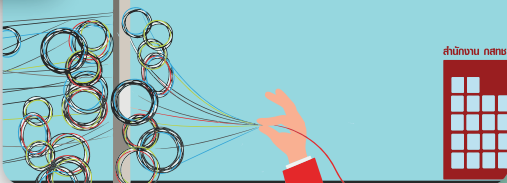
Promoting competition and implementing post-merger regulatory measures by enhancing criteria and establishing measures to create an environment conducive to market entry and competition among operators, while regulating last-mile network services and mobile internet rates, and promoting Mobile Virtual Network Operator (MVNO) services.

Conducting monitoring and compliance verification according to specific conditions and measures for business mergers with the Notification of the NBTC on Measures to Regulate Mergers in the Telecommunications Business.

Appointed a working group to study and develop MVNO service regulatory and promotional frameworks aligned with current technology, including appropriate mobile wholesale service pricing methodologies, regulatory measures, and legal reviews to remove barriers to MVNO operator promotion. Additionally, conducted stakeholder meetings with relevant agencies to gather input for determining MVNO regulatory and promotional approaches in Thailand.

18

Expediting telecommunications infrastructure organization and subterranean cable infrastructure migration initiatives.



Executed continuous telecommunications infrastructure organization activities from fiscal year 2023 on previously incomplete route segments, and implemented comprehensive cable management operations for the 2023 - 2024 period, encompassing 1,625 designated routes across 3,176.413 kilometers of telecommunications infrastructure.

Implemented underground cable deployment for 121 routes covering a total distance of 189.18 kilometers.

Established evaluation principles for assessing appropriateness and cost-effectiveness in planning underground cable deployment and telecommunications cable management.

19

Regulating radio communication systems for maritime vessel tracking and navigational aids.



- Formulated the (draft) Frequency Plan for Maritime Mobile Services, and the Notification of the NBTC on Frequency Usage Criteria for Maritime Mobile Services to ensure compliance with World Radiocommunication Conference 2023 (WRC-23) resolutions and international spectrum harmonization requirements.
- Compiled comprehensive analytical report on radiocommunication equipment and frequency usage in maritime mobile services by the Maritime Mobile Frequency Integration Working Group.
- Authorized call sign and Maritime Mobile Service Identity (MMSI) number usage in maritime mobile services and issued radio communication licenses, while developing training programs and examinations for marine radiocommunication officers.

20

Administered satellite orbital position access rights authorization for geostationary orbital slots at 50.5°E, 51°E, and 142°E coordinates through comprehensive package licensing frameworks.



- Issued the Notification of the NBTC on Licensing Criteria and Procedures for Satellite Orbital Rights at the Orbital Positions of slot usage rights at positions 50.5°E, 51°E, and 142°E through package licensing arrangements.
- Revised the Notification of the NBTC on Licensing Criteria and Procedures for Foreign Satellite Landing Rights.
- Executed comprehensive policy analysis on Non-Geostationary Satellite Orbit (NGSO) constellation service provision and regulatory frameworks, examining future satellite technology applications and commercial utilization strategies for advancing Thailand's satellite-based space economy ecosystem development, and formulated strategic policy recommendations for Thailand's NGSO satellite service sector governance.
- Administered satellite orbital position access rights authorization and foreign satellite system utilization permits.

21

Enhancing consumer protection in broadcasting and telecommunications services to address digital era challenges and developing modern, efficient complaint resolution mechanisms.



- Appointed a subcommittee to comprehensive analysis and development of consumer complaint resolution procedures for broadcasting and telecommunications services, and to formulate recommendations for improving relevant regulations, announcements, and criteria.
- Advance consumer empowerment initiatives and enhance citizen media literacy competencies to foster informed digital citizenship and critical media consumption skills.
- Executed Memorandum of Understanding (MoUs) with 21 educational institutions and civil society organizations to establish integrated collaborative frameworks for advancing pedagogical knowledge development in media education and media literacy instruction, while facilitating comprehensive, equitable, and informed citizen digital access and utilization capabilities.
- Developed comprehensive public awareness media content to provide warnings and raise awareness on various issues, including fraud prevention (Scam Alert).
- Formulated and revised applicable regulatory directives.

22

Sustaining organizational ethics and transparency assessment standards for the Office of NBTC operational governance and institutional integrity frameworks.



- Implemented comprehensive good governance enhancement for the NBTC Office to maintain high Integrity and Transparency Assessment (ITA) evaluation performance. In 2024, the Office of the NBTC achieved 1st place ranking in the ITA evaluation among other participating other state agencies in the category, and received the ITA Awards 2024 trophy for achieving the highest ITA scores in the other state agencies category for 3 consecutive years.

During 2024, the NBTC implemented 26 strategic initiative projects under the organizational strategic framework, with a comprehensive budget allocation totaling 326.83 million baht, segmented by categories as follows:

Strategy 1 – Advance institutional governance excellence and organizational competency transformation for digital era regulatory leadership, encompassing five strategic projects with an allocated budget of 128.81 million baht.

Strategy 2 – Cultivate personnel regulatory expertise and professional excellence to ensure organizational readiness for the digital economy and society transition, encompassing five strategic projects with an allocated budget of 13.69 million baht.

Strategy 3 – Optimize spectrum management and satellite service operational capabilities to maximize national strategic benefits and citizen welfare, while strengthening the regional Office of NBTC institutional capacity for enhanced regulatory governance and public service delivery, encompassing seven strategic projects with an allocated budget of 118.91 million baht.

Strategy 4 – Enhance regulatory oversight and promotional capacity for broadcasting and telecommunications service sectors to ensure adaptive alignment with dynamic operational contexts, encompassing nine strategic projects with an allocated budget of 65.42 million baht.

Throughout 2024, project execution summary: 12 projects successfully completed, 10 projects under active implementation, and 4 projects discontinued. Multiple projects experienced schedule deviations due to systematic implementation impediments, including:

1) Competitive bidding processes where all responsive bidders failed mandatory technical qualification assessments, necessitating project timeline extensions.

2) Procurement compliance issues where bidder credentials did not satisfy Terms of Reference (TOR) specifications, requiring re-procurement procedures pursuant to the Ministry of Finance procurement regulations, resulting in contract execution delays.

3) The new Office of the NBTC building construction project schedule adjustments due to functional space reallocation from document storage facility to integrated Data Center with testing laboratory infrastructure and enhanced ICT systems integration to accommodate technological evolution requirements, impacting building systems engineering and detailed construction specifications.

4) Regional construction initiatives experiencing delays due to design-site incompatibilities requiring architectural modifications and contract amendments prior to construction resumption.

Performance analysis comparing planned targets against actual implementation outcomes and fiscal expenditure on 2024 strategic projects indicate the Office of the NBTC achieved an 84.79 percent aggregate project implementation progress rate, with comprehensive project budget utilization totaling 298.49 million baht representing 91.33 percent of allocated budget resources, with comprehensive performance metrics as presented in Table 45.



Summary of Project Implementation

Results Against the Specified Operational Plans



Table 45 : Summary of Project Implementation Results Against the Specified Operational Plans

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan					
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)	
Strategy 1: Advance institutional governance excellence and organizational competency transformation for digital era regulatory leadership, encompassing five strategic projects									
1	A project on developing a financial analysis and management system, as well as a work tracking system for the Research and Development Fund Bureau. <u>Objective:</u> To enhance the efficiency of the management system of the Research and Development Fund, the Office of the NBTC. Total Budget Budget Allocated in 2023 Proposed Budget in 2024	13.45	June 1, 2023/ May 25, 2024	The project was completed as scheduled, resulting in an efficiency enhancement of the research and development fund's management system at the Office of the NBTC. The financial analysis and management system, work tracking system, and a mobile application were developed, comprising: (1) Cash-inflow display system (2) Cash-outflow display system (3) Deposit control register categorized by deposit types, including savings, current, and fixed deposits, or any future deposit types under the BTFP. (4) Reports on various types of bank savings accounts. (5) Deposit maturity reports (6) Reports on interest income of the Fund (7) Bank account transaction statements (8) Work tracking system for the Research and Development Fund Bureau for internal communication and work monitoring at the employee and division levels, as well as overall management of the Bureau.	100.00	100.00	13.45	100.00	

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
2	The construction project of the new Office of the NBTC building. Objective: To construct the new NBTC office building Total Budget 2,743.00 Budget Allocated in 2019 685.75 Budget Allocated in 2020 534.13 Budget Allocated in 2021 681.33 Budget Allocated in 2022 420.85 Budget Allocated in 2023 267.36 Proposed Budget in 2024 - Committed Budget to 2025 153.58	-	Jan 22, 2019/ Jan 6, 2022	The project is currently in progress. The operational results are divided into three parts: 1. Construction and interior decoration of the building have progressed by 75.95 percent. 2. The project supervisor hiring and interior decoration have progressed by 94.57 percent. This part is divided into two phases: Phase 1: Spanning the 33-month construction period. Amendments to the contract were made to extend the construction supervision period by four months and revise the payment terms. The 37 th payment installment was disbursed. Phase 2: Covers a two-year warranty period for construction defects. 3. Additional design work has been completed, reviewed, and fully paid (100%).	100.00	90.17	0.00	0.00

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan			
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)
3	A project to hire a consultant to study and develop the enterprise architecture for the Office of the NBTC <u>Objective:</u> To develop the Enterprise Architecture Development Plan as a digital action plan that provides a framework and strategic direction for driving the Office of the NBTC's digital technology initiatives, ensuring connectivity and integration among relevant agencies. This also includes establishing standardized central data and designing a centralized data management system to enable systematic and consistent data integration, thereby enhancing the practical application of digital technologies and promoting efficient data utilization for both the Office's service delivery and mission-based operational performance. Total Budget 9.04 Proposed Budget in 2024 9.04	9.04	May 30, 2024/ Mar 25, 2025	The project is currently in the fourth phase, as outlined in the Terms of Reference. Activities include: studying, analyzing, and compiling data to develop a draft of the target enterprise architecture; reporting on gap analysis; organizing meetings to present the findings on the current enterprise architecture status and the target enterprise architecture report; formulating the Enterprise Architecture Development Plan as a digital action plan; and establishing regulatory guidelines to achieve the target architecture. Once completed, it will enable the Office of the NBTC to have the Enterprise Architecture Development Plan, serving as a framework for driving digital technology initiatives to support the NBTC's missions and promote collaboration with relevant agencies. A centralized data management system and data standards will be established to facilitate systematic and consistent data integration, thereby improving the practical use of digital technologies and promoting efficient data utilization for both the Office's service delivery and mission-driven operations. The deliverables are due by March 25, 2025.	100.00	80.00	8.91
							98.57

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
4	The Sai Yai Sailom Program (Early Retirement) for the Fiscal Year 2024 <u>Objective:</u> To provide the Office of the NBTC with the opportunity to recruit new-generation, multi-skilled personnel to replace retiring officers, and to promote post-retirement well-being for the program participants. Total Budget 105.31 Proposed Budget in 2024 105.31	105.31	Jun 7, 2024/ Feb 28, 2025	The Committee on Sai Yai Sailom Program for Fiscal Year 2024 was established on October 3, 2024, to review and set criteria for selecting eligible employees to participate in the program, promote the program, and develop the implementation plan. A list of eligible employees was announced on November 14, 2024. The Office completed the verification of outstanding liabilities and received confirmation letters from the Finance Bureau, the NBTC Academy Institute, the Office of the NBTC Savings and Credit Cooperative, and the Thailand Post and Telecommunications Savings and Credit Cooperative. The process is currently awaiting assessment results for calculating lump-sum benefit entitlements, outstanding debt deductions, and tax withholdings. Budget disbursement will follow, resulting in a delay in implementation compared to the original plan.	100.00	80.00	95.79	90.96

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan			
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)
5	A project for hiring a contractor to upgrade the revenue collection system through automated receipt issuance <u>Objective:</u> To improve the revenue collection system of the SAP and ERP systems by integrating payment data exclusively from Krungthai Bank's Bill Payment channel with the Office of the NBTC's Bill Payment system, enabling faster and automated issuance of official receipts or tax invoices. This reduces the risk of data recording errors while enhancing the efficiency of financial report issuance and data audits conducted by external agencies. Total Budget 1.00 Proposed Budget in 2024 1.00	1.00	Jun 26, 2024/ Sep 23, 2024	The project was completed as planned. The results include the installation of the entire system, the operational system diagram, a report on the completion of the form based on system security engineering principles, results of application-level vulnerability assessment and remediation, system usability test results, user acceptance sign-off, a user manual for general users, and an administration manual for system administrators. The project achievements enable the NBTC Office to operate a revenue collection system using SAP and ERP systems by integrating payment data solely from Krungthai Bank's Bill Payment channel with the Office's bill payment system for automated issuance of official receipts or tax invoices, and to improve the efficiency of financial report issuance and data audits conducted by external agencies.	100.00	100.00	0.97
Strategy 2: Cultivate personnel regulatory expertise and professional excellence to ensure organizational readiness for digital economy and society transition, encompassing five strategic projects							
1	The scholarship project for employees to pursue Master's degrees abroad for the year 2023 <u>Objective:</u> To enhance the Office of the NBTC's personnel with advanced knowledge and capabilities, thereby driving the organization's mission more efficiently. Total Budget 3.16 Budget Allocated in 2023 2.41 Proposed Budget in 2024 0.45 Committed Budget to 2025 0.30	0.45	Jan 1, 2023/ Dec 31, 2025	The project is ongoing. In 2024, a scholarship recipient completed their Master's degrees in MSc in Media and Communications and returned to resume their duties at the Office of the NBTC. The process of returning the remaining funds by cheque from the scholarship recipient's closed account is underway. This supports the development of the Office of the NBTC's staff in fields where qualified professionals are in short supply.	100.00	95.00	0.00

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
2	A project to enhance the efficiency of the electronic library system and the Office of the NBTC Information Center, Phase Two <u>Objective:</u> To improve the electronic library system and the Office of the NBTC Information Center to support the operations and comprehensive service delivery, aiming to be an academic center to integrate databases with external agencies, and share information resources. This effort also enables individuals with disabilities to access information from the electronic library and the Office of the NBTC Information Center more easily and in ways that are relevant to their specific needs. Total Budget 2.28 Proposed Budget in 2024 2.28	-	-	The project was canceled.	-	-	-	-
3	The scholarship project for employees to pursue Master’s degrees abroad in 2024 <u>Objective:</u> To enhance the Office of the NBTC’s personnel with advanced knowledge and capabilities, thereby driving the organization’s mission more efficiently. Total Budget 9.00 Proposed Budget in 2024 3.60 Committed Budget to 2025 3.60 Committed Budget to 2026 1.80	3.60	Jan 1, 2024/ Dec 31, 2026	The project is ongoing. Scholarship recipients are currently pursuing their Master’s degrees in relevant fields, following the timeline outlined in the curriculum. This project aims to enhance the personnel with advanced knowledge and capabilities, thereby driving the organization’s mission more efficiently.	100.00	70.00	3.53	98.08

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan			
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)
4	A survey project on radio and television media, and telecommunications usage and access behavior in Thailand <u>Objective:</u> To survey radio and television media and telecommunications usage and access behavior in Thailand, providing the Office of the NBTC with a database on usage and access behavior, television media access, and radio audiences. Total Budget 5.00 Proposed Budget in 2024 5.00	5.00	Jan 1, 2024/ Dec 31, 2024	The project was completed as scheduled, providing the Office of the NBTC with survey results on telecommunications usage, access behavior in 2024, and media access for radio and television in the same year. These findings were published on the NBTC website for relevant agencies to analyze, develop policies, and enhance services related to telecommunications technologies, to maximize public benefits.	100.00	100.00	5.00
5	A training project on economic regulation, conducted by the Public Utility Research Center (PURC) of the University of Florida, USA. <u>Objective:</u> To build fundamental knowledge and understanding for the Office of the NBTC's personnel of economic regulation and emerging technology-related issues, enabling them to learn best practices and gain hands-on experience in adapting policies and regulatory approaches in alignment with scientific advancements and international standards. Total Budget 4.64 Proposed Budget in 2024 4.64	4.64	Jan 1, 2024/ Dec 31, 2024	The project was completed as scheduled. The training participants gained knowledge and understanding of economic regulation and emerging technology-related issues, as well as the current challenges faced by regulatory entities. They received a program evaluation score of 90.32 percent and successfully applied the knowledge gained to enhance regulatory efficiency by adjusting regulatory approaches in alignment with scientific advancements and international standards.	100.00	100.00	4.00
							86.29

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
Strategy 3: Optimize spectrum management and satellite service operational capabilities to maximize national strategic benefits and citizen welfare, while strengthening the regional Office of NBTC institutional capacity for enhanced regulatory governance and public service delivery, encompassing seven strategic projects								
1	A procurement project for five remote-controlled radio frequency monitoring station units <u>Objective:</u> To improve the efficiency of nationwide frequency monitoring. Total Budget 47.84 Budget Allocated in 2023 - Proposed Budget in 2024 47.84	47.84	Mar 20, 2024/ Mar 14, 2025	The project is ongoing. The project agreement was signed on March 19, 2024. However, due to concerns regarding a bidder’s qualifications, the Office of the NBTC submitted an official inquiry to the Government Procurement Dispute Resolution Committee. Subsequently, once the winning bidder was announced, an objection was filed, leading to a delay in implementation compared to the original plan. The activities include reports on onsite surveys and project implementation plans, the procurement of replacement equipment and utility systems to ensure the operational readiness of existing installations, the replacement of remote-controlled radio frequency monitoring station units, and the dismantling of five existing monitoring station units. The project is currently underway in the second phase of work, as outlined in the Terms of Reference (TOR). The deliverables are due by March 17, 2025.	100.00	60.00	47.84	100.00

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan			
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)
2	A procurement project for 22 units of handheld Realtime Bandwidth radio frequency analyzers for 10 MHz – 42 GHz <u>Objective:</u> To procure 22 units of portable Realtime Bandwidth radio frequency analyzers for 10 MHz – 42 GHz. Total Budget 53.89 Budget Allocated in 2023 - Proposed Budget in 2024 53.89	53.89	Nov 14, 2024/ May 12, 2025	The project is ongoing. The project agreement was signed on November 13, 2024. Once completed, the Office of the NBTC will possess effective radio frequency analyzers, enhancing the frequency monitoring mission of the 21 District Offices of the NBTC and the Regional Affairs Bureau, while also aligning with rapid technological advancements. The deliverables are due by May 12, 2025.	100.00	60.00	38.79
3	A project to enhance the monitoring and reporting system for radio frequency usage supervision using video streaming technology <u>Objective:</u> To procure equipment for monitoring and reporting radio frequency supervision with video streaming technology. Total Budget 6.08 Budget Allocated in 2023 0.91 Proposed Budget in 2024 5.17	5.17	Jul 25, 2023/ May 19, 2024	The project was completed as scheduled. The final deliverables were submitted on September 6, 2024. The Office of the NBTC is equipped with a monitoring and reporting system for radio frequency usage supervision, utilizing video streaming technology, which enhances monitoring and evaluation efficiency by 100 percent. It is also used to support the offense search and arrest missions of the regional offices of the NBTC.	100.00	100.00	5.17
4	A procurement project for 48 units of data collection equipment for radio broadcasting <u>Objective:</u> To procure 48 units of data collection equipment for radio broadcasting. Total Budget 19.09 Budget Allocated in 2023 - Proposed Budget in 2024 19.09	-	-	The project was canceled.	-	-	-

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
5	The Office Building Construction Project for the District Office of NBTC 21, with the Assembly Buildings <u>Objective:</u> To serve as an administration center for regulating the broadcasting, television, and telecommunications sectors in the areas of responsibility, accommodating internal departments adequately, ensuring convenience, and facilitating efficient operations for staff and service users. Total Budget 69.03 Budget Allocated in 2023 48.32 Proposed Budget in 2024 - Committed Budget to 2025 20.71	-	Dec 29, 2023/ Aug 19, 2025	The project is ongoing. The project agreement was signed on December 28, 2023. The operational plan consists of two parts, including the construction of the District Office of NBTC 1, with the assembly buildings (five out of twelve project phases have been completed), and the office building construction supervision contract for the District Office of NBTC 21 with the assembly buildings (ten out of twenty project phases have been completed). However, during the construction process, issues were encountered regarding the construction materials used, as well as discrepancies between the design specifications and the bill of quantities and pricing. Therefore, the contract had to be amended twice, leading to a delay in implementation compared to the original plan.	100.00	28.10	0.00	0.00
6	The Security System Integration Project of the Regional Office of NBTC 2 <u>Objective:</u> To integrate the security systems of the Regional Office of the NBTC 2 with modern technology, ensuring the safety of the Office’s assets, staff, and service users. Total Budget 4.55 Budget Allocated in 2023 - Proposed Budget in 2024 4.55	-	-	The project was canceled.	-	-	-	-

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan			
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)
7	The Office Building Construction Project for the Regional Office of the NBTC 3 <u>Objective:</u> To construct the office building for the Regional Office of the NBTC 3 to facilitate work and support the Office of the NBTC's mission. Total Budget 12.01 Proposed Budget in 2024 12.01	12.01	Oct 28, 2020/ Jul 31, 2024	The project is ongoing. The project agreement was amended, and the construction timeline was extended. Due to discrepancies between the site layout and the actual construction area, the project could not proceed according to the original design plans. Therefore, the construction layout was revised, and the penalties were adjusted in accordance with the applicable rules and conditions of the Government Procurement Dispute Resolution Committee, as outlined in Section 162 of the Regulation of the Ministry of Finance on Public Procurement and Supplies Administration B.E. 2560 (2017). Additionally, obstacles were encountered related to architectural works, including transportation challenges with roofing materials for the maintenance building and the car park building, which led to delays. Therefore, the roofing material was changed to the same type used for the office building, resulting in a reduction in the work cost and the total contract value. These led to a delay in implementation compared to the original plan. The construction work is currently being expedited for completion as soon as possible.	100.00	80.02	12.01
							100.00

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
Strategy 4: Enhance regulatory oversight and promotional capacity for broadcasting and telecommunications service sectors to ensure adaptive alignment with dynamic operational contexts, encompassing nine strategic projects								
1	The Program Content Analysis and Monitoring System Project <u>Objective:</u> To develop a program content analysis and monitoring system concerning food and drug advertising, serving as a tool to monitor and oversee licensees or broadcasting service providers in alignment with legal frameworks, notifications, criteria, and licensing conditions related to food and drug advertising. Total Budget 14.98 Budget Allocated in 2023 12.58 Proposed Budget in 2024 2.40	2.40	May 11, 2023/ May 4, 2024	The project was completed as scheduled. The Office of the NBTC is equipped with a system for monitoring violations related to consumer protection, including the content of food and drug advertising. Relevant internal departments have accessed the content analysis and monitoring system at an 80 percent rate. The system is capable of accurately analyzing and monitoring content with an accuracy of at least 85 percent. Data from the transmission center can be effectively utilized to regulate television services, ensure cost-effectiveness, and maximize benefits.	100.00	100.00	2.40	100.00
2	The collaborative project for producing the Court Circular and live broadcasting royal and state ceremonies, for broadcasting and television service provision <u>Objective:</u> To ensure that authorized entities, or broadcasting or television business licensees, disseminate the Court Circular with the content and formatting that align with the Notification of the NBTC on Criteria for Program Schedules for Broadcasting or Television Service Provision B.E. 2556 (2013), and the regulations of the Bureau of the Royal Household. Total Budget 15.00 Proposed Budget in 2024 15.00	15.00	Jan 1, 2024/ Dec 31, 2024	The project was completed as scheduled. The authorized entities, or broadcasting or television services licensees, disseminate the Court Circular with the duplicate content and appropriate formatting. Furthermore, the public has received comprehensive and effective information about His Majesty the King, Her Majesty Queen Sirikit the Queen Mother, as well as all members of the Royal Family.	100.00	100.00	15.00	100.00

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
3	A project to explore and collect communication cable data in the Bangkok area <u>Objective:</u> To develop a communication cable data system under the project to examine and collect communication cable data in Bangkok. The collected data will be integrated into the Office of the NBTC’s Geographic Information System (GIS) to map the authorized and unauthorized routes for communication cable installation in the Bangkok area. This will allow for the prioritization of routes that are critical or necessary for implementing cable organization or transitioning to an underground cabling system. Total Budget 20.27 Budget Allocated in 2022 - Budget Allocated in 2023 10.24 Proposed Budget in 2024 10.03	10.03	Sep 16, 2023/ Sep 9, 2024	The project was completed as scheduled. The Office of the NBTC has compiled survey reports on communication cables, including reports on the remaining segments of all surveyed routes, maps, and documents identifying critical routes where cable deployment is not permitted. Additionally, the office stores cable data in the cable management system, covering 50 percent of the total surveyed routes. This analysis can be used to prioritize critical or necessary routes for organizing cables or implementing an underground cabling system.	100.00	100.00	10.03	100.00
4	The Management System Development Project to Fix Communication Cables Issues for Public Safety (P-Safe) <u>Objective:</u> To develop a management system to fix communication cable issues for public safety (P-Safe). The system enables the submission of public complaints to operators. It provides timely responses to complainants regarding corrective actions through the electronic management system, in alignment with the digital organization development policy. Total Budget 4.58 Budget Allocated in 2022 - Budget Allocated in 2023 2.53 Proposed Budget in 2024 2.05	2.05	Mar 18, 2023/ Dec 12, 2023	The project was completed as scheduled. The Office of the NBTC is now equipped with a management system to address communication cable issues for public safety. The system categorizes the complaints into two groups: complaints from the CRM 1200 system and those from the P-Safe system. The Office of the NBTC’s officials can input complaints into the P-Safe system, categorize or prioritize those complaints based on urgency criteria, and directly forward them to the relevant operators according to each situation, notifying them to take corrective actions for public safety. This facilitates faster resolution of complaints, improves monitoring of operators’ responses, and reduces the risk of harm to the public.	100.00	100.00	2.05	100.00

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
5	A project to hire a consultant for developing the Telecom Wholesale Roadmap <u>Objective:</u> To develop the Telecom Wholesale Roadmap Total Budget 8.17 Budget Allocated in 2023 2.66 Proposed Budget in 2024 5.51	5.51	Aug 19, 2023/ Jun 13, 2024	The project was completed as scheduled. Guidelines on the submission of data regarding the use and interconnection of telecommunication networks were submitted to the Office of the NBTC. It aims to ensure that both the Office and licensees have a clear understanding of the procedures and formats required for submitting such information under the (draft) Notification of the NBTC on Telecommunication Network Access and Interconnection, as well as the (draft) Notification of the NBTC on Criteria and Conditions for Considering Appropriate Service Standards for Network Interconnection. The development and improvement plan for regulatory oversight, based on policy recommendations, includes establishing a regulatory framework, developing a wholesale service database, and classifying regulatory levels according to each type of wholesale service. Regulations related to wholesale services were also reviewed. The project achievements provide the Office of the NBTC with a regulatory framework for wholesale services in the telecommunications sector, aimed at promoting competition and ensuring greater service choices for consumers, as well as fostering fair and non-discriminatory regulatory practices.	100.00	100.00	5.51	100.00

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
6	A project to hire a consultant to support the provision of the Universal Service Obligation <u>Objective:</u> To support the Office of the NBTC's operations in gathering details for developing an action plan under the Telecommunications Universal Service Provision Plan, and to provide advice on regulation and plan or project management under the Telecommunications Universal Service Provision Plan. Total Budget 136.30 Budget Allocated in 2022 4.34 Budget Allocated in 2023 21.69 Proposed Budget in 2024 15.54 Committed Budget to 2025 26.58 Committed Budget to 2026 28.62 Committed Budget to 2027 32.71 Committed Budget to 2028 6.82	15.54	Dec 1, 2022/ Jan 31, 2028	The project is ongoing as planned to support the Office of the NBTC's operations in gathering information for developing an action plan under the Telecommunications Universal Service Provision Plan, and to provide advice on regulation, planning, and project management under the Telecommunications Universal Service Provision Plan.	100.00	38.09	15.54	100.00

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
7	A project to enhance a standardized digital mapping database showing population density (concentration or dispersion) at a 1x1 kilometer grid resolution <u>Objective:</u> To update the Office of the NBTC's existing standardized digital mapping database that shows population density (concentration or dispersion) at a 1x1 kilometer grid resolution with nationwide coverage, as well as update data of service coverage area on the Office of the NBTC's Geographic Information System. Network coverage can be analyzed through the existing telecommunications service network inspection system, which is used to monitor and regulate operations related to licensing and spectrum allocation, ensuring alignment with prescribed conditions and regulatory criteria. Total Budget 4.90 Proposed Budget in 2024 4.90	4.90	Jun 29, 2024/ Oct 26, 2024	The project was completed as scheduled. The Office of the NBTC is equipped with a digital mapping database showing population density (concentration or dispersion) at a 1x1 kilometer grid resolution. This database is used to analyze population density on the Geographic Information System (GIS) base map and assess network coverage of operators through the telecommunications service network inspection system. The aim is to support the Office of the NBTC's mission to monitor and inspect telecommunications network coverage (telecominfra.nbt.go.th), ensuring that operators provide comprehensive networks that cover all provinces and the entire population, as outlined in the notification.	100.00	100.00	4.82	98.27

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
8	A procurement project for the development and management of an online system for the Office of the NBTC's premium number auctions <u>Objective:</u> To develop and manage an online system for the Office of the NBTC's premium number auctions, to enhance telecommunications numbering allocation, and provide opportunities for the public to acquire premium numbers through an online auction system managed by the Office of the NBTC in an orderly manner, ensuring fair competition, transparency, and accountability. Total Budget 2.00 Proposed Budget in 2024 2.00	-	-	The project was canceled.	-	-	-	-

No.	Details	Budget 2024 (Million Baht)	Operational Period Start/End	Implementation Results against the Plan				
				Operational Status As of December 31, 2024	Plan (%)	Implementation Results (%)	Budget Expenditure 2024 (Million Baht)	Budget Expenditure 2024 (%)
9	A project to produce and disseminate television programs, films, and advertisements related to the missions under the Telecommunications Universal Service Provision Plan for the year 2024, through television and online media platforms <u>Objective:</u> To produce television programs, films, and advertisements related to the missions and projects under the Telecommunications Universal Service Provision Plan, and to promote awareness and understanding of the issue, aiming to disseminate the information through television media, online media, and video-sharing platforms. Total Budget 8.00 Proposed Budget in 2024 8.00	8.00	Jun 29, 2024/ Dec 25, 2024	The project was completed as scheduled. The final deliverables were submitted on December 9, 2024. The Office of the NBTC has produced and disseminated television programs, films, and advertisements related to the missions outlined in the Telecommunications Universal Service Provision Plan for 2024, through television and online media platforms. Two television episodes of the program ‘Ra Ron (wanderer) x USO’ were broadcast, including the first episode on November 3, 2024, and the second episode on November 10, 2024, on the Amarin TV channel. The television programs were also disseminated through influencers’ online platforms, along with promotional films through online media channels, which has significantly increased public awareness across all sectors. This effort has encouraged people in remote areas and relevant agencies to utilize various telecommunications services, gain information about missions and projects under the Office of the NBTC’s plans. It has also enhanced opportunities and trends in internet access and information utilization among populations in remote areas.	100.00	100.00	7.68	96.00



The Office of the NBTC Operational Performance Outcomes and Fiscal Budget Utilization Report for 2024

1. The Office of the NBTC Annual Expenditure Budget Execution Performance for 2024.

The NBTC authorized a comprehensive annual expenditure budget allocation for the Office of NBTC operations during 2024, totaling 5,130.18 million baht, comprising into: 1) Institutional operational expenditure for the NBTC and the Office of NBTC administrative functions totaling 4,195.78 million baht 2) Strategic project implementation expenditure totaling 326.83 million baht 3) Committee for Monitoring and Evaluation of Performance operational expenditure totaling 97.57 million baht and 4) Mandatory statutory fund contributions totaling 510.00 million baht (excluding central government budget allocation of 82.52 million baht).

As of December 31, 2024, indicates The Office of the NBTC achieved aggregate budget execution of 4,898.08 million baht, representing 95.48 percent

budget utilization efficiency against approved allocations, comprising: institutional operational expenditure for the NBTC and the Office of the NBTC (routine administrative functions) totaling 3,996.85 million baht, representing 95.26 percent utilization rate, strategic project implementation expenditure totaling 298.49 million baht, representing 91.33 percent execution rate, Committee for Monitoring and Evaluation of Performance operational expenditure totaling 92.74 million baht, representing 95.05 percent utilization rate, and mandatory statutory fund contributions totaling 510.00 million baht, representing 100.00 percent compliance rate, with comprehensive fiscal performance metrics, as presented in Table 46. Comparative fiscal performance analysis examining planned versus actual expenditure budget execution for fiscal years 2024 and 2023, as presented in Table 47 and Chart 60.

Table 46 : Expenditure Budget Plan and Operating Results for 2024

Unit: Million Baht

No.	Item	Fiscal Year 2024		
		Plan	Result	Percentage
1	Expenditure budget of the Office of the NBTC	4,620.18	4,388.08	94.98
1.1	Operating budget for the NBTC and the Office of the NBTC	4,195.78	3,996.85	95.26
1.2	Project expenditures	326.83	298.49	91.33
1.3	Operating expenditures for the Performance Follow-up and Evaluation Committee	97.57	92.74	95.05
2	Allocation to the fund as required by law	510.00	510.00	100.00
Total (No. 1 – 2)		5,130.18	4,898.08	95.48
3	Central budget*	82.52	-	-
Total (No. 1 – 3)		5,212.70	4,898.08	93.96

Remark: *The central budget is the reserved budget of advance payment in case of emergency, necessity, and other expenses, as specified by the NBTC at 82.52 million Baht.

Source: Strategic and Budget Bureau, Office of the NBTC.

Table 47 : Comparison of the Operational Plan and Results,
and Expenditure Budget for the Years 2023 and 2024

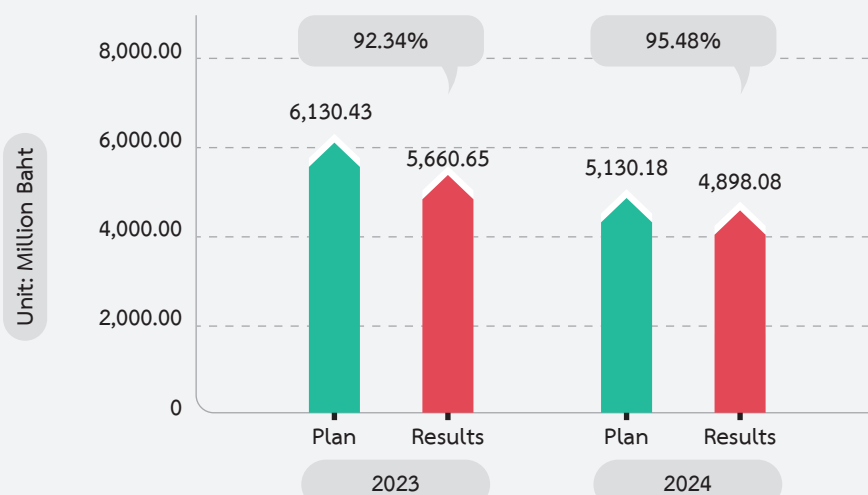
Unit: Million Baht

No.	Item	Fiscal Year 2023			Fiscal Year 2024		
		Plan	Result	Percentage	Plan	Result	Percentage
1	Expenditure budget of the Office of the NBTC	5,120.43	4,650.65	90.83	4,620.18	4,388.08	94.98
1.1	Operating budget for the NBTC and the Office of the NBTC	4,132.71	3,904.39	94.48	4,195.78	3,996.85	95.26
1.2	Project expenditures	890.26	652.60	73.30	326.83	298.49	91.33
1.3	Operating expenditures for the Performance Follow-up and Evaluation Committee	97.46	93.66	96.10	97.57	92.74	95.05
2	Allocation to the fund as required by law	1,010.00	1,010.00	100.00	510.00	510.00	100.00
Total (No. 1 – 2)		6,130.43	5,660.65	92.34	5,130.18	4,898.08	95.48
3	Central budget*	140.82	26.97	19.15	82.52	-	-
Total (No. 1 – 3)		6,271.25	5,687.62	90.69	5,212.70	4,898.08	93.96

Remark: *The central budget is the reserved budget for advance payment in case of emergency and necessity, as well as other expenses specified by the NBTC, totaling 140.82 million baht for 2023 and 82.52 million baht for 2024.

Source: Strategic and Budget Bureau, Office of the NBTC.

Chart 60 : Comparison of the Operational Plan and Results,
and Expenditure Budget for 2023 and 2024*



Remark: *Excluding the central budget.

Source: Strategic and Budget Bureau, Office of the NBTC.

Financial Statements

of The Office of The NBTC for The Year 2024





151.08

53451.08



34.77



+40%

+51%

+47%



Financial Statements of the Office of the NBTC for the Year 2024*

The Office of The National Broadcasting and Telecommunications Commission Statement of Financial Position As of December 31, 2024

	Notes	(Unit: Baht)	
		2024	2023
Assets			
Current Assets			
Cash and Cash Equivalents	5	9,412,368,527.16	9,395,610,490.00
Short-Term Investments	6	-	391,094.09
Fee Receivables	7	18,159,729.91	18,825,572.35
Current Portion of Accrued Revenue	8	37,981,879,928.90	35,950,103,757.44
Inventories		5,428,916.17	5,531,538.74
Prepaid Expenses	9	45,354,208.32	51,508,804.27
Other Current Assets	10	196,113,443.86	206,888,156.11
Total Current Assets		47,659,304,754.32	45,628,859,413.00
Non-Current Assets			
Bank Deposit with Obligations	11	513,968,492.37	510,186,860.87
Long-Term Investments	12	372,740,781.19	370,175,302.60
Accrued Income	8	98,479,449,884.57	132,207,009,051.09
Contributions to the Ministry of Finance under Provisional Protection Measures	25	603,806,875.00	603,806,875.00
Radiocommunications and Spectrum Lease Fee Receivables.		-	26,583,652.25
Net Property and Equipment	13	2,434,335,478.64	2,517,419,935.80
Net Financial Lease Assets	14	183,338,562.08	150,404,201.12
Net Intangible Assets	15	290,786,621.08	425,253,843.21
Total Non-Current Assets		102,878,426,694.93	136,810,839,721.94
Total Assets		150,537,731,449.25	182,439,699,134.94

The accompanying notes are an integral part of this financial statement.

*The financial statements, as of December 31, 2024, are currently under review by the State Audit Office of the Kingdom of Thailand.

The Office of The National Broadcasting and Telecommunications Commission
Statement of Financial Position
As of December 31, 2024

		Notes	(Unit: Baht)	
			2024	2023
Liabilities and Net Assets/Equity				
Liabilities				
Current Liabilities				
Creditors and Notes Payable	16		227,039,935.98	413,353,387.56
Deferred Incomes	17		103,530,714.53	104,512,883.29
Current Provisions for Employee Benefits	18		43,757,926.00	50,668,511.00
Current Portion of Deferred Public Revenue to the Treasury	19		30,227,847,700.75	29,070,953,222.51
Current Portion of Deferred Output Tax on Spectrum Auction	20		2,502,554,392.25	2,109,442,299.83
Current Portion of Contributions to the Digital Economy and Society Development Fund	21		1,168,775,502.17	1,021,009,522.62
Current Portion of Deferred Spectrum Reclamation Revenue to the BTFP	22		4,533,343,817.44	-
Current Portion of Financial Lease Payable	23		68,423,654.04	72,292,307.23
Other Current Liabilities	24		1,146,614,688.56	982,809,078.18
Total Current Liabilities			40,021,888,331.72	33,825,041,212.22
Non-Current Liabilities				
Non-Current Liabilities for Employee Benefits	18		1,721,518,914.00	1,570,161,598.00
Deferred Public Revenue to the Treasury	19		58,283,381,514.62	86,064,303,340.54
Deferred Output Tax on Spectrum Auction	20		6,196,404,833.57	8,649,056,666.89
Contributions to the Digital Economy and Society Development Fund	21		4,199,881,611.11	5,268,241,933.33
Deferred Revenue from Spectrum Reclamation to the BTFP	22		22,645,005,925.27	27,178,349,742.71
Net Long-Term Lease Liability	23		120,924,778.62	84,825,262.23
Spectrum Auction Payment Guarantee Deposit	25		603,806,875.00	603,806,875.00
Radiocommunications and Spectrum Lease Deposit			-	26,583,652.25
Other Non-Current Liabilities	26		86,739,410.31	68,075,371.49
Total Non-Current Liabilities			93,857,663,862.50	129,513,404,442.44
Total Liabilities			133,879,552,194.22	163,338,445,654.66
Net Assets/Equity				
Capital			198,325,867.44	198,325,867.44
Revenues Exceed Cumulative Expenses			16,459,853,387.59	18,902,927,612.84
Net Assets/Equity			16,658,179,255.03	19,101,253,480.28
Total Liabilities and Net Assets/Equity			150,537,731,449.25	182,439,699,134.94

The accompanying notes are an integral part of this financial statement.

The Office of The National Broadcasting and Telecommunications Commission
Statement of Financial Position
As of December 31, 2024

	Notes		(Unit: Baht)
		2024	2023
Revenue			
Revenue from the Spectrum and Satellite Orbital Slot Auctions	27	2,326,880.77	806,502,650.00
Revenue from Licenses and Licensing Applications	28	4,673,588,823.00	4,866,429,706.01
Revenue from Numbering Fees	29	3,188,696,818.73	3,176,368,796.39
Other Revenues	30	189,825,325.70	217,869,658.15
Total Revenue		8,054,437,848.20	9,067,170,810.55
Expenses			
Compensation or Remuneration or Remuneration for Television Operators	31	1,525,434,001.53	1,532,159,406.38
Remittance to the Treasury	32	73,525,032.97	892,055,345.98
Expenses on Auctions and Spectrum Refarming	33	2,783,801.87	19,274,406.75
Digital Economy and Society Development Fund Contributions		1,169,252,704.39	1,206,419,775.36
Expenses by the Judgment of the Supreme Administrative Court	34	-	6,750,000.14
Human Resources Expenses	35	2,372,700,436.44	2,039,756,308.55
Pension	36	200,322,146.06	431,559,284.71
Remuneration	37	171,915,612.47	154,814,063.44
General and Administrative Expenses	38	1,167,499,698.96	1,268,799,767.47
Material Expenses	39	34,091,149.87	35,775,429.46
Utility Expenses	40	86,338,228.52	91,626,828.31
Depreciation and Amortization	41	570,054,608.99	614,789,852.43
Financial Support for Education, Research, and Development	42	117,017,641.67	233,301,568.16
Contributions to the BTFP		500,000,000.00	1,000,000,000.00
Contributions to the Edtech Fund		10,000,000.00	10,000,000.00
Other Expenses	43	27,424,844.00	18,434,532.03
Total Expenses		8,028,359,907.74	9,555,516,569.17
Surplus (Deficit) before Finance Costs		26,077,940.46	(488,345,758.62)
Finance Costs		7,654,115.57	8,859,386.71
Surplus (Deficit) after Net Expense		18,423,824.89	(497,205,145.33)

The accompanying notes are an integral part of this financial statement.

The Office of The National Broadcasting and Telecommunications Commission
Statement of Financial Position
As of December 31, 2024

Notes

	Capital	Cumulative Surplus (Deficit)	Total Net Assets/ Equity
Balance as of December 31, 2022	198,325,867.44	21,486,827,813.31	21,685,153,680.75
Changes in Net Assets/Equity 2023			
Public Revenue remitted to the Treasury	-	(2,086,695,055.14)	(2,086,695,055.14)
Revenues under Expenses of the Period	-	(497,205,145.33)	(497,205,145.33)
Closing Balance as of December 31, 2023	198,325,867.44	18,902,927,612.84	19,101,253,480.28
Balance as of December 31, 2023	198,325,867.44	18,902,927,612.84	19,101,253,480.28
Changes in Net Assets/Equity 2024			
Public Revenue remitted to the Treasury	-	(2,461,498,050.14)	(2,461,498,050.14)
Revenues Recognized as Expenses of the Period	-	18,423,824.89	18,423,824.89
Closing Balance as of December 31, 2024	198,325,867.44	16,459,853,387.59	16,658,179,255.03

The accompanying notes are an integral part of this financial statement.

The Office of The National Broadcasting and Telecommunications Commission
Notes to Financial Statement
For the Year Ended December 31, 2024

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The Office of The National Broadcasting and Telecommunications Commission
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For the Year Ended December 31, 2024

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The Office of The National Broadcasting and Telecommunications Commission
Notes to Financial Statement
For the Year Ended December 31, 2024

Note 1 - General Information

The Office of the National Broadcasting and Telecommunications Commission, or abbreviated as “the Office of the NBTC,” is a juristic person with the status of a state agency, established by the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services, B.E. 2553 (2010), and its amendments (the Act on the Organization of 2010 and its amendments). It is responsible for regulating and developing broadcasting, television, and telecommunications businesses. The National Broadcasting and Telecommunications Commission, or abbreviated as “NBTC,” is responsible for setting criteria, procedures, conditions, fees, and regulations related to spectrum allocation, licensing and spectrum utilization regulation, business operations in broadcasting, television, and telecommunications, telecommunication numbering utilization, telecommunications network access or interconnection, prevention of monopoly or unfair competition, and consumer protection. The NBTC also ensures the comprehensive provision of broadcasting, television, and telecommunications services. Additionally, the NBTC has established the Office of the NBTC fund, called “the Broadcasting and Telecommunications Research and Development Fund for Public Interest,” or “BTFP,” which is managed by the Fund Management Committee according to Sections 54 and 55 of the Act on the Organization 2010 and its amendments.

The Office of the NBTC Headquarters is located at 87 Soi 8 (Sai Lom), Phahon Yothin Road, Samsen Nai, Phaya Thai, Bangkok 10400.

The revenue of the Office of the NBTC shall be governed by Section 65 of the Act on the Organization 2010 and its amendments, outlined as follows:

- (1) Spectrum license fees and business license fees under Section 42, Paragraph Two, and Section 45, Paragraph Three
- (2) Revenues or benefits obtained from the NBTC and the Office of the NBTC’s authorities
- (3) Revenues generated from the Office of the NBTC’s assets
- (4) Money and assets donated to the Office of the NBTC in accordance with the NBTC’s regulations to support the Office’s operations
- (5) Subsidies from the government

The revenue of the Office of the NBTC under (1) and (2), after deducting expenses for efficient operations, necessary burden costs, fund contributions under Section 52, the Edtech Fund, and the Digital Economy and Society Development Fund under the law on digital development for the economy and society, shall be remitted as public revenue. The Office of the NBTC has one non-juristic revolving fund entity: The BTFP pursues the Frequency Allocation Organization Act B.E. 2553 (2010) and its amendments. However, the financial statements of this non-juristic revolving fund are not combined with the Office of the NBTC accounts to ensure alignment under the Revolving Fund Management Act B.E. 2558 (2015).

Note 2 - Financial Reporting Criteria

These financial statements have been prepared in accordance with the public sector accounting standards and policies prescribed by the Ministry of Finance, as well as the public sector accounting principles, standards, policies, and accounting practices related to the formats for financial statement preparation of government agencies, as follows:

2.1 as specified in the official letter from the Comptroller General’s Department, No. MF 0410.2/C.559, dated September 25, 2023, regarding financial statement preparation formats for government agencies (revised version B.E. 2566 (2023));

2.2 as specified in the official letter from the Comptroller General’s Department, No. MF 0410.2/C.133, dated February 18, 2025, regarding the formats for preparing financial statements of a government agency with a revolving fund that is not a legal entity.

These financial statements have been prepared on a historical cost basis, unless disclosed otherwise in the accounting policy.

The financial statements of the Office of the NBTC encompass accounting transactions from both headquarters and regional offices, which are required to submit their financial reports under the Public Accounting Standards.

Note 3 - Significant Accounting Policy Summary

3.1 Cash and Cash Equivalents

Cash and Cash Equivalents include cash on hand, demand deposits, and non-obligated time deposits with maturities of three months or less.

3.2 Short-Term Investments

Short-term investments refer to time deposits with maturities of longer than three months but not exceeding twelve months from the acquisition date.

3.3 Fee Receivable

Fee receivable refers to the net amount expected to be received after deducting allowances for doubtful accounts, based on the balance audit at the end of the accounting period.

Allowances for doubtful debts are estimated from accounts receivable that are likely to become uncollectible in the future. This estimation is based on the remaining debt values at the end of the period, considering payment history, the current financial status of debtors, legal proceedings against debtors, as well as the percentage of debt age and outstanding balance at the period's end. Doubtful debts are recognized as part of other expenses in the financial performance statement.

Allowances for doubtful debts on the fee receivables are estimated at the following rates:

- Outstanding fee receivables not exceeding 180 days, estimating allowance at a rate of 0 percent
- Outstanding fee receivables from 181 to 365 days, estimating allowance at a rate of 25 percent
- Outstanding fee receivables from 366 to 730 days, estimating allowance at a rate of 50 percent
- Outstanding fee receivables overdue for longer than 730 days, with an estimated allowance at a rate of 75 percent
- Fee receivables under legal proceedings, estimating allowance for doubtful debts at a rate of 100 percent

3.4 Accrued Revenues

Accrued revenues refer to income from annual licensing fees, calculated based on the licensee's operating revenues during the accounting period, and paid annually within one hundred and fifty days after the end of the period, in accordance with the Notification of the NBTC on Licensing Fee for Radio or Television Broadcasting Network Services, B.E. 2555 (2012), and the Notification of the NBTC on Telecommunication Business Licensing Fees. It also includes revenues from spectrum auctions, as outlined in Sections 42 and 45 of the Act on the Organization of 2010 and its amendments, as well as the Announcement of the National Council for Peace and Order (NCPO) No. 80/2557, NCPO Order 76/2559, and NCPO Order 9/2561.

3.5 Radiocommunications Rental and Spectrum Services Fee Receivables

Radiocommunications rental and spectrum services fee receivables are amounts collected from debtors that the Office of the NBTC manages on behalf of the Ministry of Finance. These are recorded alongside the 'radiocommunications rental and spectrum services fee receivables' deposit account. Upon payment, the deposit is transferred to the deferred public revenue in the treasury account under radiocommunications rental and violation fines.

3.6 Supplies Inventory

Supplies inventory refers to assets owned by the agency for regular operations, typically of low value and not durable, including office supplies. The agency recognizes supplies inventory at cost and valued using the Weighted Average Method.

3.7 Properties and Equipment

3.7.1 Buildings and structures, including improvements, are reported at net book value, calculated as cost minus accumulated depreciation. Buildings under construction are reported at their original cost.

3.7.2 Equipment is recognized by individual items or sets with the minimum value of 10,000 baht per unit. Items acquired prior to 2020 are excluded. The equipment is presented at net book value, calculated as the historical cost less accumulated depreciation:

Note 3 - Significant Accounting Policy Summary (Continued)

- Equipment acquired before 1997 is not recognized in the account but is recorded in the Asset Control Register.

- Equipment acquired between 1997 and 2002 is recognized only if valued at 30,000 baht or more, while items valued below 30,000 baht are recorded as expenses in the Undervalued Inventory Account.

- Equipment acquired from 2003 to 2007 is recognized only if valued at 5,000 baht or more, while items valued below 5,000 baht are recognized as expenses in the Undervalued Inventory Account.

- Equipment acquired from 2008 to 2018 is recognized only if valued at more than 10,000 baht, while items valued less than 10,000 baht are recorded as expenses in the Undervalued Inventory Account.

- Equipment acquired from 2019 onward is recognized as durable goods, typically having a long useful life and not being consumed, depleted, or altered over a short period.

The cost price includes direct costs related to asset acquisition to ensure the asset is available in a location where it can be used as required by management. The cost of self-constructed assets includes material costs, direct labor costs, and other direct costs associated with asset acquisition.

Details of building and equipment entries, including different types, service life, and significant costs, are recognized separately.

Subsequent cost refers to expenses incurred after the initial recognition of the item's value, integrated into the net book value of the building and equipment entries. When it is probable that the organization will gain future economic benefits or increased service capacity from such an entry, and it is possible to obtain measurable and reliable cost data, the replaced items are deducted from the account at their book value. Additionally, costs from routine building maintenance and equipment are recognized as expenses when incurred.

Depreciation is recorded as an expense in the financial performance statement, using the straight-line method based on the estimated useful life, according to the official letter from the Comptroller General's Department, No. MF 0410.3/C.43, dated January 29, 2019, regarding the public accounting manual for lands, buildings, and equipment, as follows:

Type of Asset	Useful Life
Buildings and their Improvements	3 – 20 years
Electric Appliances and Radios	5 – 15 years
Computer Supplies	3 years
Vehicles and Transports	8 years
Office Supplies and Others	2 – 8 years

3.8 Intangible Assets

Intangible assets consist of the direct costs related to the developing computer programs, systems, and website production, acquired through the procurement process, and expenses related to hiring for development. The Office of the NBTC has the right to control the utilization of these assets and expects to derive economic benefits or service capacity from them for more than one year. The intangible asset is recorded at the cost less accumulated amortization.

- Intangible assets acquired since 2020, recognized only by entries with a minimum value of 10,000 baht per unit or set, except for entries acquired before 2020, which are shown at net book value (cost less accumulated amortization).

- Intangible assets acquired from 2010 to 2013 are recognized only if valued at 50,000 baht or more, while amounts below this threshold are recognized as expenses in the Undervalued Inventory Account.

- Intangible assets acquired from 2014 to 2018 is recognized only if valued at 30,000 baht or more, while amounts below this threshold are recognized as expenses in the Undervalued Inventory Account.

- Intangible assets acquired in 2019 is recognized only if valued at 20,000 baht or more, while amounts below this threshold are recognized as expenses in the Undervalued Inventory Account.

Amortization of intangible assets is recognized as an expense in the statement of financial performance, using the straight-line method based on the estimated useful life, which is three years for computer programs.

Note 3 - Significant Accounting Policy Summary (Continued)

3.9 Lease Liability

A lease liability arises from a lease agreement in which the organization assumes substantially all of the risks and rewards associated with owning the leased asset. Each lease payment is allocated between a finance cost and a reduction of the lease liability, using a constant periodic interest rate applied to the remaining balance. The finance cost is recorded directly as profit or loss. The asset acquired through the lease is classified as a right-of-use asset, recorded at either the fair value or the present value of the minimum lease payments—whichever is lower—less accumulated depreciation and impairment losses.

3.10 Deferred Incomes

Deferred income arising from spectrum auction revenues related to the provision of digital television services is recognized in proportion to the actual expense of each installment, reflecting the extent of service provided to the public. The unrecognized portion of the income is shown as a liability in the deferred income statement.

3.11 Provisions

Provisions are recognized when the Office of the NBTC has liabilities by law that have occurred either currently or in the past, with a high probability that economic benefits will be paid as settlement, and the liabilities are estimated reliably. Provisions are calculated using the discounted cash flow method for payments expected in the future, based on present discounted cash flows, to reflect the current value that varies over time and with the risk of debt. The incremental provision recognized over time is considered a financial cost.

3.12 Remittance as Public Revenue to the Treasury

Revenue or benefits generated from operations under the authority of the NBTC and the Office of the NBTC include income received in a given year after deducting the organization's efficient operating expenses, necessary burdens, contributions to the fund as outlined in Section 52, the Edtech Fund, and the Digital Economy and Society Development Fund according to the law on digital economy and society development. The remaining surplus is remitted as public revenue. Additionally, the Office of the NBTC shall remit as public revenue any surplus from the burden costs of previous years that could not be fully spent within two years, including any items or projects for which the budget has been allocated but not spent, or debts incurred within the fiscal year. These items or projects will be canceled, and the allocated budgets shall be remitted as public revenue.

3.13 Revenue from Spectrum Auction

Revenue from spectrum auctions, after deducting the costs of event organization and contributions to the Digital Economy and Society Development Fund under the law on digital economy and society development, shall be remitted as public revenue in accordance with the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services, B.E. 2553 (2010) and its amendments.

3.14 Employee Benefits

The Office of the NBTC is not governed by the Labor Protection Law, the Labor Relations Law, the Social Security Act, or the Compensation Act. Instead, the Office of the NBTC has its own regulations regarding employee benefits, as follows:

3.14.1 Short-Term Employee Benefits

Provisions for short-term employee benefits are recognized as expenses in the statement of financial performance when the employees render services, without calculating Discounted Cash Flows. Liabilities are recognized by the amount expected to be paid for special remuneration and welfare, as short-term cash, or legal obligation, or constructive obligation to be paid as a result of the employee's work in the past, and this obligation can be reliably estimated.

3.14.2 Employee Benefits after Retirement

1) Contributions Plan

The Office of the NBTC has established a provident fund to provide employee benefits and promote long-term savings. Employees contribute to the fund according to the rules outlined in the organization's Employee Provident Fund regulation, as stipulated by the Office of the National Telecommunications Commission, B.E. 2549 (2006). The fund's assets are held separately from the organization's assets and are managed by an external fund manager. The provident fund consists of employees' savings and contributions from the Office of the NBTC. These contributions are recorded as expenses in the financial statements for the period in which they are incurred.

Note 3 - Significant Accounting Policy Summary (Continued)

2) Defined Benefit Plan

The Office of the NBTC is required to pay retirement compensation to employees, as stipulated in the NBTC Regulation on Employees' Pension and Welfare after Retirement, B.E. 2555 (2012), which is classified as a pension benefit.

Employee pension benefit provisions are recognized in the balance sheet at the present value of the obligations as of the period end. The obligations are calculated annually by an independent actuary using the projected unit credit method.

Obligations incurred during the transition period arise from the difference between the benefit obligations and the liabilities recorded in the statement of financial position for the employee benefit plan, in accordance with the existing accounting policy as of the date of the policy change. The Office of the NBTC recognizes these by calculating the full amount of retained earnings using the retrospective adjustment method.

The entire historical service cost is recognized as profit or loss when the plan is revised or scaled back, or when the Office of the NBTC authorizes the relevant restructuring costs.

3.15 Revenue Recognition

The Office of the NBTC recognizes each type of revenue as follows:

- Revenue from spectrum auctions under Section 41, Paragraph Two, and Section 45, Paragraph Two, of the Act on the Organization of 2010 and its amendments is recognized on an accrual basis, based on the terms of related agreements.

- Revenue from radiocommunications frequency compensation is recognized on an accrual basis.
- Revenue from licensing fees, according to the Radiocommunications Act, is recognized upon license approval.

- Revenue from business licensing fees is recognized on an accrual basis.
- Revenue from the numbering fees is recognized on an accrual basis.
- Revenue from spectrum transfer licensing fees is recognized upon license approval.
- Revenue from application fees is recognized by revenue type upon application approval.
- Revenue from the 1 P.O. radio station is recognized monthly on an accrual basis.
- Revenue from other fees is recognized upon application approval.
- Revenue from interest earned is recognized on a time-proportional basis.
- Other revenues, not specified above, are recognized on an accrual basis.

3.16 Revenue of State Enterprise under Section 84, Paragraph Three

The revenue of a state enterprise under Section 84, Paragraph Three of the Act on the Organization of 2010 and its amendments stipulates that, after three years from the effective date of the Act, the revenue derived from licensing, concessions, or contracts, according to Paragraph Two, involving private sector participation with the state, whether wholly or partly, shall be offset by business licensing fees. These fees are calculated based on the income earned from such licensing, concession, or contract activities, minus expenses incurred in fulfilling universal telecommunications service obligations and social services, as outlined in Section 50. Only the income generated from licensing, concessions, or contracts, and the expenses incurred in operations under those activities, as prescribed by the Ministry of Finance, shall be considered. The remaining surplus shall be transferred to the Office of the NBTC. Accordingly, the Office of the NBTC shall allocate this revenue as public revenue.

3.17 Revenue from Service Provision on Behalf of the State

Revenue from service provision on behalf of the state is considered revenue under Section 7 of the Notification of the NBTC on Provisional Measures for Consumer Protection in cases of Termination of Licensing, Concession, or Contracts for Mobile Service Provision, B.E. 2556 (2013).

During the protection period, service providers shall act as the service fee payees on behalf of the state by maintaining a dedicated receipt account and reporting income and profit, after deducting network costs, telecommunications numbering fees, administrative costs, and other necessary operating expenses. The Office of the NBTC shall audit the surplus before forwarding it as public revenue.

Note 3 - Significant Accounting Policy Summary (Continued)

3.18 Foreign Currency Transactions

Foreign currency transactions are initially recorded in Thai Baht by converting the foreign currency amounts using the exchange rates on the transaction dates. At the end of the reporting period, monetary items in foreign currencies are converted into Thai Baht at the closing exchange rate. For non-monetary items in foreign currencies recorded at historical cost or fair value, the agency reports them using the exchange rates on the transaction date or the exchange rates at the valuation date for fair value determination.

3.19 Contributions to Support Education, Research, and Development

Contributions to support education, research, and development are recognized as expenses once approval is granted to eligible individuals. Any remaining funds returned within the fiscal year will be deducted from the contributions. If the funds are returned after the disbursement period, they will be recorded as returned revenue from contributions to support education, research, and development, and will be classified as other non-operating revenues. These criteria shall apply to similar cases.

3.20 Operating Expenses of the BTFP

The operating expenses of the Broadcasting and Telecommunications Fund for Public Interest (BTFP) include assets for BTFP operations, human resources costs, committee meeting allowances, public relations expenses, meeting administration costs, operational supplies, utility bills, and other related expenditures. The Office of the NBTC disburses these funds in accordance with the BTFP regulations.

Note 4 - Financial Reporting of Non-legal Entity Working Capital

The Office of the NBTC has allocated working capital to one non-legal entity, the Broadcasting and Telecommunications Fund for Public Interest (BTFP), established under the Act on the Organization of 2010 and its amendments, with the following objectives:

- (1) To ensure that the public receives comprehensive broadcasting, television, and telecommunications services, as well as to promote communities and support community service operators.
- (2) To promote and support the development of communication resources, research, and development related to broadcasting, television, and telecommunications services, including technology media literacy about spectrum utilization, information technology, and assistive technologies for persons with disabilities, the elderly, and the underprivileged, as well as for the telecommunication industry and its continuous development.
- (3) To promote and support personnel development in broadcasting, television, telecommunications, and information technology sectors, including the operations of organizations responsible for establishing professional ethics standards in accordance with laws related to broadcasting and television business operations.
- (4) To support, promote, and protect consumers in the broadcasting, television, and telecommunications sectors.
- (5) To ensure compliance with the law regarding the Safe and Creative Media Development Fund through the appropriation of the BTFP fund for that purpose.
- (6) To support efficient spectrum utilization and facilitate spectrum reclamation for reallocation, including compensation and remuneration for such reclamation, to ensure optimal efficiency.

Note 4 - Financial Reporting of Non-legal Entity Working Capital (Continued)

The formulation of policies, regulations, and operations to achieve the objectives of the revolving fund, as well as the preparation of the BTFP's accounts and financial reports, are the responsibilities of the Broadcasting and Telecommunications Fund for Public Interest Management Committee (BTFP Management Committee). The committee is also responsible for preparing accounts and financial reports in accordance with public sector accounting standards and policies set by the Ministry of Finance, as well as public sector accounting principles and policies, and presenting items in the financial statements according to the accounting practices related to formats for financial statement preparation of government agencies, as specified in the official letter of the Comptroller General's Department, No. MF 0410.2/C.479 dated October 2, 2020.

The BTFP's financial statements that are not included in this financial statement are described as follows:

4.1 The Statement of Financial Position as of December 31, 2024

	(Unit: Million Baht)	
	2024	2023
Assets		
Current Assets		
Cash and Cash Equivalents	9,741.54	11,479.27
Accrued Contribution Revenue to the Broadcasting and Television Fund	122.16	122.95
Accrued Contribution Revenue to the Telecommunications Fund	8,027.60	7,786.09
Accrued Bank Deposit Interest	461.98	381.39
Office Debtors	29.50	3.68
Short-Term Investments	49,740.91	45,240.91
Accrued Revenue from Spectrum Reallocation Due Portion	4,533.34	-
Other Accrued Incomes	-	42.93
Other Current Assets	90.36	107.87
Total Current Assets	72,747.39	65,165.09
Non-Current Assets		
Accrued Income from Spectrum Reallocation	22,645.01	27,178.35
Net Property and Equipment	0.19	3.84
Net Infrastructure Assets	2,618.99	4,150.56
Net Intangible Assets	227.64	359.96
Total Non-Current Assets	25,491.83	31,692.71
Total Assets	98,239.22	96,857.80

Note 4 - Financial Reporting of Non-legal Entity Working Capital (Continued)

(Unit: Million Baht)

	2024	2023
Liabilities and Net Assets/Equity		
Liabilities		
Current Liabilities		
Short-term Creditors	4,121.06	5,799.84
Deferred Remittance to the Ministry of Finance	-	101.06
Compensation Payable for Recalled Spectrum	514.92	-
Other Current Liabilities	5.18	3.06
Total Current Liabilities	4,641.16	5,903.96
Non-Current Liabilities		
Long-term Creditors	2,731.90	3,246.82
Deferred Contribution Income to the Fund	26,579.26	31,117.03
Long-term Deposits	15.72	23.40
Other Non-Current Liabilities	8.75	8.75
Total Non-Current Liabilities	29,335.63	34,396.00
Total Liabilities	33,976.79	40,299.96
Net Assets/Equity		
Capital	2,926.32	2,926.32
Revenue Greater than Accumulated Expenses	61,336.11	53,631.52
Total Net Assets/Equity	64,262.43	56,557.84
Total Liabilities and Net Assets/Equity	98,239.22	96,857.80

Note 4 - Financial Reporting of Non-legal Entity Working Capital (Continued)

4.2 Financial Performance Statement as of December 31, 2024

(Unit: Million Baht)

	2024	2023
Revenues		
Contribution Revenue Allocated from the Office of the NBTC	500.00	1,000.00
Contribution Revenue to the Broadcasting and Television Fund	121.56	123.45
Contribution Revenue to the Telecommunications Fund	12,470.55	13,178.30
Contribution Revenue from the Digital TV Spectrum Auction	-	254.53
Contribution Revenue from the Refarming Spectrum Auction Fund	-	4.34
Bank Deposit Interest Income	1,239.56	671.81
Administrative Fine Income	4.20	218.28
Other Income	242.71	46.35
Total Revenues	14,578.58	15,497.06
Expenses		
Expenses for Supporting and Promoting the Fund's Missions	667.38	1,068.70
Expenses from Contributions by Licensees to be used According to the USO Plan	4,342.75	5,426.06
Expenses for Supporting the Public in the Digital TV Transition	-	157.31
Other Expenses	3.80	173.41
Depreciation and Amortization	1,860.06	1,849.25
Total Expenses	6,873.99	8,674.73
Net Surplus of Revenues over Expenses	7,704.59	6,822.33

4.3 Statement of Changes in Net Assets/Equity for the Year Ended December 31, 2024

(Unit: Million Baht)

	Capital	Cumulative Surplus (Deficit)	Total Net Assets/Equity
Balance as of December 31, 2022	2,926.32	46,809.19	49,735.51
Changes in Net Assets/Equity 2023			
Surplus of Revenues over Expenses for the Period	-	6,822.33	6,822.33
Closing Balance as of December 31, 2023	2,926.32	53,631.52	56,557.84
Balance as of December 31, 2023	2,926.32	53,631.52	56,557.84
Changes in Net Assets/Equity 2024			
Surplus of Revenues over Expenses for the Period	-	7,704.59	7,704.59
Closing Balance as of December 31, 2024	2,926.32	61,336.11	64,262.43

Note 5 - Cash and Cash Equivalents

(Unit: Million Baht)

	2024	2023
Petty Cash	0.50	0.50
Deferred Checks	1.04	0.23
Financial Institutions Deposits		
Current Account Deposits	147.75	222.44
Saving Account Deposits	9,244.29	8,537.41
Fixed Account Deposits with less than 3-month maturity	18.79	635.03
Total Cash and Cash Equivalents	9,412.37	9,395.61
Cash and Cash Equivalents include:		
Cash and Cash Equivalents of Revenue under Section 65 (1) - (2)	3,794.99	3,996.74
Cash and Cash Equivalents of Revenue under Section 65 (3) - (5)	6.65	102.94
Cash and Cash Equivalents of Guarantee Deposits, and Others	5,610.73	5,295.93
Total Cash and Cash Equivalents	9,412.37	9,395.61

Fixed deposits with banks maturing within three months from the deposit date, as of December 31, 2024, carried interest rates ranging from 1.25 percent - 2.10 percent per annum (in 2023, the rates ranged from 0.95 percent - 2.40 percent).

Note 6 - Short-Term Investments

(Unit: Million Baht)

	2024	2023
Time Deposit Accounts with a Maturity of 3 - 12 Months	-	0.39
Total Short-term Investments	-	0.39
Short-term investments include:		
Short-term Investment from Deposits	-	0.39
Total Short-term Investments	-	0.39

Fixed deposits with banks maturing with a 3 to 12-month maturity from the deposit date to December 31, 2024, with interest rates ranging from 1.25 percent - 2.15 percent per year (During 2023, the rates ranged from 1.00 percent - 2.50 percent).

Note 7 - Fee Receivables

(Unit: Million Baht)

	2024	2023
Radio Frequency Remuneration Receivables	12.08	11.77
Numbering Fee Receivables	806.31	806.63
Business Licensing Fee Receivables	84.89	84.67
Debtors	29.70	29.74
Total	932.98	932.81
<u>Subtract</u> Allowances for Doubtful Accounts	(914.82)	(913.98)
Total Fee Receivables	18.16	18.83

To analyze the aging of accrued debts, all types of fee receivables of the Office of the NBTC are categorized by aging periods, as follows:

(Unit: Million Baht)

	2024	2023
Outstanding Debt less than 180 days	12.68	12.09
Outstanding Debt more than 180 days but not exceeding 365 days	0.06	0.81
Outstanding Debt more than 365 days but not exceeding 730 days	0.48	1.54
Outstanding Debt more than 730 days	20.80	21.47
Debts under Legal Dispute	898.96	896.90
Total	932.98	932.81

The numbering fee receivables as of December 31, 2024, and 2023, were 806.31 and 806.63 million baht, respectively. They included the numbering fee receivables from True Move Company Limited (True Move) for the period from March 1, 2014, to December 31, 2015, totaling 647.29 million baht, plus an additional 141.13 million baht, amounting to a total of 788.42 million baht. True Move has not remitted the numbering fees to the Office of the NBTC, citing the need to comply with the Notification of the NBTC on Provisional Measures for Consumer Protection, in Case of Termination of Licensing, Concession, or Contracts of Mobile Service Provision, B.E. 2556 (2013) (Provisional Measures for Consumer Protection). These measures prohibit the use of inactive numbers, resulting in a telecommunications numbering fee burden.

However, since these fees can be recognized as deductible costs to be subtracted from service revenue, True Move requested that the Office of the NBTC exempt all telecommunications numbering fees from September 16, 2013 (the date of contract termination). Furthermore, the company requested a refund of the total numbering fee amount of 190.97 million baht paid to the NBTC from September 16, 2013, to February 28, 2014.

Subsequently, at the 12th National Telecommunications Commission (NTC) meeting held on May 7, 2014, the committee denied True Move's request for exemption from the numbering fee. Additionally, at the 26th NTC meeting of 2014, held on October 14, 2014, the committee resolved that the Office should pursue legal action.

On August 31, 2015, the Office of the NBTC filed a lawsuit with the Administrative Court against True Move, as in Undecided Case 490/2016, which has been in the process of fact-finding and specifying an end date by the Court. Meanwhile, the Office of the NBTC also became the defendant for the offense related to claims for damages arising from operations under the Provisional Measures for Consumer Protection, as the expenses incurred exceeded the plaintiff's revenue. The case also involves a claim for the refund of the paid-up numbering fee, according to Undecided Case 2013/2015, with a monetary claim of 16,265.06 million baht with a 7.5 percent annual interest rate.

Note 7 - Fee Receivables (Continued)

According to the Administrative Court's order, the following cases were consolidated: Undecided Cases 1712/2016, 2392/2018, 490/2016, and 1228/2016, with Undecided Case 2013/2015 designated as the main case. The Office of the NBTC filed an appeal on August 23, 2023. Subsequently, on April 23, 2024, the Office of the Supreme Administrative Court forwarded a copy of the appeal rebuttal and supporting evidence for acknowledgment.

Note 8 – Accrued Revenues

(Unit: Million Baht)

	2024	2023
Current Portion		
Accrued Revenue from the 900 MHz Spectrum Auction	20,331.71	20,331.71
Accrued Revenue from Business Licensing Fees	4,252.27	4,467.70
Accrued Revenue from the 700 MHz Spectrum Auction	7,387.71	11,150.69
Accrued Revenue from the 2600 MHz Spectrum Auction	6,008.14	-
Accrued Revenue from Geostationary Satellite Orbital Slot Utilization Fee Receivable	2.05	-
Total Current Portion	37,981.88	35,950.10
Non-Current Portion		
Accrued Revenue from the 900 MHz Spectrum Auction	8,145.70	28,477.41
Accrued Revenue from the 700 MHz Spectrum Auction	59,516.39	66,904.10
Accrued Revenue from the 2600 MHz Spectrum Auction	30,040.70	36,048.84
Accrued Revenue from the Geostationary Satellite Orbital Slot Utilization Fee Receivable	776.66	776.66
Total Non-Current Portion	98,479.45	132,207.01
Total Accrued Revenue	136,461.33	168,157.11

The accrued revenue from the 900 MHz spectrum auction as of December 31, 2024, and 2023 was 28,477.41 and 48,809.12 million Baht, respectively. The licensee submitted letters of guarantee from commercial banks, in accordance with the Financial Institution Business Act, B.E. 2551 (2008), to secure the payments for the remaining installments. These are recognized as accrued revenue from the spectrum auction, under the NBTC Notification. However, pursuant to Section 6, Paragraph Two of the Order of the Head of the National Council for Peace and Order (NCPO) No. 4/2562, dated April 11, 2019, which addresses the resolution for issues in the television and telecommunication industries, the Office of the NBTC is instructed to consider restructuring the 900 MHz payment into ten equal installments. The first installment shall begin either as instructed or from the year the license was granted.

The accrued revenue from the 700 MHz spectrum auction as of December 31, 2024, and 2023 was 66,904.10 and 78,054.79 million baht, respectively. The licensee submitted the guarantee deposits on December 31, 2022, totaling 6,666.67 million baht, along with letters of guarantee from commercial banks, according to the Financial Institution Business Act, B.E. 2551 (2008), to secure the payments for the remaining installments. These are recognized as accrued revenue from the spectrum auction, under the Notification of the NBTC. However, under the Notification of the NBTC on Criteria and Procedures for Spectrum Licensing for the International Mobile Telecommunications in the 700 MHz, 1800 MHz, 2600 MHz, and 26 GHz the Office of the NBTC is instructed to divide the 700 MHz payment into ten equal installments. The first installment shall begin as instructed or from the year the license was granted.

Note 8 – Accrued Revenues (Continued)

The accrued revenue from the 2600 MHz spectrum auction as of December 31, 2024, and 2023 was 36,048.84 and 36,048.84 million baht, respectively. The licensee submitted letters of guarantee from commercial banks, in accordance with the Financial Institution Business Act, B.E. 2551 (2008), to secure the payments for the remaining installments, recognized as accrued revenue from the spectrum auction, pursuant to the NBTC Notification. However, under the Notification of the NBTC on Criteria and Procedures for Spectrum Licensing for the International Mobile Telecommunications in the 700 MHz, 1800 MHz, 2600 MHz, and 26 GHz the Office of the NBTC is instructed to divide the 2600 MHz payment into seven equal installments, from the second to the seventh installment.

The accrued revenue from the satellite orbital slot access as of December 31, 2024, and 2023 was 778.71 and 776.66 million baht, respectively. The licensees submitted letters of guarantee from commercial banks, in accordance with the Financial Institution Business Act, B.E. 2551 (2008), to secure the payments for the remaining installments, recognized as accrued revenue from the spectrum auction, pursuant to the Notification of the NBTC. However, under the Notification of the NBTC on the Licensing Criteria and Procedures for Satellite Orbital Slot Access in Packages, the Office of the NBTC is instructed to divide the entire auction payment into three equal installments. The first installment is ten percent of the total payment, the second is forty percent, and the third is fifty percent.

The accrued revenues from business licensing fees as of December 31, 2024, and 2023, were 4,252.27 and 4,467.70 million baht, respectively. These accrued revenues refer to the income collected from operators, calculated using the progressive rate based on the operating income of telecommunications businesses type 1 - 3, in accordance with the Notification of the National Broadcasting and Telecommunications Commission on Telecommunications Business Licensing Fees. This also include revenue from broadcasting or television operations, as specified in the Notification of the National Broadcasting and Telecommunications Commission on Broadcasting Business Licensing Fees, as well as revenue from satellite business operations, under the Notification of the NBTC on Licensing Criteria and Procedures for Using Foreign Satellite Orbital Slots for Domestic Service Provision. Operators are required to pay the licensing fees within 150 days after the end of their accounting period.

Note 9 – Prepaid Expenses

(Unit: Million Baht)

	2024	2023
Prepaid Land Rental	16.96	16.92
Other Prepaid Expenses	28.39	34.59
Total Prepaid Expenses	45.35	51.51



Note 10 – Other Current Assets

(Unit: Million Baht)

	2024	2023
Pending Input Tax	11.03	20.95
Advance Receivables	0.08	0.18
Accrued Interests	1.56	2.00
Advance Payment	172.44	172.21
Other Current Assets	11.00	11.55
Total Other Current Asset	196.11	206.89

(Unit: Million Baht)

Loan Receivable	Undue Balance	Overdue Balance not Exceeding 15 days	Overdue Balance Exceeding 15 days	Total
2024	0.01	0.07	-	0.08
2023	0.18	-	-	0.18

Note 11 - Bank Deposits with Obligations

(Unit: Million Baht)

	2024	2023
Special Savings	513.97	510.19
Total Bank Deposits with Obligations	513.97	510.19

The bank deposits with obligations as of December 31, 2024, and 2023, totaling 513.97 and 510.19 million baht, respectively, are bank deposits with a commercial bank. These deposits include an obligation for the Office of the NBTC to retain 500.00 million baht as collateral for employee housing loans. The remaining balances as of December 31, 2024, and 2023, amounting to 13.97 and 10.19 million baht, respectively, represent accrued interest receivable at the end of each reporting period.

Special savings accounts as of December 31, 2024, carry interest rates ranging from 0.75 percent - 2.00 percent annually (During 2023, rates ranged from 0.75 percent - 1.45 percent).

Note 12 – Long-Term Investments

(Unit: Million Baht)

	2024	2023
Fixed Deposits with maturities over 12 months	372.74	370.18
Total Long-Term Investments	372.74	370.18

Fixed deposits maturing over 12 months from the deposit date, as of December 31, 2024, carried interest rates ranging from 0.75 percent - 1.15 percent per annum (During 2023, rates ranged from 0.90 percent - 0.95 percent).

Note 13 – Net Building and Equipment

(Unit: Million Baht)

December 31, 2024

Item	Buildings and Improvement	Electric Appliances and Radios	Computers	Vehicles and Transports	Office Supplies and Others.	Total
Cost Price						
Opening Balance	1,060.96	2,851.55	859.19	256.82	472.78	5,501.30
Increase During the Period	73.73	30.46	69.39	-	16.53	190.11
Decrease During the Period	(3.27)	(61.98)	(21.61)	(0.07)	(12.79)	(99.72)
Increase (Decrease) Reclassification Transfer	(0.62)	0.13	(0.02)	-	0.51	-
Closing Balance	1,130.80	2,820.16	906.95	256.75	477.03	5,591.69
Subtract Cumulative Depreciation						
Opening Balance	825.20	2,367.43	805.35	193.55	371.12	4,562.65
Increase During the Period	29.95	160.78	42.70	9.80	28.73	271.96
Decrease During the Period	(3.42)	(61.94)	(21.61)	(0.07)	(12.48)	(99.52)
Increase (Decrease) Reclassification Transfer	0.03	-	-	-	(0.03)	-
Closing Balance	851.76	2,466.27	826.44	203.28	387.34	4,735.09
Work in Progress						
Work in Progress at Closing Balance	1,577.74	-	-	-	-	1,577.74
Book Value						
As of December 31, 2023	1,813.68	484.12	54.69	63.27	101.66	2,517.42
As of December 31, 2024	1,856.78	353.89	80.51	53.47	89.69	2,434.34

Note 13 – Net Building and Equipment (Continued)

(Unit: Million Baht)

December 31, 2023

Item	Buildings and Improvement	Electric Appliances and Radios	Computers	Vehicles and Transports	Office Supplies and Others.	Total
Cost Price						
Opening Balance	1,049.78	2,720.42	879.54	247.27	428.12	5,325.13
Increase During the Period	15.07	161.17	37.22	9.55	59.96	282.97
Decrease During the Period	(3.89)	(30.04)	(57.57)	-	(15.30)	(106.80)
Closing Balance	1,060.96	2,851.55	859.19	256.82	472.78	5,501.30
Subtract Cumulative Depreciation						
Opening Balance	784.80	2,208.60	815.48	182.74	364.75	4,356.37
Increase During the Period	42.39	188.35	44.70	10.81	21.53	307.78
Decrease During the Period	(1.99)	(29.52)	(54.83)	-	(15.16)	(101.50)
Closing Balance	825.20	2,367.43	805.35	193.55	371.12	4,562.65
Work in Progress						
Work in Progress at Closing Balance	1,577.92	-	0.85	-	-	1,578.77
Book Value						
As of December 31, 2023	1,539.92	514.32	67.98	64.53	64.45	2,251.20
As of December 31, 2024	1,813.68	484.12	54.69	63.27	101.66	2,517.42

Note 14 – Net Financial Lease Assets

(Unit: Million Baht)

December 31, 2024

	Computers	Vehicles and Transports	Total
Cost Price			
Opening Balance	269.44	137.67	407.11
Increase during the Period	15.67	102.79	118.46
Decrease during the Period	(105.09)	(59.84)	(164.93)
Closing Balance	180.02	180.62	360.64
Subtract Accumulated Depreciation			
Opening Balance	175.06	81.65	256.71
Increase during the Period	55.45	30.07	85.52
Decrease during the Period	(105.09)	(59.84)	(164.93)
Closing Balance	125.42	51.88	177.30
Book Value			
As of December 31, 2023	94.38	56.02	150.40
As of December 31, 2024	54.60	128.74	183.34

December 31, 2023

	Computers	Vehicles and Transports	Total
Cost Price			
Opening Balance	230.39	121.37	351.76
Increase during the Period	39.63	42.24	81.87
Decrease during the Period	(0.58)	(25.94)	(26.52)
Closing Balance	269.44	137.67	407.11
Subtract Accumulated Depreciation			
Opening Balance	108.40	80.26	188.66
Increase during the Period	67.24	27.33	94.57
Decrease during the Period	(0.58)	(25.94)	(26.52)
Closing Balance	175.06	81.65	256.71
Book Value			
As of December 31, 2022	121.99	41.11	163.10
As of December 31, 2023	94.38	56.02	150.40

Note 15 – Net Intangible Assets

(Unit: Million Baht)

	2024	2023
Cost Price		
Opening Balance	2,304.42	2,109.89
Increase during the Period	112.11	239.43
Decrease during the Period	(3.48)	(44.90)
Increase (Decrease) Reclassification Transfer	-	-
Closing Balance	2,413.05	2,304.42
Subtract Cumulative Depreciation		
Opening Balance	1,931.33	1,759.13
Increase during the Period	215.03	212.44
Decrease during the Period	(3.49)	(40.24)
Increase (Decrease) Reclassification Transfer	-	-
Closing Balance	2,142.87	1,931.33
Work in Progress		
Work in Progress at Closing Balance	20.61	52.16
Book Value	290.79	425.25

Note 16 – Creditors and Notes Payable

(Unit: Million Baht)

	2024	2023
Creditors	104.53	230.43
Paychecks	122.51	182.92
Total Creditors and Notes Payable	227.04	413.35

Note 17 – Deferred Incomes

(Unit: Million Baht)

	2024	2023
Deferred Radiocommunications Frequency Compensation	76.77	78.33
Deferred Numbering Fees	10.60	10.16
Others	16.16	16.02
Total Deferred Revenues	103.53	104.51

Note 18 - Provisions for Employee Benefits

Pension Benefit Plan

According to the NBTC Regulation on Employee's Pension and Welfare after Retirement, B.E. 2555 (2012), the Office of the NBTC is required to provide compensation to retirees, employees who are forced or mandatory leave without guilt, or those who have died, provided they have worked for the organization for at least one year. It also applies to employees who have worked for the organization for at least three years and wish to resign without guilt, as well as to the authorized appointing person or those approved by the authorized person for their resignations. Such employees shall receive pension amounts calculated by multiplying the number of years of service by their last drawn monthly salary.

If any employee is injured, becomes ill, or is assaulted in the course of their duties, they are entitled to receive a special gratuity in addition to their regular pension, amounting to 24 times their last monthly salary. In the event of death prior to receiving the gratuity, the amount increases to 30 times their monthly salary at the time of death.

The Office of the NBTC maintains the pension fund account as a source of funding for employees' pensions and post-retirement benefits. This fund comprises the initial allocation of funds from the annual expenditure budget, additional allocations from the same source, interest earned on the pension fund, and other income sources. If the pension fund is insufficient to pay eligible employees, the Office of the NBTC will reimburse the employees' pension from the Office of the NBTC's Central Budget to ensure full disbursement in that year.

The present value of the employee benefit provisions payable is as follows:

(Unit: Million Baht)

	2024	2023
Current Provisions for Employee Benefits	43.76	50.67
Non-Current Provisions for Employee Benefits	1,721.52	1,570.16
Present Value of Provisions for Employee Benefits	1,765.28	1,620.83

Changes in the present value of the provisions for employee benefits as of December 31 are as follows:

(Unit: Million Baht)

	2024	2023
Opening Balance of Provisions for Employee Benefits	1,620.83	1,253.29
Current Service Cost	151.21	111.72
Historical Service Cost	-	-
Net Interest of Net Provisions for Employee Benefits	43.96	38.92
Total	195.17	150.64
Actuarial Gains	-	277.08
Total	1,816.00	1,681.01
Paid Employee Benefits	(50.72)	(60.18)
Closing Balance of Provisions for Employee Benefits	1,765.28	1,620.83

Note 18 - Provisions for Employee Benefits (Continued)

Actuarial Gains, as of December 31 are as follows:

(Unit: Million Baht)

	2024	2023
Experience Changes	-	134.80
Financial Assumption Changes	-	142.28
Demographic Assumption Changes	-	-
Total	-	277.08

Main Assumptions for actuarial gains and losses are as follows:

Main Assumptions	Age Range	Percentage per Annum
1. Discount Rate		1.98 - 4.22
2. Inflation Rate		2.0
3. Salary Increase Rate	Less than 40 years	8.0
	From 40 to less than 55 years	6.0
	From 55 years and above	4.0
4. Employee Turnover Rate	Less than 30 years	2.5
	From 30 to less than 55 years	0.5
	From 55 years and above	0.0
5. Mortality Rate	The assumptions regarding the future mortality rate are based on the Thai Mortality Ordinary Table 2017 (TMO 2017), with a rate revision of 3.0 percent per year.	

Sensitivity of Main Assumptions

Changes in each primary assumption related to actuarial analysis may reasonably occur at the end of the reporting period. The results of the assumption sensitivity analysis and the impact of the defined benefit plan obligations as of December 31 are as follows:

Impact on the Defined Benefit Plan Obligations					
Changes in Assumptions		Increase in Assumptions		Decrease in Assumptions	
Percentage		Million Baht		Million Baht	
		2024	2023	2024	2023
Discount Rate	1.00	(203.41)	(189.91)	243.97	228.32
Expected Salary Increase Rate	1.00	254.24	220.18	(215.66)	(187.50)
Employee Turnover Rate	20.00	(4.63)	(2.95)	4.67	2.98
Revision of Mortality Rate	1.00	0.87	0.54	(0.96)	(0.60)

Note 18 - Provisions for Employee Benefits (Continued)

Risks associated with the benefit program, under the projected unit credit method, include deviations between actual and assumed salary rates, employee turnover rate, and mortality rate. For example, if the actual salary increase rate is higher than expected or the employee turnover rate is lower than anticipated, it may impact actuarial losses. Additionally, the current economic situation can influence the discount rate, making it higher or lower, as it is used to measure the fair value of liabilities. However, this benefit project does not pose specific risks to the organization or investment risks, as it does not involve the establishment of funds.

The analysis of employee benefit payment maturity, excluding the discount rate, since 2023, is presented below.

	Current Portion	Portion more than 1 year, but not exceeding 3 years	Portion exceeding 3 years	Total
	Million Baht	Million Baht	Million Baht	Million Baht
As of December 31, 2024				
Provisions for Employee Benefits	43.76	148.29	7,584.28	7,776.33
Total	43.76	148.29	7,584.28	7,776.33

Note 19 – Deferred Public Revenue to the Treasury

(Unit: Million Baht)

	Opening Balance	Transactions during the Period		Closing Balance
	As of January 1, 2024	Accrued Remittance Increase (Decrease)	Remittance	As of December 31, 2024
Current Portion				
Fines	5.08	9.28	(5.08)	9.28
Revenue from the 700 MHz Spectrum Auction	8,512.72	8,440.35	(8,514.14)	8,438.93
Revenue from the 900 MHz Spectrum Auction	18,449.26	18,466.11	(18,449.26)	18,466.11
Revenue from the 1800 MHz Spectrum Auction	0.31	0.42	(0.31)	0.42
Revenue from the Digital TV Spectrum Auction	14.90	24.06	(14.90)	24.06
Revenue from the 2600 MHz Spectrum Auction	0.23	923.18	-	923.41
Revenue from the 26 GHz Spectrum Auction	1.26	-	(0.06)	1.20
Revenue from Satellite Orbital Slot Usage Fees	0.29	-	(0.29)	-
Revenue from the Premium Number Auction	0.21	0.33	(0.21)	0.33
Revenue from the 1 Por Nor Radio Station	0.90	96.99	(97.89)	-
Remittance as Public Revenue 2022	2,085.79	2,365.42	(2,087.10)	2,364.11
Total Current Portion	29,070.95	30,326.14	(29,169.24)	30,227.85
Non-Current Portion				
Revenue from the 700 MHz Spectrum Auction	51,662.47	(8,427.11)	-	43,235.36
Revenue from the 900 MHz Spectrum Auction	28,136.96	(18,430.64)	-	9,706.32
Revenue from the 2600 MHz Spectrum Auction	5,539.02	(923.17)	-	4,615.85
Revenue from Satellite Orbital Slot Usage Fee	725.85	-	-	725.85
Total Non-Current Portion	86,064.30	(27,780.92)	-	58,283.38
Total Deferred Public Revenue to the Treasury	115,135.25	2,545.22	(29,169.24)	88,511.23

Note 19 – Deferred Public Revenue to the Treasury (Continued)

(Unit: Million Baht)

	Opening Balance	Transactions during the Period		Closing Balance
	As of January 1, 2023	Accrued Remittance Increase (Decrease)	Remittance	As of December 31, 2023
Current Portion				
Fines	3.08	5.08	(3.08)	5.08
Revenue from the 700 MHz Spectrum Auction	8,450.73	8,512.72	(8,450.73)	8,512.72
Revenue from the 900 MHz Spectrum Auction	18,434.42	18,449.26	(18,434.42)	18,449.26
Revenue from the 1800 MHz Spectrum Auction	1.10	0.31	(1.10)	0.31
Revenue from the Digital TV Spectrum Auction	4.96	14.90	(4.96)	14.90
Revenue from the 2600 MHz Spectrum Auction	6.10	0.23	(6.10)	0.23
Revenue from the 26 GHz Spectrum Auction	32.17	1.26	(32.17)	1.26
Revenue from Satellite Orbital Slot Usage Fees	2.00	45.07	(46.78)	0.29
Revenue from the Premium Number Auction	0.07	0.21	(0.07)	0.21
Revenue from the 1 Por Nor Radio Station	4.59	0.90	(4.59)	0.90
Remittance as Public Revenue 2022	1,609.49	2,085.79	(1,609.49)	2,085.79
Total Current Portion	28,548.71	29,115.73	(28,593.49)	29,070.95
Non-Current Portion				
Revenue from the 700 MHz Spectrum Auction	60,089.58	(8,427.11)	-	51,662.47
Revenue from the 900 MHz Spectrum Auction	46,567.60	(18,430.64)	-	28,136.96
Revenue from the 2600 MHz Spectrum Auction	5,539.02	-	-	5,539.02
Revenue from Satellite Orbital Slot Usage Fees	-	725.85	-	725.85
Total Non-Current Portion	112,196.20	(26,131.90)	-	86,064.30
Total Deferred Public Revenue to the Treasury	140,744.91	2,983.83	(28,593.49)	115,135.25

Note 20 - Deferred Output Tax

(Unit: Million Baht)

	2024	2023
Current Portion		
900 MHz Spectrum Auction - Accrued	1,330.11	1,330.11
700 MHz Spectrum Auction - Accrued	729.48	729.48
2600 MHz Spectrum Auction - Accrued	393.06	-
Business Licenses - Accrued	49.90	49.85
Total Current Portion	2,502.55	2,109.44
Non-Current Portion		
900 MHz Spectrum Auction - Accrued	532.90	1,863.01
700 MHz Spectrum Auction - Accrued	3,647.42	4,376.91
2600 MHz Spectrum Auction - Accrued	1,965.28	2,358.33
Satellite Orbital Slot Usage Fees - Accrued	50.80	50.81
Total Non-Current Portion	6,196.40	8,649.06
Total Deferred Output Tax	8,698.95	10,758.50

Note 21 – Contributions to the Digital Economy and Society Development Fund

(Unit: Million Baht)

	Opening Balance	Transactions during the Period		Closing Balance
	As of January 1, 2024	Accrued Remittance Increase (Decrease)	Remittance	As of December 31, 2024
Revenue from Section 65	115.56	1,169.25	(1,184.39)	100.42
700 MHz Spectrum Auction	334.49	334.49	(334.49)	334.49
900 MHz Spectrum Auction	570.96	570.96	(570.96)	570.96
2600 MHz Spectrum Auction	-	162.91	-	162.91
Total Current Portion	1,021.01	2,237.61	(2,089.84)	1,168.78
700 MHz Spectrum Auction	2,006.93	(334.49)	-	1,672.44
900 MHz Spectrum Auction	2,283.84	(570.96)	-	1,712.88
2600 MHz Spectrum Auction	977.47	(162.91)	-	814.56
Total Non-Current Portion	5,268.24	(1,068.36)	-	4,199.88
Total Contributions to Digital Economy and Society Development Fund	6,289.25	1,169.25	(2,089.84)	5,368.66

Note 21 – Contributions to the Digital Economy and Society Development Fund (Continued)

(Unit: Million Baht)

	Opening Balance	Transactions during the Period		Closing Balance
	As of January 1, 2023	Accrued Remittance Increase (Decrease)	Remittance	As of December 31, 2023
Revenue from Section 65	105.87	1,206.42	(1,196.73)	115.56
700 MHz Spectrum Auction	334.49	334.49	(334.49)	334.49
900 MHz Spectrum Auction	570.96	570.96	(570.96)	570.96
Total Current Portion	1,011.32	2,111.87	(2,102.18)	1,021.01
700 MHz Spectrum Auction	2,341.42	(334.49)	-	2,006.93
900 MHz Spectrum Auction	2,854.80	(570.96)	-	2,283.84
2600 MHz Spectrum Auction	977.47	-	-	977.47
Total Non-Current Portion	6,173.69	(905.45)	-	5,268.24
Total Contributions to Digital Economy and Society Development Fund	7,185.01	1,206.42	(2,102.18)	6,289.25

In compliance with Section 24 of the Development of Digitality for Economy and Society Act, B.E. 2560 (2017), the contributions to the Digital Economy and Society Development Fund as of December 31, 2024, and 2023 were 5,368.66 and 6,289.25 million baht, respectively. The Office of the NBTC has allocated the budget at a rate of 15 percent of the revenue from spectrum allocation, effective from January 25, 2017, onwards.

Note 22 – Deferred Revenue from Spectrum Reclamation to the BTFP

(Unit: Million Baht)

	2024	2023
Current Portion of Deferred Revenue from Spectrum Refarming to the BTFP	4,533.34	-
Deferred Revenue from Spectrum Refarming to the BTFP	22,645.01	27,178.35
Total Deferred Revenue from Spectrum Reclamation to the BTFP	27,178.35	27,178.35

The deferred revenue from spectrum reclamation to the BTFP, as of December 31, 2024, and December 31, 2023, totaling 27,178.35 for both years, represents the amount to be remitted to the BTFP based on the spectrum refarming ratio. This is to facilitate spectrum reallocation in accordance with the Notification of the NBTC on Criteria and Procedures for Spectrum Licensing for International Mobile Telecommunications in the 700 MHz, 1800 MHz, 2600 MHz, and 26 GHz Bands. The BTFP shall disburse the fund to those affected by spectrum refarming as compensation, reimbursement, or remuneration, in accordance with the Act on the Organization, B.E. 2553 (2010), and its amendments.

The Office of the NBTC has allocated the 2600 MHz spectrum band that was recovered for reallocation, based on the specified ratio to be remitted to the BTFP for 30,174.34 million baht. The first installment was allocated to the BTFP in 2020 for 3,000.33 million baht. The remaining six installments, totaling 27,174.01 million baht, will be allocated to the BTFP after the Office of the NBTC receives payments from the spectrum licensees between 2025 and 2030.

Note 23 - Net Finance Lease Payable

(Unit: Million Baht)

As of December 31, 2024

	Not exceeding 1 year	1 – 5 years	Total
Aggregate Amount of Minimum Lease Payments	73.82	126.31	200.13
Interest of Deferred Financial Lease	(5.40)	(5.39)	(10.79)
Present Value of Total Minimum Lease Liability	68.42	120.92	189.34

(Unit: Million Baht)

As of December 31, 2023

	Not exceeding 1 year	1 – 5 years	Total
Aggregate Amount of Minimum Lease Payments	77.87	89.25	167.12
Interest of Deferred Financial Lease	(5.58)	(4.42)	(10.00)
Present Value of Total Minimum Lease Liability	72.29	84.83	157.12

Changes in financial lease liabilities for the year are as follows:

(Unit: Million Baht)

	2024	2023
Opening Balance as of January 1	157.12	163.33
Increase in Financial Lease Liabilities	126.89	89.54
Reimbursement of Financial Lease Liabilities	(93.89)	(96.94)
Changes in Deferred Interest on Financial Lease	(0.78)	1.19
Closing Balance as of December 31	189.34	157.12

Note 24 – Other Current Liabilities

(Unit: Million Baht)

	2024	2023
Accrued Expenses	976.74	721.41
Accrued Withholding Tax	2.30	2.40
Revenue Department Payable	167.50	255.67
Other Current Liabilities	0.07	3.33
Total Other Current Liabilities	1,146.61	982.81

Note 25 – Funds Received under Provisional Protection Measures

Funds received under provisional protection measures as of December 31, 2023, and 2024, totaling 603.81 million baht each, represented revenue from service provision on behalf of the state in 2019. This revenue, amounting to a total of 603.81 million baht, originated from the minimum revenue remittance for mobile service provision on the 1800 MHz and 850 MHz spectrum bands during the consumer protection period, according to the Notification of the NBTC on Provisional Measures for Consumer Protection, in Cases of Termination of License, Concession, or Contracts of Mobile Service Provision, B.E. 2556 (2013).

According to Section 7 of the Notification, it designates the service providers as the payees of the service provision revenue on behalf of the state during the protection period. This is achieved by specifically separating the receipt account and reporting the revenue amount, along with its profit after deducting the interconnection cost, the telecommunication numbering fee, administrative costs, and other necessary operating expenses. Then, the surplus shall be submitted to the Office of the NBTC for auditing before being forwarded as public revenue. In this regard, the service providers have refused to comply with the Office of the NBTC's order to submit such revenue, as outlined in Undecided Case No. 642/2021 and Undecided Case No. 648/2020. Subsequently, the public prosecutor submitted an objection to the testimony to the Central Administrative Court on March 3, 2022.

Such revenue from service provision on behalf of the state, totaling 603.81 million baht, was entirely remitted as public revenue in 2019 by the Office of the NBTC, as shown in the remittance to the Ministry of Finance under the provisional protection measures.

Note 26 - Other Non-Current Liabilities

(Unit: Million Baht)

	2024	2023
Contract Guarantee Deposits	71.37	58.33
Performance Guarantee Deposits	5.74	5.96
Damage Guarantee Deposits	2.96	2.95
Spectrum License Guarantee Deposits	6.67	0.45
Deposit of the Monument Construction Costs	-	0.39
Total Other Non-Current Liabilities	86.74	68.08

Reclassification of comparative figures in the 2023 financial statements was made to align with the classification and presentation in the 2024 financial statements, in accordance with the reporting format for government agency financial reports, to ensure comparability. Details are as follows:

	As previously reported	Reclassified	Revised
Financial Position Statement for the Year Ended December 31, 2023			
Spectrum Auction Payment Guarantee Deposits	0.45	-	(0.45)
Other Current Liabilities	67.63	68.08	0.45

Note 27 - Revenue from Spectrum Auction and Satellite Orbital Slot Access

(Unit: Million Baht)

	2024	2023
Revenue from FM Spectrum Auction	-	-
Revenue from Satellite Orbital Slot Usage Fee	2.33	806.50
Total Revenues from the Spectrum Auction and the Satellite Orbital Slot Access	2.33	806.50

Note 28 – Revenue from License Application and Licensing Fees

(Unit: Million Baht)

	2024	2023
Revenue from License Application Fees	7.20	8.75
Revenue from Radiocommunications Frequency Compensation	299.96	280.57
Revenue from Telecommunications Business Licensing Fees	4,204.62	4,417.99
Revenue from Broadcasting Business Licensing Fees	12.93	0.36
Revenue from Television Business Licensing Fees	136.71	140.80
Revenue from Drone Business Licensing Fees	7.49	5.03
Revenue from Satellite Business Licensing Fees	2.07	8.60
Revenue from Licensing Fees under Section 70	2.15	2.85
Revenue from Other Fees – Telecommunications Business	0.04	-
Revenue from Other Fees – Broadcasting and Television Businesses	0.42	1.48
Revenue From Total Revenues from License Application and Licensing Fees	4,673.59	4,866.43

Note 29 - Revenue from Numbering Fees

(Unit: Million Baht)

	2024	2023
Revenue from Numbering Fees	3,121.43	3,176.37
Revenue from the Premium Number Auction	67.27	-
Total Revenues from Numbering Fees	3,188.70	3,176.37

Note 30 – Other Revenues

(Unit: Million Baht)

	2024	2023
Net Profit from Disposal of Assets	0.59	14.08
Interest Earned	141.51	113.61
Other Revenues	47.73	90.18
Total Other Revenues	189.83	217.87

Note 31 – Compensation, Reimbursement, or Remuneration to the Television Operators

(Unit: Million Baht)

	2024	2023
MUX Compensation	1,525.43	1,532.16
Total Compensation, Reimbursement, or Remuneration to the Television Operators	1,525.43	1,532.16

Note 32 – Expenses of Remittance to the Treasury

(Unit: Million Baht)

	2024	2023
Remittance from the 900 MHz Spectrum Auction	35.47	18.62
Remittance from the 1800 MHz Spectrum Auction	0.43	0.31
Remittance from the Digital TV Spectrum Auction	24.06	14.90
Remittance from the Premium Number Auction	0.33	0.21
Remittance from the 700 MHz Spectrum Auction	13.24	85.61
Remittance from the 2600 MHz Spectrum Auction	-	0.23
Remittance from the 26 GHz Spectrum Auction	-	1.26
Remittance from Satellite Orbital Slot Usage Fees	-	770.92
Total Expenses of Remittance to the Treasury	73.53	892.06

Note 33 – Spectrum Auction and Reclamation Expenses

(Unit: Million Baht)

	2024	2023
Expenses Allocated to the BTFP from the Auction of Reclaimed Spectrum	-	0.98
Premium Number Auction Operating Expenses	2.78	-
Satellite Auction Operating Expenses	-	18.29
Total Spectrum Auction and Reclamation Expenses	2.78	19.27

Note 34 - Expenses by the Judgment of the Supreme Administrative Court

(Unit: Million Baht)

	2024	2023
Expenses by the Judgment of the Supreme Administrative Court	-	6.75
Total Expenses by the Judgment of the Supreme Administrative Court	-	6.75

The expense determined by the Supreme Administrative Court as of December 31, 2023, amounting to 6.75 million baht, pertains to the judgment for the Undecided Case No. 413/2015 and the Decided Case No. 1213/2022. This amount relates to a violation involving noncompliance with the mobile number portability provision.

Note 35 - Human Resources Expenses

(Unit: Million Baht)

	2024	2023
Employee Payroll	1,529.20	1,316.49
Special Remuneration	296.58	253.18
Monthly Remuneration	75.27	63.59
Medical Expenses	310.10	255.71
Welfares	31.61	31.86
Provident Fund	129.94	118.93
Total Human Resources Expense	2,372.70	2,039.76

Note 36 – Pension

(Unit: Million Baht)

	2024	2023
Pension	195.16	427.72
Medical Expenses	5.16	3.84
Total Pension	200.32	431.56

Note 37 – Remuneration

(Unit: Million Baht)

	2024	2023
NBTC Remuneration	25.15	25.37
Meeting Allowance	32.45	32.17
Other Remunerations	114.32	97.27
Total Remunerations	171.92	154.81

Reclassification of comparative figures in the 2023 financial statements was made to align with the classification and presentation in the 2024 financial statements, in accordance with the reporting format for government agency financial reports, to ensure comparability. Details are as follows:

	As previously reported	Reclassified	Revised
Financial Performance Statement for the Year			
Ended December 31, 2023			
Human Resources Expenses	2,162.40	2,039.76	(122.64)
Remunerations	32.17	154.81	122.64

Note 38 – General and Administrative Expenses

(Unit: Million Baht)

	2024	2023
Domestic Travel Expenses	43.97	44.02
Rentals	160.67	144.79
Maintenance Fees	272.80	306.33
Contract Service Fees	153.32	157.87
Entertainment Allowance	6.36	5.95
Formality Fees	3.64	4.60
Taxes and Charges	27.11	16.62
Training and Seminar Expenses	91.02	73.31
Public Relations Expenses	111.01	138.88
Meeting Administrative Expenses	41.28	63.74
Radiocommunications Calibration Expenses	19.00	4.89
Consultant Hiring Fees	164.34	212.78
Money for Donations and Charities	2.23	2.14
Miscellaneous	2.94	7.67
International Travel Expenses	67.81	85.21
Total General and Administrative Expenses	1,167.50	1,268.80

Note 39 - Material Expenses

(Unit: Million Baht)

	2024	2023
Material Costs	30.56	32.05
Equipment Costs below the Threshold	3.53	3.73
Total Material Expenses	34.09	35.78

Note 40 – Utility Expenses

(Unit: Million Baht)

	2024	2023
Electricity Charges	42.70	45.80
Water Supply Charges	1.18	1.30
Office Telephone Charges	1.26	1.85
Mobile Phone Usage Charges	19.26	21.10
DSTV Cable TV Service Charges	0.06	0.07
Internet Charges	19.29	19.17
Postage Fee	2.59	2.34
Total Utility Expenses	86.34	91.63

Note 41 – Depreciation and Amortization

(Unit: Million Baht)

	2024	2023
Depreciation – Buildings and Improvements	29.95	42.39
Depreciation - Electric Appliances and Radios	158.93	188.35
Depreciation – Computers	42.70	44.70
Depreciation - Vehicles and Transports	9.80	10.81
Depreciation – Office Supplies and Others	28.12	21.53
Depreciation – Financial Lease	85.53	94.57
Total Depreciation	355.03	402.35
Amortization – Computer Programs	215.02	212.44
Total Amortization	215.02	212.44
Total Depreciation and Amortization	570.05	614.79

Note 42 - Financial Support for Education, Research and Development in Broadcasting, Television, and Telecommunications Businesses

(Unit: Million Baht)

	2024	2023
Financial Support for Education, Research, and Development	112.03	230.10
Scholarship Support Expenses	4.99	3.20
Total Financial Support for Education, Research and Development in Broadcasting, Television, and Telecommunications Businesses	117.02	233.30

Note 43 – Other Expenses

(Unit: Million Baht)

	2024	2023
Losses from Asset Disposal	-	16.21
Bad Debts and Doubtful Debts	27.42	2.22
Total Other Expenses	27.42	18.43

Note 44 – Significant Disputes and Litigations

1. The significant disputes and litigations filed by the Office of the NBTC as the plaintiff, totaling 13,301.88 million baht, can be divided into two groups as follows:

1.1 Cases in which the Office of the NBTC won and is entitled to compensation under the Supreme Administrative Court’s rulings, totaling 329.35 million baht, including:

1.1.1 The Office of the NBTC was the plaintiff in a case concerning a breach of lease of the 98.5 MHz radio station, seeking compensation under Undecided Case No. 9278/2015 (related to Undecided Case No. 4800/2010, and Decided Case No. 4067/2011), totaling 44.30 million baht. The debtor’s assets are currently being investigated for legal enforcement.

Note 44 – Significant Disputes and Litigations (Continued)

1.1.2 The Office of the NBTC filed a case for the breach of lease of the 1 Por Nor radio station and claimed compensation, according to Undecided Case No. 17794/2014 (related to Undecided Case No. 6024/2009, and Decided Case No. 1935/2011), totaling 80.70 million baht. The case has reached the 10-year statute of limitations for legal enforcement and is pending write-off.

1.1.3 The Office of the NBTC sued for a breach of a radiocommunications device rental agreement under Undecided Case No. 3759/2021 (Decided Case No. 4524/2021), involving a capital amount of 8.18 million baht. Asset investigation is ongoing.

1.1.4 The Office of the NBTC was the plaintiff in a case involving overdue payment of annual licensing fees under Undecided Case No. 2730/2019 (Decided Case No. 1550/2020), totaling 34.77 million baht. The case is currently under review by the Supreme Court.

1.1.5 The Office of the NBTC filed a case involving overdue payment of annual licensing fees under Undecided Case No. 2731/2019 (Decided Case No. 4952/2019), totaling 142.18 million baht. An asset investigation is in progress for legal enforcement purposes.

1.1.6 The Office of the NBTC pursued payment of broadcasting annual licensing fees under Undecided Case No. 4609/2023 (Decided Case No. 6364/2023), totaling 19.22 million baht. Debtor's assets are currently under investigation for legal enforcement.

1.2 Cases in which the Office of the NBTC won and is entitled to collect compensation from the defendants under the Supreme Administrative Court's ruling, totaling 12,972.53 million baht, including:

1.2.1 The Office of the NBTC was the plaintiff in cases concerning revenue remittance from mobile service provision on the 1800 MHz during the consumer protection period, which began with the enactment of the Provisional Measures for Consumer Protection in Cases of Termination of Licensing, Concession, or Contracts for Mobile Service Provision, B.E. 2556 (2013), and lasted until the end of the mobile service period on the 1800 MHz. These include Undecided Case No. 1228/2016, totaling 3,637.64 million baht, and Undecided Case No. 490/2016, totaling 878.38 million baht.

Additionally, the Office of the NBTC was the defendant in Undecided Case Nos. 2013/2015, 1712/2016, and 2392/2018, along with 490/2016, which were consolidated by the Court's order, with Undecided Case No. 2013/2015 designated as the main case. An amended appeal was filed on April 9, 2024. Later, on April 23, 2024, the Office of the Supreme Administrative Court sent a copy of the amended appeal, along with supporting evidence, for acknowledgment.

Furthermore, in Undecided Case No. 1441/2016, involving a total amount of 950.56 million baht, the Office of the NBTC was the defendant in Undecided Case No. 1997/2015 and 2399/2018, which were consolidated by the Court's order, with Undecided Case No. 1997/2015 as the main case. An amended appeal was filed on April 28, 2022. Subsequently, on January 5, 2023, the Office of the Supreme Administrative Court forwarded a copy of the plaintiff's amended appeal, dated December 28, 2022, for acknowledgment.

1.2.2 The Office of the NBTC was the plaintiff in a dispute concerning the resolution passed during the 5th NBTC meeting of 2020, held on March 25, 2020, under agenda item 5.2.15. This resolution approved the defendant's remittance of revenue from mobile service provision on the 850 MHz and 1800 MHz spectrum bands during the consumer protection period, starting from the effective date of the Provisional Measures for Consumer Protection, as per Undecided Case No. 642/2021, with a capital amount of 143.71 million baht. Subsequently, on June 28, 2024, the respondent submitted a statement of facts regarding their status, along with an additional statement of facts.

1.2.3 The Office of the NBTC was the plaintiff in a case concerning the legal grounds for demanding remittance of revenue from mobile phone services provided over the 900 MHz during the provisional consumer protection period under the Notification of the NBTC on the Provisional Measures for Consumer Protection, in Cases of Termination of Licensing, Concessions, or Contracts of Mobile Service Provision, B.E. 2556 (2013), and its amendments. The case is outlined in Undecided Cases Nos. 175-176/2020 (Undecided Cases Nos. 661/2017, 736/2017, and Decided Cases Nos. 802-803/2020), totaling 7,331.22 million baht with interest, as requested in the closing petition.

Subsequently, on October 10, 2024, the Office of the NBTC submitted a letter to the Administrative Court Office and the Office of the Attorney General stating that there are no additional facts to be presented to the Supreme Administrative Court and expressing no desire for a hearing to be held.

Note 44 – Significant Disputes and Litigations (Continued)

1.2.4 The Office of the NBTC serves as plaintiff in litigation proceedings for the collection of annual broadcasting license fees under Undecided Case No. 3163/2023 (Decided Case No. 2537/2024) with a claim value of 11.40 million baht. The Civil Court ruled in favor of the Office of the NBTC, ordering the defendant to pay the outstanding amount plus accrued interest and legal costs. Asset investigation procedures are currently underway to facilitate the enforcement of judgments.

1.2.5 The Office of the NBTC serves as plaintiff in bankruptcy proceedings under Decided Case No. 5682/2024 with a claim value of 19.62 million baht. The debtor entity was petitioned into bankruptcy by other creditors, and asset investigation procedures are currently underway to facilitate the execution of debt recovery.

2. Significant disputes and litigations in which the Office of the NBTC is the defendant, totaling 63,702.88 million baht, can be divided into four groups as follows:

2.1 Cases lost by the Office of the NBTC - compensation must be paid to the plaintiff under the Supreme Administrative Court's rulings, totaling 36,385.64 million baht, including:

2.1.1 The Office of the NBTC was the defendant in an administrative contract dispute under Undecided Case No. 701/2017 (Undecided Case No. 1370/2015 and Decided Case No. 1911/2017), totaling 9.32 million baht. The case is currently under review by the Supreme Court.

2.1.2 The Office of the NBTC was the defendant in a tort case involving an act committed by an administrative agency or a government official. The dispute arose from the issuance of regulations under the Notification of the NBTC on Provisional Measures for Consumer Protection in Cases of Termination of Licensing, Concession, or Contracts of Mobile Service Provision, B.E. 2556 (2013), and the Notification of the NBTC on Provisional Consumer Protection in Case of Termination of Licensing or Concession, under NCPO Order No. 94/2557, which suspended actions under laws relating to spectrum allocation and the regulation of broadcasting, television, and telecommunications. The case requested that the defendants be jointly or severally liable for 4,254.49 million baht, plus interest, to the plaintiff, under Undecided Case No. 1203/2022 (referencing Undecided Case No. 1651/2015 and Decided Case No. 729/2022). An appeal was filed and accepted by the Supreme Administrative Court on July 18, 2022. An appeal amended was submitted to the Supreme Administrative Court on February 2, 2023.

2.1.3 The Office of the NBTC was the defendant in a case involving a claim for damages resulting from actions taken under the Notification of the NBTC on Provisional Measures for Consumer Protection in Case of Termination of Licensing, Concession, or Contracts of Mobile Service Provision B.E. 2556 (2013). The plaintiff claimed that their expenses exceeded their income, and requested a refund of 190.97 million baht in telecommunication numbering fees already paid. This claim is based on Undecided Case No. 2013/2015, totaling 16,265.06 million baht plus 7.5 percent annual interest, and Undecided Case No. 1712/2016, totaling 709.65 million baht plus interest as stated in the complaint.

The Administrative Court ordered the consolidation of Undecided Cases Nos. 1712/2016, 2392/2018, 490/2016, and 1228/2016, designating Undecided Case No. 2013/2015 as the main case. The response to the appeal is being prepared and must be submitted by January 15, 2024. An amended appeal was filed on April 9, 2024. Subsequently, on April 23, 2024, the Office of the Supreme Administrative Court sent a copy of the amended appeal along with supporting evidence for acknowledgment.

2.1.4 The Office of the NBTC was the defendant in a dispute concerning revenue and expenses during the provisional consumer protection period under the Notification of the NBTC on Provisional Measures for Consumer Protection in Cases of Termination of Licensing, Concession, or Contracts of Mobile Service Provision, B.E. 2556 (2013), and the Notification of the NBTC on Provisional Consumer Protection in Cases of Termination of Licensing, Concession under NCPO Order No. 94/2014, regarding the suspension of legal actions related to spectrum allocation and the regulation of broadcasting, television, and telecommunications. The case is detailed in Undecided Case No. 347/2023 (including the Trial Court's Undecided Case No. 741/2016 and Decided Case No. 2686/2022). The total amount involved is 1,881.45 million baht plus 7.5 percent annual interest. An amended appeal was submitted on June 30, 2023.

2.1.5 The Office of the NBTC was the defendant in a case involving compensation for the use of telecommunications equipment and networks during the provisional consumer protection period under the Notification of the NBTC on Provisional Measures for Consumer Protection in Cases of Termination of Licensing, Concession, or Contracts of Mobile Service Provision, B.E. 2556 (2013). The case is outlined in Undecided Case No. 1229/2022 (related to Undecided Case No. 918/2015 and Decided Case No. 730/2022), totaling 5,365.84 million baht plus interest. An amended appeal was filed on December 20, 2022.

Note 44 – Significant Disputes and Litigations (Continued)

2.1.6 The Office of the NBTC was the defendant in a dispute regarding the resolution of the 20th NBTC meeting of 2028, held on October 31, 2018. This resolution approved the criteria and results for determining the plaintiff's network usage fees for providing mobile phone service on the 900 MHz during the provisional consumer protection period under the Notification of the NBTC on Provisional Measures for Consumer Protection in Cases of Termination of Licensing, Concession, or Contracts of Mobile Service Provision, B.E. 2556 (2013). The case is described in Undecided Case No. 1775/2019, totaling 5,564.87 million baht. The Administrative Court received the defendant's testimony on October 25, 2021.

2.1.7 The Office of the NBTC was the defendant in a dispute regarding a petition to revoke resolutions from the NBTC meetings of the 6th/2018, 19th/2018, 9th/2022, 17th/2022, 22nd/2022, 29th/2022, 35th/2022, and 14th/2023, as well as to annul the Notification of the NBTC on Standards for Calculating MUX Compensation Rates for Digital Terrestrial Television. Additionally, the plaintiff requested that the court order the defendant to pay damages under Undecided Case No. 2033/2023, totaling 2,289.10 million baht. The Central Administrative Court is currently reviewing the case.

2.1.8 The Office of the NBTC was the defendant in a dispute involving unlawful acts committed by administrative agencies or state officials, including tortious acts resulting from a failure to perform duties as required by law. The case is outlined in Undecided Case No. 265/2024, amounting to 45.86 million baht. The Central Administrative Court is currently reviewing the case.

2.2 Cases lost - compensation must be paid by the BTFP to the plaintiffs under the Supreme Administrative Court's ruling, totaling 20,779.80 million baht, including:

2.2.1 The Office of the NBTC was the defendant in the dispute concerning a resolution passed during the 10th NBTC meeting in 2020, held on June 10, 2020. Agenda item 5.3.6 involved the consideration of the notification confirming the details and proportion of compensation or remuneration for the recall of the 2500 – 2690 MHz from MCOT Public Company Limited. The resolution set the spectrum holding period for the plaintiff at approximately six years and five months and determined that the method of installment payments for compensation, restitution, or remuneration was unlawful, inappropriate, and unfair. The case is described in Undecided Case No. 2239/2020, with a capital amount of 4,990.70 million baht. The court has scheduled December 20, 2024, as the deadline for fact-finding.

2.2.2 The Office of the NBTC was the defendant in a dispute concerning the resolution at the 10th NBTC meeting of 2020, held on June 10, 2020, under agenda item 5.3.6, which involved the consideration of the notification confirming the details and amount of compensation or remuneration for the recall of the 2500 – 2690 MHz spectrum bands. The case is referenced as Undecided Case No. 2229/2020, involving a total of 17,543.96 million baht, plus the interest claimed in the complaint. The Central Administrative Court provided a copy of the plaintiff's statement for acknowledgment on March 22, 2024.

2.3 Cases lost - money must be refunded to the plaintiff under the Supreme Administrative Court's ruling, totaling 79.59 million baht, including:

2.3.1 The Office of the NBTC was the defendant in a case seeking to revoke the NBTC's resolution mandating fee payments for renewing experimental radio operations. This case is referenced as Undecided Case No. 195/2019, totaling 42.59 million baht. Additional testimony was submitted. The Central Administrative Court is currently reviewing the case.

2.3.2 The Office of the NBTC was the defendant in the case involving an unlawful order or regulation that established the payment terms for a spectrum auction and the return of letters of guarantee. This case is referenced as Undecided Case No. 1942/2019, totaling 27.00 million baht. The court is currently reviewing the case.

2.3.3 The Office of the NBTC was the defendant in the case regarding the consideration and ruling on the plaintiff's complaint involving a request for service usage data, including detailed records of the plaintiff's mobile data usage by period and application, as amended. The case is referenced as Undecided Case No. 565/2024, totaling 10.00 million baht. The plaintiff submitted a statement addressing only the additional claims raised in the amended petition on October 31, 2024.

2.4 Cases in which the losing parties cannot collect money from the plaintiffs, according to the Supreme Administrative Court's ruling, involve a capital amount of 4,702.99 million baht, including:

2.4.1 The Office of the NBTC was the defendant in a case seeking to revoke the NBTC's meeting resolution and to order the repayment of revenue from service provision under the Notification of the NBTC on Provisional Measures for Consumer Protection in Cases of Termination of Licensing, Concession, or Contracts of Mobile Service Provision, B.E. 2556 (2013), as referenced in Undecided Case No. 2392/2018, totaling 2,311.97 million baht, plus accrued interest.

Note 44 – Significant Disputes and Litigations (Continued)

Additionally, the administrative order issued under the NBTC's meeting resolution should be revoked. The decision of the working group responsible for reviewing income, along with the Office of the NBTC's assessment of the plaintiff's income and expenses from service delivery under the Notification of the NBTC on Provisional Measures for Consumer Protection in Cases of Termination of Licensing, Concession, or Contracts of Mobile Service Provision, B.E. 2556 (2013), and the second amendment, should also be annulled. The Administrative Court ordered the consolidation of Undecided Cases Nos. 1712/2016, 2392/2018, 490/2016, and 1228/2016, with Undecided Case No. 2013/2015 designated as the main case. An amended appeal was filed on April 9, 2024. Subsequently, on April 23, 2024, the Office of the Supreme Administrative Court sent a copy of the amended appeal, along with supporting evidence, for acknowledgment.

2.4.2 The Office of the NBTC was the defendant in a case involving the order to remit revenue from service provision under the Notification of the NBTC on Provisional Measures for Consumer Protection in Cases of Termination of Licensing, Concession, or Contracts of Mobile Service Provision, B.E. 2556 (2013). The cases included Undecided Cases Nos. 749-751/2022 (including Nos. 1997/2015, 1441/2016, and 2399/2018) and Decided Cases Nos. 526-528/2022 in the Central Administrative Court, with a capital amount of 950.56 million baht, as well as Undecided Case No. 2399/2018, with a capital of 241.88 million baht. On January 5, 2023, the Office of the Supreme Administrative Court sent a copy of the plaintiff's amended appeal dated December 28, 2022, for acknowledgment.

2.4.3 The Office of the NBTC was the defendant in a case involving a resolution and/or order to pay an administrative fine of 1,239,538.88 baht per day due to violation or failure to comply with the Notification of the NTC on the Mobile Number Portability Criteria and guidelines on mobile operator transfers. This is referenced in Undecided Cases Nos. 1995/2020 and 1361/2017, totaling 79.33 million baht. The Administrative Court ordered the case to be consolidated with Undecided Case No. 1995/2020. On December 12, 2023, the Central Administrative Court approved the merger and authorized the substituted plaintiff in the case.

2.4.4 The Office of the NBTC was the defendant in a case involving a resolution and/or order to pay an administrative fine of 5,400,591.64 baht per day for violations or failure to comply with the Notification of the NTC on Mobile Number Portability Criteria and the guidelines on mobile operator transfers. This is referenced in Undecided Cases Nos. 306/2020 (1283/2015) and 307/2020 (1357/2017), totaling 221.42 million baht. The Supreme Administrative Court is currently determining the end date for the fact-finding process.

2.4.5 The Office of the NBTC was the defendant in a dispute concerning the NBTC resolutions passed at the 5th NBTC meeting of 2020, held on March 25, 2020, and the 9th NBTC meeting of 2020, held on May 17, 2020. These resolutions adjudicated the appeal against the order determining the deadline for the administrative fine in cases where the plaintiff failed to comply with the Notification of the NTC on Mobile Number Portability Criteria and the related guidelines on mobile operator transfers under the Notification of the NTC on Mobile Number Portability Criteria. The case is outlined in Undecided Case No. 2212/2020, with a capital amount of 604.87 million baht. This includes Undecided Case No. 306/2020 (1283/2015), in which additional testimony was filed on March 2, 2022, and Undecided Case No. 307/2020 (1357/2017), involving a capital amount of 221.42 million baht. On November 26, 2024, the Supreme Administrative Court issued a notice ordering the submission of a counter-appeal, with the deadline for submission set on December 29, 2024.

2.4.6 The Office of the NBTC was the defendant in a dispute concerning the NBTC resolution passed at the 5th NBTC meeting of 2020, held on March 25, 2020, under agenda item 5.2.15. This resolution approved the remittance of the revenue from mobile service provision on the 850 MHz and 1800 MHz, during the consumer protection period, starting from the effective date of the Provisional Measures for Consumer Protection. The case is referenced as Undecided Case No. 648/2020, with a capital amount of 132.80 million baht. On March 3, 2022, the public prosecutor submitted an objection to the testimony to the Central Administrative Court.

2.4.7 The Office of the NBTC was the defendant in a case involving an administrative fine of 186,669 baht (one hundred eighty-six thousand, six hundred sixty-nine baht) per day, starting from May 16, 2014, due to noncompliance with the Notification of the NBTC on the Maximum Rate of the Telecommunications Service Fee for Domestic Mobile Voice Service, B.E. 2555 (2012).

Note 44 – Significant Disputes and Litigations (Continued)

The plaintiff also requested the revocation of the following: 1) the Administrative Act of the Secretary-General of the NBTC, as outlined in the NBTC official letter No. 5012/22962, dated July 17, 2014; 2) the resolution under agenda item 5.2.4 from the 15th NBTC meeting of 2020, held on August 26, 2020; and 3) the Administrative Act in the NBTC official letter No. 2402/29488, dated September 28, 2020. The case is referenced as Undecided Case No. 2927/2020, involving a capital amount of 86.56 million baht. Additional testimony was submitted on September 19, 2022.

2.4.8 The Office of the NBTC was the defendant in a case involving an administrative fine of 157,947 baht (one hundred fifty-seven thousand, nine hundred forty-seven baht) per day, starting from May 16, 2014, due to noncompliance with the Notification of the NBTC on the Maximum Rate of the Telecommunications Service Fee for Domestic Mobile Voice Service, B.E. 2555 (2012).

The plaintiff also requested the revocation of the following: 1) the Administrative Act of the Secretary-General of the NBTC, as stated in the NBTC official letter No. 5012/22961, dated July 17, 2014; 2) the resolution under agenda item 5.2.4 from the 15th NBTC meeting of 2020, held on August 26, 2020; and 3) the Administrative Act under the NBTC official letter No. 2402/29489, dated September 28, 2020. This case is referenced as Undecided Case No. 2922/2020, with a capital amount of 73.60 million baht. Additional testimony was submitted on January 19, 2022.

2.4.9 The Office of the NBTC was the defendant in a case involving a request to revoke Appendix B and Clause 9.7 of the Satellite Orbital Slot Usage Rights Management Plan (B.E. 2563) (2020), which was attached to the Notification of the NBTC on the Satellite Orbital Slot Usage Rights Management Plan (B.E. 2563) (2020). The case also involved a request to revoke Section 40 of the Notification of the NBTC on Licensing Criteria and Procedures for Satellite Orbital Slot Usage Rights, as well as a request for the defendant to exercise its authority to amend the notification to account for orbital slot usage rights lawfully granted to the plaintiff before the notification issuance (Undecided Case No. 1389/2020).

Additionally, the case involved a request to revoke the resolution from the 10th meeting of 2021, held on May 25, 2021, agenda item 5.2.11, specifically regarding the access rights to the satellite orbital slots of Thaicom 7 and Thaicom 8, and to preserve the plaintiff's access to these orbital slots for Thaicom 7 and Thaicom 8 during the originally authorized period. Furthermore, this includes the defendant's resolution in the 11th meeting of 2021, held on June 9, 2021, agenda item 5.2.4, also related to Thaicom 7 and Thaicom 8, under Undecided Case No. 1386/2021.

The Administrative Court ordered the consolidation of these cases, with Undecided Case No. 1389/2020 designated as the main case. On March 6, 2024, the Central Administrative Court issued a judgment, which is currently under appeal by the Supreme Administrative Court.

Note 45 – Events after the Reporting Period

In 2024, the Office of the NBTC has been operating under the licensing criteria and procedures for spectrum use in telecommunications businesses related to the merger between True Move H Universal Communication Company Limited (TUC) and Dtac TriNet Company Limited (DTN), which took legal effect on August 3, 2023. However, at the 5th NBTC special meeting of 2022, held on October 20, 2022, the NBTC resolved by majority vote to acknowledge the merger between True Corporation Public Company Limited (TRUE) and Total Access Communication Public Company Limited (DTAC), consider points of concern, and approve specific conditions and measures regarding spectrum holdings and infrastructure sharing, as follows:

1. Regarding spectrum holdings, TUC and DTN must strictly adhere to the laws governing spectrum use for telecommunications operations (pursuant to Section 41, Paragraph Four, Sections 44/1 and 44/3 of the Act on Organization, B.E. 2553 (2010) and its amendments).

2. Regarding infrastructure sharing, TUC and DTN shall allow other licensees to lease the telecommunications networks to provide telecommunication services and must fully comply with the relevant regulations governing the use of telecommunications infrastructure as prescribed by the NBTC.

Note 46 – Obligations

- Outsourcing Service Contract Obligations

The Office of the NBTC had outsourcing service contract obligations for public relations and various maintenance services, totaling 52.50 million baht (as of 2023, totaling 48.69 million baht).

- Capital Expenditure Obligations

(Unit: Million Baht)

	2024	2023
Non-accredited Contracts		
Land, Building, and Structure	1,233.60	1,228.46
Equipment and Others	370.83	278.17
Total	1,604.43	1,506.63

- Procurement Contract and Other Services Obligations

The Office of the NBTC had the obligations under procurement and other service contracts, as of December 31, 2024, and December 31, 2023, categorized by contract duration, as follows:

(Unit: Million Baht)

	2024	2023
Not exceeding 1 year	92.62	140.67
Total	92.62	140.67

- Operational Lease Obligations

The Office of the NBTC had minimum advance payments under lease agreements and noncancellable service contracts, as of December 31, 2024, and December 31, 2023, as follows:

(Unit: Million Baht)

	2024		
	Not exceeding 1 year	1 – 5 Years	Total
Leases			
Space Rentals	9.14	0.58	9.72
Property Rentals	37.09	106.38	143.47
Total Obligations	46.23	106.96	153.19

(Unit: Million Baht)

	2023		
	Not exceeding 1 year	1 – 5 Years	Total
Leases			
Space Rentals	17.98	-	17.98
Property Rentals	45.87	54.07	99.94
Land Rental	63.85	54.07	117.92
Total Obligations	17.98	-	17.98

Note 47 - Public Revenue Report

The public revenue report is a separate document, accompanying the financial statements, and is considered an integral part of the financial statement notes.

Office of the National Broadcasting and Telecommunications Commission
Expenditure Budget Position Report
As of December 31, 2024

Expenditure Budget Position Report for the Fiscal Year 2024

(Unit: Million Baht)

Items	Net Budget after Transferred Change	Purchase Order/ Contract	Disbursement	Balance
1. Expenditure Budget	4,702.696	430.653	3,957.358	314.686
1.1 Operating Expenses of the NBTC and the Office of the NBTC	4,195.780	189.885	3,806.968	198.927
1.2 Project Expenses	326.828	198.738	99.751	28.339
1.3 Central Budget	82.522	-	-	82.522
1.4 Operating Expenses of the Performance Follow-up and Evaluation Committee	97.566	42.030	50.705	4.831
2. Allocated Budget to the Fund	510.000	-	510.000	-
Total	5,212.696	430.653	4,467.425	314.618

Reserved Budget for Overlapping Disbursement Position Report (Before the Fiscal Year 2024)

(Unit: Million Baht)

Items	Reserved Budget for Overlapping Disbursement (Net)	Disbursement	Balance
1. Reserved Budget for Overlapping Disbursement 2022	442.160	83.731	358.428
1.1 Project Expenses	442.160	83.731	358.428
1.2 Central Budget			
2. Reserved Budget for Overlapping Disbursement 2023	758.179	447.537	310.642
2.1 Operating Expenses of the NBTC & the Office of the NBTC	308.959	301.994	6.966
2.2 Project Expenses	414.401	110.875	303.526
2.3 Central Budget	12.676	12.525	0.151
2.4 Operating Expenses of the Performance Follow-up and Evaluation Committee	22.142	22.142	-
Total	1,200.338	531.268	669.070

Expenditure Budget Position Report for the Fiscal Year 2023

(Unit: Million Baht)

Items	Net Budget after Transferred Change	Purchase Order/ Contract	Disbursement	Balance
1. Expenditure Budget	5,261.25	758.18	3,919.44	583.63
1.1 Operating Expenses of the NBTC and the Office of the NBTC	4,132.71	308.96	3,595.43	228.32
1.2 Project Expenses	890.26	414.40	238.19	237.67
1.3 Central Budget	140.82	12.68	14.30	113.84
1.4 Operating Expenses of the Performance Follow-up and Evaluation Committee	97.46	22.14	71.52	3.80
2. Allocated Budget to the Fund	1,010.00	-	1,010.00	-
Total	6,271.25	758.18	4,929.44	583.63

Reserved Budget for Overlapping Disbursement Position Report (Before the Fiscal Year 2023)

(Unit: Million Baht)

Items	Reserved Budget for Overlapping Disbursement (Net)	Disbursement	Balance
1. Reserved Budget for Overlapping Disbursement 2022	782.12	492.22	289.90
1.1 Project Expenses	766.63	476.73	289.90
1.2 Central Budget	15.49	15.49	-
2. Reserved Budget for Overlapping Disbursement 2023	1,361.53	917.16	444.37
2.1 Operating Expenses of the NBTC & the Office of the NBTC	565.75	564.26	1.49
2.2 Project Expenses	736.27	293.52	442.75
2.3 Central Budget	6.06	5.93	0.13
2.4 Operating Expenses of the Performance Follow-up and Evaluation Committee	53.45	53.45	-
Total	2,143.65	1,409.38	734.27

Office of the National Broadcasting and Telecommunications Commission
Public Revenue Report
As of December 31, 2024

(Unit: Million Baht)

	2024	2023
Collected Public Revenue		
Public Revenue – Non-Tax Revenue	2,545.22	2,983.83
Total Collected Public Revenue	2,545.22	2,983.83
<u>Subtract</u> Public Revenue Drawn Back from the Treasury	-	-
Public Revenue Allocated by Law	-	-
Total Net Collected Public Revenue	2,545.22	2,983.83
Deferred Public Revenue to the Treasury at the Beginning of the Period	115,135.25	140,744.91
Public Revenue Remitted to the Treasury	(29,169.24)	(28,593.49)
Deferred Public Revenue to the Treasury	88,511.23	115,135.25
<u>Adjusted</u> Deferred Public Revenue to the Treasury	-	-
Net Public Revenue Transaction	88,511.23	115,135.25

Public Revenue – Non-Tax Revenue

(Unit: Million Baht)

	2024	2023
Fines	9.28	5.08
Revenue from the 900 MHz Spectrum Auction	35.48	18.62
Revenue from the 1800 MHz Spectrum Auction	0.42	0.31
Revenue from the Digital TV Spectrum Auction	24.06	14.90
Revenue from the 700 MHz Spectrum Auction	13.25	85.61
Revenue from the 2600 MHz Spectrum Auction	-	0.23
Revenue from the 26 GHz Spectrum Auction	-	1.26
Revenue from Satellite Orbital Slot Usage Fees	-	770.92
Revenue from Premium Number Auction	0.33	0.21
Revenue from the 1 Por Nor Radio Station	96.98	0.90
Surplus remitted as Public Revenue of 2023	-	2,085.79
Surplus remitted as Public Revenue of 2024	2,365.42	-
Total Public Revenue – Non-Tax Revenue	2,545.22	2,983.83

The office of the NBTC

Internal Audit Assessment Report for Fiscal Year 2024





The Office of the NBTC Internal Audit Assessment Report for Fiscal Year 2024

Pursuant to National Broadcasting and Telecommunications Commission (NBTC) Administrative Order No. 2/2021, as of February 19, 2021, establishing the Internal Audit Committee with Five-Member Composition structured as follows:

(1) Admiral Jeerapat Pansakul	Chairman
(2) Miss Siluk Pannuam	Commissioner Member (resigned)
(3) Rear Admiral Wansuree Boonmee	Commissioner Member
(4) Dr. Anada Pruetti-angkul	Commissioner Member
(5) Mrs. Supa Yaimueng	Commissioner Member

Internal Audit Committee Reconstitution Process: During official tenure, Ms. Siluk Pannuam submitted resignation from Internal Audit Committee membership effective on June 1, 2023. Remaining Committee Members maintained operational continuity pending the NBTC appointment of replacement members pursuant to National Broadcasting and Telecommunications Commission on Internal Audit B.E. 2554 (2011) and subsequent amendments. Following comprehensive selection procedures, The NBTC executed Administrative Order No. 27/2024 as of June 18, 2024, establishing reconstituted Internal Audit Committee with Four-Member Composition structured as follows:

(1) General Phichit Kaewlee	Chairman
(2) Mr. Soravich Boonkwan	Commissioner Member
(3) Police Major General Sittthiphan Phuangphikul	Commissioner Member
(4) Miss Duangrat Phattarathanya	Commissioner Member

Pursuant to Ministry of Finance the Ministry of Finance's Criteria for Internal Control Standards and Practices for Government Agencies B.E. 2018 (2018) and subsequent amendments, Section 13 (9) establishes Annual Audit Committee Performance Reporting Requirements encompassing: Internal Committee Performance Reporting and external public disclosure reporting. The external public disclosure shall be integrated within government agency annual reports or published via official agency website platforms, requiring Audit Committee Chairman Official signature authentication.

The Internal Audit Committee Operational Performance Assessment for Fiscal Year 2024: The Internal Audit Committee executed authority and responsibility functions pursuant to Chapter 3, the Regulations of the National Broadcasting and Telecommunications Commission on Internal Audit, B.E. 2554 (2011) and subsequent amendments, maintaining Operational Independence without External Interference from the NBTC, the Office of the NBTC, or Third-Party Entities, in full compliance with Ministry of Finance Internal Audit Standards and Practice Guidelines for Government Agencies B.E. 2561 (2018) and subsequent amendments, under State Fiscal and Financial Disciplines Act, B.E. 2561 (2018). Section 79 provisions. Committee Operations emphasized Preventive Audit Methodology while delivering strategic development recommendations encompassing: Internal control process efficiency and effectiveness assessment, risk management process evaluation, good governance analysis, integrated risk management system review, anti-corruption complaint handling process assessment, financial reporting accuracy and reliability verification, legal and regulatory compliance monitoring, and systematic risk impact follow-up procedures for the Office of the NBT, promoting systematic governance process implementation and anti-corruption prevention measures.

The Internal Audit Committee Assessment: Based on audit activities, the Committee opines that the Office of the NBTC operations in 2024 demonstrates overall good governance, transparency, efficiency and effectiveness, legal and regulatory compliance, proper budget preparation according to legal requirements, and strategic budget utilization aligned with the Office of the NBTC strategic plans and the key of the NBTC policies. The Risk management and internal controls are adequate with no significant findings. In addition, the financial reporting processes properly comply with Governmental Accounting Standards and Policies B.E. 2561. (2018) as prescribed by the Ministry of Finance, with adequate and reliable financial disclosure following the Comptroller General's Department format requirements.

General

(Phichit Kaewlee)

Chairman of the Internal Audit Committee
Office of the National Broadcasting
and Telecommunications Commission

Executive Summary of Essential Performance Outcomes.

The Internal Audit Committee of the Office of the NBTC of the National Broadcasting and Telecommunications Commission executed its mandated authority, responsibilities, and oversight functions pursuant to Chapter 3 of the Regulations of the National Broadcasting and Telecommunications Commission on Internal Audit, B.E. 2554 (2011), and subsequent amendments.

Throughout fiscal year 2024, the committee convened 13 formal sessions: six sessions conducted under the NBTC Administrative Order No. 2/2021 as of February 19, 2021, and seven sessions conducted under the NBTC Administrative Order No. 27/2024 as of June 18, 2024. Full committee member participation was maintained throughout all sessions, addressing the following substantive governance matters:

1. Development of Internal Audit Committee charter and supporting unit to ensure compliance Ministry of Finance Internal Audit Standards and Practice Guidelines for Government Agencies B.E. 2561 (2018) and subsequent amendments. The Implementation approaches align with the Ministry of Finance charter framework and suit the current organizational environment, with one charter appropriateness review conducted in 2024.

2. A comprehensive review was conducted to assess the accuracy and reliability of the NBTC's financial reports for the fiscal year ending December 31, 2023 and the six-month period ending June 30, 2024. The review encompassed an examination of accounting records and financial statement preparation processes. No material discrepancies were identified that would indicate inaccuracies in the financial statements. The reports comply with Ministry of Finance Internal Audit Standards and Practice Guidelines for Government Agencies B.E. 2561 (2018) and subsequent amendments, as mandated by the Ministry of Finance, and adhere to the financial reporting format for government agencies as specified by the Comptroller General's Department.

3. A comprehensive assessment and evaluation was conducted of the NBTC's financial, accounting, and procurement operations, accompanied by recommendations for operational improvements and enhanced efficiency. The review encompassed several essential areas: verification of trial balances against supporting financial statement details, examination of revenue entries against supporting receipt

documentation, analysis of various accounting records, assessment of budget expenditure request preparation, evaluation of budget administration and transfer procedures, and review of procurement processes and asset management systems. The evaluation covered two distinct periods: June 1 – December 31, 2023, and January 1 – June 1, 2024. In addition, follow-up assessments were conducted to monitor implementation of recommendations from previous internal audit reports.

4. A comprehensive assessment and evaluation was conducted on the efficiency and appropriateness of the NBTC's risk management framework through examination of fraud risk assessment reports dated March 1 – July 1, 2024. The review was conducted in accordance with the Fraud Risk Assessment Guidelines Manual for Fiscal Year 2024, as published by the Office of Public Sector Anti-Corruption Commission (PACC). The assessment scope included evaluation of complaint handling processes for corruption allegations that could materially impact the Office of the NBTC. Moreover, the review encompassed adequacy assessments and continuous monitoring of risk management plan implementation, culminating in strategic recommendations to enhance the effectiveness and efficiency of risk management practices.

5. A comprehensive assessment and evaluation was conducted of the NBTC's internal control assessment, including evaluation of operational efficiency and effectiveness across various bureaus within the organization that served as audit subjects. The assessment revealed no material issues or deficiencies, demonstrating adequate and appropriate internal control mechanisms. The review confirmed consistent compliance with the Ministry of Finance Internal Audit Standards and Practice Guidelines for Government Agencies B.E. 2561 (2018) and subsequent amendments.

6. Operational system audits were executed across multiple functional areas to ensure adherence to corporate governance best practices and regulatory compliance with statutory requirements, administrative regulations, executive directives, and operational standards promulgated by the NBTC. The audit framework facilitated the achievement of strategic objectives through enhanced transparency mechanisms and ensured alignment with the NBTC's institutional policy and regulatory mandate.

7. A comprehensive assessment and evaluation was conducted on six projects of the Office of the NBTC to ensure alignment between project implementation and the organization's vision, mission, strategic plans, and operational strategies. The evaluation included assessment of budget utilization against approved project plans. Overall audit findings revealed no material non-compliance with applicable regulations, internal policies, and contractual agreements. The review was accompanied by strategic recommendations to enhance project development processes, enabling more effective achievement of organizational goals and performance targets.

8. A comprehensive assessment and evaluation was conducted of financial, accounting, procurement, and administrative operations across the regional and district Office of the NBTC. The assessment included monitoring of connectivity infrastructure projects: mobile telecommunications and high-speed internet provision in border territories and border villages, as well as high-speed internet deployment

in remote areas. Operational consultation and advisory services were provided through six field inspection visits to the NBTC district offices, specifically:

- 1) The District Office of the NBTC 11 (SamutPrakan)
- 2) The District Office of the NBTC 21 (Roi Et)
- 3) The District Office of the NBTC 22 (Ubon Ratchathani)
- 4) The District Office of the NBTC 32 (Lamphun)
- 5) The District Office of the NBTC 43 (Nakhon Si Thammarat)
- 6) The District Office of the NBTC 44 (Surat Thani)

The Internal Audit Committee's operations for fiscal year 2024 involved comprehensive oversight, providing transparent observations and guidance to both management and operational teams. Internal audit reports and recommendations were submitted to the NBTC every 180 days to foster mutual understanding of internal audit functions, facilitate awareness of operational challenges and constraints, and deliver consultative advice with beneficial recommendations for enhancing operational process efficiency.



PART 5 POLICIES, OPERATIONAL PLAN, AND EXPENDITURE BUDGET FOR THE YEAR 2025



Strategic Policies and Operational Implementation Plans for 2025 - 2026

1

Universal Basic Telecommunications Service Provision and Social Services (USO).

To mitigate the national digital divide, ensuring equitable internet access for all households across income levels and age groups, including persons with disabilities and disadvantaged populations, encompassing service access in dense urban communities through the selection of appropriate technology for comprehensive target area coverage.

7

FM Radio Broadcasting Service Licensing Implementation and Regulatory Authorization Process.

National Telecommunications Infrastructure Database Integration and Modernization for Comprehensive Geographic Coverage.

To establish a national telecommunications infrastructure database supporting digital infrastructure policy development, regulatory enforcement, and enhanced government and public digital service quality through the Broadcasting, Telecommunications Research and Development Fund for Public Benefit (BTFRP).

2

Digital Audio Broadcasting (DAB) Service Deployment Enhancement Initiative.

To broaden the opportunities for potential radio broadcasting operators by providing pilot testing and digital radio network service provider establishment processes.

8

3

Emergency Warning System Development Enhancement Initiative.

To ensure efficient operation through Inclusive Design principles and integrated emergency notification with law enforcement systems.

9

Broadcasting and Television Service Regulation and Compliance Supervision.

Particularly ensuring content quality and verifiability through technological innovation and stakeholder participation.

Digital Broadcasting Platform Development Promotion.

To ensure universal and equitable access to basic television services for all citizens.

4

Broadcasting and Television Service Regulatory Announcement Implementation Acceleration Initiative.

To achieve tangible results, such as licensee consolidation promotion announcements, community readiness and quality community service promotion announcements, and socially beneficial program production support announcements for broadcasting and television services.

10

5

Legal and Regulatory Framework Development to Align with Rapidly Evolving Digital Landscape.

encompassing implementation mechanism development for efficient proactive regulatory governance and oversight enhancement.

11

Media Ethics Enhancement Initiative for Social Responsibility in Content Production.

Including monitoring and evaluation of thematic and contextual content responses, supporting media self-regulation mechanisms and emerging professional groups under ethical standards through the NBTC collaboration with relevant professional organizations, associations, and communities to promote complaint referral and tracking system development for ethical and legal violations.

Integrated Cooperation with Domestic and International Agencies for Cybercrime Prevention and Suppression (Cyber Security).

Including inter-regulatory policy cooperation development for continuous cybersecurity enhancement and personal data protection.

6

Digital Terrestrial Television (DTT) License Transition Planning for Television Broadcasting Service Continuity beyond 2029 License Expiration.

Including the development of Thailand's Television and Broadcasting Industry Roadmap, enabling relevant operators to plan business strategies and medium-to-long-term investment planning, along with associated legal and regulatory framework development.

12

13

Promoting Public Rights and Freedoms including Persons with Disabilities, Elderly, and Disadvantaged Populations in Information Access, Awareness, and Utilization.

Through broadcasting, television, and telecommunications services, promoting diversity and pluralism in communication across multiple dimensions including ethnicity, disability, gender, socioeconomic class, and culture/disadvantaged community areas, and enhancing Digital Literacy skills and competencies for these populations.

Broadcasting, Television, and Telecommunications Academic Research and Development Capacity Enhancement.

Including future technology-convergent industries and technological evolution, establishing comprehensive good governance foundations through systematic policy and regulatory impact assessment based on evidence-based Policy and Regulation principles, aligned with leading global Regulators.

14

15

Digital Divide Reduction Research targeting Senior Citizens and Youth Population Cohorts.

And addressing educational knowledge gap mitigation between urban and rural student populations, with policy recommendation development for targeted digital divide reduction strategies and implementation frameworks across demographic categories.

International Partnership Development with Multilateral Organizations, International Regulatory Bodies, and Leading Academic Institutions for Enhanced Cooperation and Knowledge Advancement.

Academic knowledge exchange and best practice transfer for the Office of the NBTC on organizational capacity enhancement and implementation.

16

17

National Digital Infrastructure Modernization Support Initiative for Citizen Service Delivery and Multi-Sector Industrial Application Requirements.

National competitiveness enhancement through strategic 3500 MHz spectrum allocation optimization and 5G private network technology deployment across multi-sector industrial applications, concurrent with legal and regulatory framework modernization for advanced technology development support.

Multi-Agency Coordination for Accelerated Telecommunications Infrastructure Organization and Underground Cable Network Deployment pursuant to Strategic Implementation Plans.

18

19

Legal and Regulatory Enhancement for Emerging Technology Governance and Future Innovation Regulatory Adaptation.

20

Consumer Protection and Regulatory Safeguard Measures Development.

Consumer complaint resolution process enhancement for broadcasting, television, and telecommunication services users ensuring quality service delivery with efficiency, responsiveness, accuracy, and fairness, encompassing the Office of the NBTC on digital service platform enhancement through Traffy Foundue integration for advanced complaint management across broadcasting, television, and telecommunications sectors.

Prioritized Business Operation Regulation for Compliance with Licensing Criteria and Conditions Related to Consumer Protection and Personal Data Privacy, Including Oversight of Consumer Exploitation Practices in Broadcasting, Television, and Telecommunications Sectors.

21

22

Public Media Information and Digital Literacy (MIDL) Enhancement Initiative for Effective and Critical Utilization of Broadcasting, Television, and Telecommunications Services.

Including safety measures, consumer rights awareness in broadcasting, television, and telecommunications, effective cybercrime response capabilities, assessment of public information access and informed utilization with equal access for persons with disabilities, the elderly, and disadvantaged populations, and consumer protection network enhancement for current knowledge and digital technology literacy skills development, encompassing persons with disabilities, the elderly, disadvantaged individuals, and people with diverse needs.

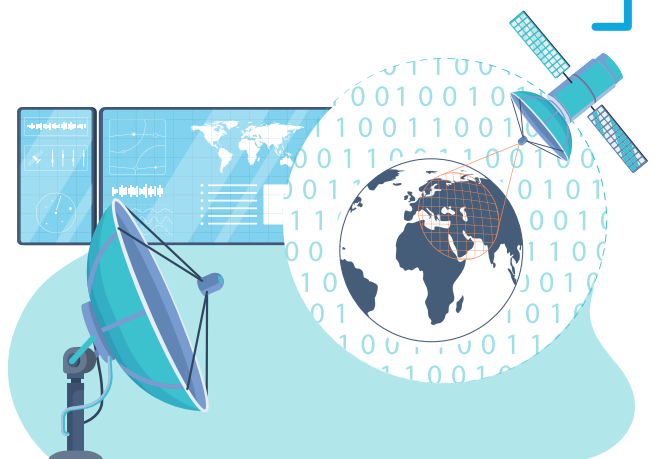
The Office of NBTC on the Organizational Digital Transformation Initiative toward Smart Regulatory Authority (NBTC Next).

23

24

Public Trust and Stakeholder Confidence Enhancement through Regulatory Transparency, Good Governance Implementation, and International Standard Organizational Management Excellence toward Global Best Practice Alignment.

Prioritizing human capital development and workforce excellence enhancement.





The Office of the NBTC on the Annual Operating Budget and Expenditure Plan for Fiscal Year 2025

The NBTC approved in the 4th Meeting of 2025 on January 30, 2025, the 2025 annual expenditure budget of 5,635.42 million baht for the Office of the NBTC, considering necessity and appropriateness for core mission implementation aligned with National Strategic Plans, national economic and social

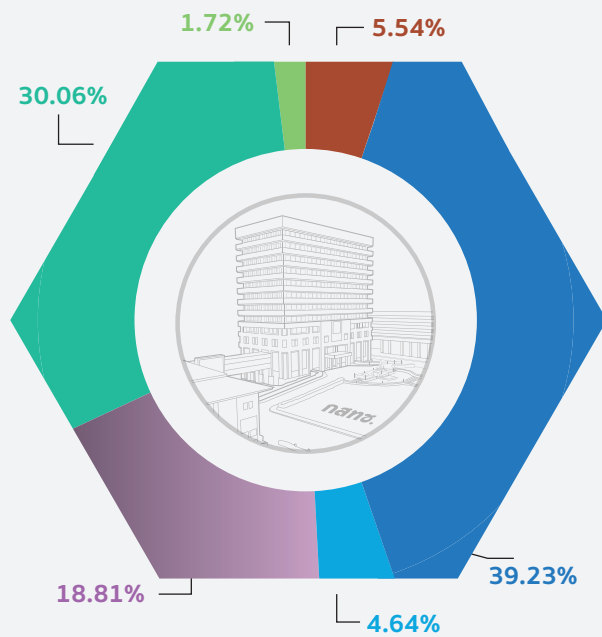
development policies, related plans including the agency's three master plans and the Office of the NBTC's strategic plan, and urgent mission implementation for government and the NBTC policy advancement, prioritizing achievements and benefits, as provided in Table 48 and Chart 61.

Table 48 : The Office of the NBTC on Annual Operating Budget and Expenditure Plan for Fiscal Year 2025

No.	Item	Amount (Million Baht)
1	Expenditure Budget of the Office of the NBTC	5,323.42
1.1	Operating Expenses of the NBTC and the Office of the NBTC	4,571.86
	Human Resources Expenses	2,676.39
	General and Administrative Expenses	1,355.51
	Expenses on Lands, Buildings, and Equipment	100.45
	Miscellaneous	439.51
1.2	Project Expenses	535.26
1.3	Central Budget	119.35
1.4	Compensation Expenses and Other Operating Expenses of the Performance Follow-up and Evaluation Committee	96.95
2	Budget Allocated for Contributions to Funds as Required by Law	312.00
2.1	Broadcasting and Telecommunications Research and Development Fund for Public Interest	300.00
2.2	Edtech Fund	12.00
Total (No. 1 – 2)		5,635.42

Source: Strategic and Budget Bureau, Office of the NBTC

**Chart 61 : Expenditure Budget Plan
for the Year 2025, Categorized by Strategies**



Strategy 1

Governance excellence and digital-era high-performance organizational capability enhancement initiative: 2,210.67 million baht.

Strategy 2

Human capital development for regulatory excellence and digital economy-society transition preparedness initiative: 261.65 million baht.

Strategy 3

Spectrum management and satellite communications service capability enhancement for optimal national interest and public benefit maximization, concurrent with the Regional Office of the NBTC capacity development for regulatory oversight and citizen service excellence, initiative: 1,060.00 million baht.

Strategy 4

Broadcasting, Television, and Telecommunications regulatory oversight and the industry promotion capability enhancement for dynamic market adaptation initiative: 1,694.15 million baht.

**Consumer Protection Operations
Monitoring and Evaluation Committee
on Compensation and Operational
Expenditure Allocation:**

totaling 96.95 million baht.

**Fund Contribution Allocation pursuant to
Legal Requirements,**

totaling 312.00 million baht.

Strategy 1:

Good Governance Enhancement and High-Performance Digital Organization Development: 2,210.67 million baht, to transform the Office of the NBTC into a sustainable governance and high-performance organization progressing toward full digital transformation, including Organizational Management and Strategic Management Programs: 1,885.22 million baht, and 9 Project Implementation Initiatives: 325.45 million baht.

Strategy 2:

Human Capital Development for Regulatory Excellence and Digital Economy-Society Readiness: Total 261.65 million baht, driving personnel development programs for regulatory excellence and digital era preparation, building academic capabilities for international regulatory leadership across broadcasting, television, and telecommunications sectors and public readiness for digital economy and society: 242.35 million baht, and 5 Project Implementation Initiatives: 19.30 million baht.

Strategy 3:

Spectrum Management and Satellite Services Capability Development for Maximum National and Public Benefit, and the Regional Office of the NBTC Enhancement: Total 1,060.00 million baht, driving efficient national spectrum and satellite operations aligned with national policies, developing international cooperation networks for spectrum management and broadcasting/television/telecommunications/satellite oversight, and enhancing the Regional Office of the NBTC capabilities and spectrum monitoring efficiency: 990.27 million baht, and 8 Project Implementation Initiatives: 69.73 million baht.

Strategy 4:

Broadcasting, Television, and Telecommunications Regulatory and Promotional Capability Development for Evolving Industry Context: Total 1,694.15 million baht, supporting missions for free and fair sector management, professional ethics promotion in broadcasting and television, and consumer protection across broadcasting, television, and telecommunications: 1,573.37 million baht, and 14 Project Implementation Initiatives: 120.78 million baht.

Table 49 : Projects Categorized by Strategy for the Year 2025

Unit: Million Baht

No.	Details	Budget for 2025
Strategy 1: Governance excellence and digital-era high-performances organizational capability enhancement initiative: nine strategic projects.		
1	The NBTC e-Budgeting Project Total Budget 9.87 Budget for 2025 5.92 Budget for 2026 3.95	5.92
2	The New NBTC Office Building Construction Project (Second Revision of the Design) Total Budget 1,498.00 Budget for 2025 261.02 Budget for 2026 645.16 Budget for 2027 587.65 Budget for 2028 1.23 Budget for 2029 2.94	261.02
3	The Project to Develop the Office of the NBTC's Information System for Public Service and Service Recipients in all Sectors (NBTC Service Portal), Phase Two Total Budget 14.34 Budget for 2025 4.30 Budget for 2026 10.04	4.30
4	The Project for Hiring the Development of the DevSecOps Service Support Platform of the Office of the NBTC Total Budget 2.00 Budget for 2025 2.00	2.00
5	The Procurement Project for Computer Center Infrastructure Total Budget 3.20 Budget for 2025 3.20	3.20
6	The Procurement Project for the Office of Internal IPPBX (Voice over IP) Telephone System, for one system Total Budget 16.00 Budget for 2025 16.00	16.00
7	The Outsourcing Project for Developing and Improving the Office of the NBTC's Geographic Information System (GIS) for Integrating Data and Centralizing Spatial Data Services Total Budget 40.00 Budget for 2025 22.00 Budget for 2026 18.00	22.00
8	The Project for Hiring the Development of the IT Service Management of the Office of the NBTC Total Budget 5.00 Budget for 2025 5.00	5.00
9	The Human Resource System Development Project Total Budget 30.00 Budget for 2025 6.00 Budget for 2026 24.00	6.00
Strategy 2: Human capital development for regulatory excellence and digital Economic-Society transition preparedness initiative: five strategic projects		
10	The Project for Developing the Future Landscape of Thailand's Telecommunications Industry Total Budget 4.50 Budget for 2025 4.50	4.50
11	The Project for Developing Economic Tools for Regulatory Impact Analysis Total Budget 4.50 Budget for 2025 4.50	4.50

No.	Details	Budget for 2025
12	The Survey Project on Thai Radio, Television, and Telecommunications Media Usage and Access Total Budget 5.00 Budget for 2025 5.00	5.00
13	The Overseas Master's Degree Scholarship Program for Employees for the Year 2024 Total Budget 4.10 Budget for 2024 3.60 Budget for 2025 0.50	0.50
14	The Overseas Master's Degree Scholarship Program for Employees for the Year 2025 Total Budget 5.50 Budget for 2025 4.80 Budget for 2026 0.70	4.80
Strategy 3: Spectrum management and satellite communications service capability enhancement for optimal national internet and public benefit maximization, concurrent with the NBTC Region Office capacity development for regulatory oversight and citizen service excellence initiative: eight strategic projects		
15	The Campaign Project for the Election of the ITU Council Member During the Plenipotentiary Conference (PP-26) Total Budget 19.89 Budget for 2025 4.56 Budget for 2026 15.33	4.56
16	A Study Project of Satellite Industry Competitiveness and Regulatory Measures Total Budget 8.36 Budget for 2025 6.27 Budget for 2026 2.09	6.27
17	The Office Building Construction Project for the District Office of NBTC 21 with Utility Buildings Total Budget 69.03 Budget for 2023 48.32 Budget for 2024 - Budget for 2025 20.71	20.71
18	The Procurement Project for 52 Units of Data Storage Equipment for a Radio Broadcasting Station Total Budget 13.00 Budget for 2025 1.95 Budget for 2026 11.05	1.95
19	The Project for the Procurement and Installation of Materials and Equipment for the Auditorium Building at the Regional Office of the NBTC 2 Total Budget 6.85 Budget for 2025 6.85	6.85
20	The Landscape Architecture and External Construction Works for the Regional Office of the NBTC 2 Project Total Budget 14.63 Budget for 2025 14.63	14.63
21	The Office Building Construction Project for the District Office of NBTC 25 with Utility Buildings Total Budget 59.70 Budget for 2025 11.34 Budget for 2026 32.54 Budget for 2027 15.82	11.34
22	The Landscape Architecture Construction Project for the District Office of NBTC 21 Total Budget 14.38 Budget for 2025 3.42 Budget for 2026 10.96	3.42

No.	Details	Budget for 2025
Strategy 4: Broadcasting, television, and telecommunications regulatory oversight and industry promotion capacity enhancement for dynamic market context adaptation initiative: 14 strategic projects		
23	The Project for Organizing the ‘Thailand Digital Accessibility Conference (TDAC) 2025’ Total Budget 5.39 Budget for 2025 5.39	5.39
24	The Project for Survey and Data Collection of Communication Cables in Bangkok, Phase Two Total Budget 14.20 Budget for 2025 14.20	14.20
25	The Project for Hiring a Consultant to Analyze Data and Verify Network Coverage Compliance with Spectrum Auction Conditions Total Budget 9.97 Budget for 2025 7.48 Budget for 2026 2.49	7.48
26	The Project for Developing a Database and Regulatory System for Telecom Licensees, Phase Two (Remaining Scope Due to Contract Termination) Total Budget 2.68 Budget for 2025 2.68	2.68
27	The Project for Developing and Enhancing the Automated Call Sampling System for Telecommunications Numbers Provided by Service Providers, Phase Two Total Budget 1.04 Budget for 2025 1.04	1.04
28	The Telecom Data Exchange System for Combating Cyber Crime (TDEX) Project Total Budget 8.00 Budget for 2025 8.00	8.00
29	The Project for Hiring a Consultant to Study the Regulation for Interconnection and Wholesale Mobile Internet Costing Total Budget 7.24 Budget for 2025 3.62 Budget for 2026 3.62	3.62
30	The Project for Hiring a Consultant to Support the Universal Service Obligations Total Budget 136.30 Budget for 2022 4.34 Budget for 2023 21.69 Budget for 2024 15.54 Budget for 2025 26.58 Budget for 2026 28.62 Budget for 2027 32.71 Budget for 2028 6.82	26.58
31	The Outsourcing Project for Developing the Analytical System for Project Proposals under the Universal Service Obligation Action Plan Total Budget 7.00 Budget for 2025 7.00	7.00
32	The Project to Raise Public Awareness and Promote the Image of Universal Basic Telecommunications Service Obligations (USO) Total Budget 12.00 Budget for 2025 12.00	12.00
33	The Cooperation Project for the Production of Royal News and Live Broadcast of Royal and State Ceremonies for Radio or Television Services Total Budget 15.00 Budget for 2025 15.00	15.00

No.	Details	Budget for 2025
34	The Project to Hire a Consultant to Survey and Analyze Technology Disruption and the Competitive Landscape in the Television Industry and Their Impact on Program Content Quality Total Budget 5.00 Budget for 2025 5.00	5.00
35	The Project to Develop a Social Credit Accumulation System Based on Television Content to Promote the Production of Socially Constructive Content Total Budget 4.50 Budget for 2025 4.50	4.50
36	The Project for Hiring a Consultant to Survey and Gather Public and Stakeholder Feedback to Inform the Strategic Direction for the Development of Broadcasting and Television Services Total Budget 8.30 Budget for 2025 8.30	8.30



PART 6 CHALLENGES AND OBSTACLES OF THE BROADCASTING, TELEVISION, AND TELECOMMUNICATIONS SERVICES PROVISION: PUBLIC IMPACT ASSESSMENT AND STRATEGIC RECOMMENDATIONS FOR RESOLUTION



Critical Issues and Operational Barriers in Broadcasting, Television, and Telecommunications Service Provision: Public Impact Assessment and Strategic Recommendations for Resolution

Critical Issues in Broadcasting and Television Sector Challenges Affecting Public Welfare and Policy Recommendations and Solutions

1. The current era is characterized by **technological convergence**, with new forms of audiovisual media continuously entering the market. This expansion, coupled with intensified competition, has significantly reshaped the traditional broadcasting industry, altering its conventional business models. Viewer preferences have also shifted towards on-demand content via the internet, which has seen rapid growth due to the flexibility of accessing content anytime and anywhere.

Currently, the NBTC is developing regulations and criteria for services delivered over internet networks or Over-the-Top (OTT) services. While these services represent a major technological advancement and have accelerated industry adaptation, research indicates that several challenges remain, particularly regulatory inconsistencies between traditional television operations and OTT services.

Challenges and Obstacles.

In response to the aforementioned market conditions, challenges, and evolving conditions, the NBTC is developing relevant legal frameworks and regulatory criteria aligned with the transforming industry context, implementing measures summarized as follows:

1) The integration of the three **communication related laws** was undertaken due to their enactment at different periods, each addressing separate aspects of communications regulation. With the rapid and continuous advancements in communication technologies today, regulatory frameworks that segregate oversight by technology or service are increasingly misaligned with the realities of the digital era. To address this, the Office of the NBTC drafted the Communication Act, B.E. ..., consolidating the Radio Communication Act, the Telecommunications Business Act, and the Broadcasting and Television Business Act into a single, cohesive framework. The draft legislation is currently under review by the Subcommittee on the Amendment and Improvement of Laws Governing the Regulation of the Broadcasting, Television, and Telecommunications Sectors.

2) **Inter-Agency Collaborative Workshop Implementation** involving the NBTC, the Office of the NBTC, and relevant agencies including the Digital Economy Promotion Agency (DEPA), and the Electronic Transactions Development Agency (ETDA) on December 23, 2024, for multi-dimensional policy consultation. The Office of the NBTC will integrate meeting insights into integration into television service

regulatory and internet protocol television (IPTV) and Over-the-Top (OTT) audio-visual service regulatory criteria development, to ensure regulatory alignment with the media industry ecosystem.

2. Contemporary radio broadcasting service operators encounter multi-faceted operational challenges across technological innovation, economic viability, and regulatory compliance dimensions, impacting business operations and station sustainability. This drives radio operators toward internet protocol-based service delivery, digital platform integration, or Over-the-Top (OTT) capable of delivering audio and visual content to users. Moreover, consumers have alternative services similar to traditional radio broadcasting, including internet radio, music streaming, and podcast services, potentially substituting conventional radio broadcasting. Primary operational challenges confronting traditional radio broadcasting encompass:

1) Technology Innovation Dynamics and Consumer Consumption Pattern Evolution.

- **Content Production Challenges:**

Radio station content production confronts multiple challenges, including digital media competition, evolving consumer behavior, and constraints in resources, technology, and budget allocation.

- **Program Content Production:** Radio station content development confronts multiple obstacles, including digital media competition, evolving consumer preferences, and resource constraints in technology, personnel, and budget allocation.

- **Content Production Challenges:** Radio station content development confronts multiple obstacles, including digital media competition, evolving consumer preferences, and resource constraints in technology, personnel, and budget allocation.

- **Youth Audience Engagement Challenges:** Radio's one-way communication model prevents younger listeners from interacting with hosts, driving audience migration to alternative channels. In addition, this unidirectional format also limits hosts

understanding of audience preferences. Traditional radio programming may not resonate with digitally native younger listeners, necessitating content and format modernization.

2) Economic Viability Challenges

- **Advertising revenue has declined:** due to intensifying competition among radio stations, forcing many to reduce their advertising rates. Additionally, increased competition from online media has further contributed to the decrease in radio advertising revenue.

- **Production costs have risen:** with increased expenses for program production and equipment maintenance.

- **Economic uncertainty:** has impacted both consumer spending and corporate advertising budgets due to volatile economic conditions.

3) Regulatory Compliance Issues and Legislative Constraints.

- **The comprehension of relevant legal frameworks** is crucial as radio broadcasting operations are governed by multiple laws and regulations, particularly those relating to consumer protection and food and drug advertising, which have specific content supervision criteria for broadcasts. As a result, operators are obligated to continuously adapt and comprehend. The broadcast content that violates laws and the radio operators who lack knowledge and understanding of these specific laws will be subject to high-rate penalties. This leads to the loss of primary revenue, the possible closure of the business, and the occurrence of deficit problems or liquidity shortages.

- **Licensing procedures** for radio broadcasting operations can be complex and time-consuming.

4) Community Broadcasting Service Operational Constraints.

- **Resource allocation constraints** limit community radio stations' ability to produce high-quality programming due to budget and staffing limitations.

- **Financial Viability Sustainability**

remains challenging for community radio stations since they cannot generate advertising revenue, making it difficult to secure alternative funding sources to support their operations.

- **Community engagement** is a fundamental aspect of community radio, requiring active participation in program production and station management. However, increasing urbanization and social changes have weakened community bonds. Without strong community foundations, fostering meaningful participation in programming and station operations becomes increasingly difficult.

5) Spectrum Interference Challenges.

- **Interference from other radio stations** significantly impacts reception quality, resulting in unclear audio. When signal overlap or poor sound quality occurs, most listeners abandon the affected station in favor of online alternatives.

- **Electronic equipment interference** can disrupt radio signal reception as certain devices emit frequencies that interfere with broadcast signals.

Recommendations and Solutions.

1) Digital transformation requires operators to adapt to emerging technologies, particularly through DAB+ implementation. DAB+ offers multiple advantages, including enhanced audio quality and clarity, increased capacity for multiple stations and program channels without signal interference, and multimedia data transmission capabilities supporting audio, images, and text content.

2) Content diversification strategies through targeted niche programming development, encompassing specialized audio formats such as genre-specific musical content, sports broadcasting services, and culturally-relevant local programming that serves distinct audience demographics and community interests.

3) Building awareness and understanding of legal and regulatory requirements ensures compliant operations, prevents legal issues, and promotes sustainable business practices. Key approaches include information dissemination, stakeholder consultation, network development, and fair law enforcement.

4) The improvement of community stakeholder engagement in content production and station governance frameworks encourages community ownership dynamics and strengthens audience-service provider relationships, thereby guaranteeing programming diversity and genuine community needs responsiveness. The strategic implementation approaches included participatory planning and policy formulation processes, collaborative governance mechanisms that are in accordance with the mandates of community broadcasting services, and the development of bidirectional communication infrastructure.

5) Systematic spectrum monitoring and interference mitigation techniques ensure that the quality of terrestrial broadcasting services is maintained through ongoing electromagnetic compatibility testing. Technical remediation strategies include identifying and analyzing all interference sources, upgrading non-conforming equipment's electromagnetic emission compliance, and deploying adaptive filtering systems to maintain signal integrity within ITU-R broadcasting spectrum allocations.



1. Telecommunications infrastructure Organization and subterranean cable deployment initiatives.

Telecommunications infrastructure organization initiatives have experienced substantial expansion across the Bangkok Metropolitan Region and provincial regions. Nevertheless, implementation vulnerabilities throughout project phases pose significant risks to scheduled completion timelines. Critical operational constraints encompass inadequate inter-agency coordination mechanisms for telecommunications infrastructure governance, insufficient qualified technical personnel with specialized competencies in aerial cable management and electrical safety protocols, and intensified market competition in fixed broadband service provision, compelling operators to accelerate network deployment schedules.

Consequently, accelerated drop wire proliferation has generated excessive aerial infrastructure density on utility poles, impeding underground cable migration objectives specified in the Telecommunications Infrastructure Organization Strategic Plan B.E. 2566 - 2567 (2023 - 2024). Primary operational impediments include:

1) Coordination constraints persist in telecommunications infrastructure governance and route evaluation protocols with the Provincial Electricity Authority (PEA): the designated regulatory authority responsible for oversight of licensed telecommunications operators conducting aerial cable deployment on electrical utility infrastructure. PEA maintains comprehensive regulatory frameworks and technical specifications governing pole-mounted telecommunications installations, mandating strict compliance from all authorized service providers operating under aerial cable attachment permits.

2) Human resource capacity constraints:

delay operational efficiency, necessitating certified technical personnel with specialized competencies in aerial telecommunications infrastructure management on Metropolitan Electricity Authority (MEA) electrical utility systems to ensure occupational safety compliance. The extensive route inventory exceeds current workforce deployment capacity, constraining expedited project milestone achievement and infrastructure organization objectives.

3) Inadequate inter-agency coordination:

restricts field personnel access to operational sites and impose temporal constraints on infrastructure maintenance activities. Permitting authorities demonstrate delayed authorization processing and communication protocols despite formal advance notification procedures. Operational impediments include law enforcement vehicle immobilization during dismantled telecommunications infrastructure removal operations, resulting in regulatory penalties and project schedule disruptions. The multi-agency permitting framework compounds operational complexity and delays.

4) The continual expansion of new drop wire installations: is a result of the intense competition in fixed broadband services, which causes operators to prioritize the rapid deployment of their services. In contrast, the Metropolitan Electricity Authority and Provincial Electricity Authority's data indicate that the majority of cables on poles are abandoned, dormant lines that have not been removed, and a multitude of legacy cables with unidentified ownership. This has resulted in the accumulation of an excessive amount of cable on electrical poles, which has led to the formation of tangled cable networks that endanger public safety and property, as well as the secure operation of public utilities.

5) Illegal cross-border cable installations :

for broadband internet services to neighboring countries enable criminal exploitation for various offenses and technology-based crimes, including call center scam operations. These activities severely threaten public safety and cause significant economic, social, and national security damage. Such unauthorized infrastructure creates communication system vulnerabilities and provides channels for transnational criminal activities with nationwide impact.

6) Human resource capacity constraints:

impede operational effectiveness due to expanded operational mandates, encompassing telecommunications infrastructure organization, complaint resolution protocols, remediation of non-compliant cable installations, aerial infrastructure decommissioning in underground migration corridors, and utility pole removal procedures. The comprehensive scope of infrastructure management activities exceeds current personnel deployment capacity, constraining operational efficiency and project timeline adherence.

7) Underground telecommunications

cable: in designated corridors necessitates coordinated simultaneous aerial cable decommissioning by all licensed telecommunications service providers. However, achieving synchronized multi-operator field deployment encounters significant logistical constraints and operational impediments, resulting in project schedule deviations and non-compliance with established infrastructure transition timelines.

8) Telecommunications conduit infra-

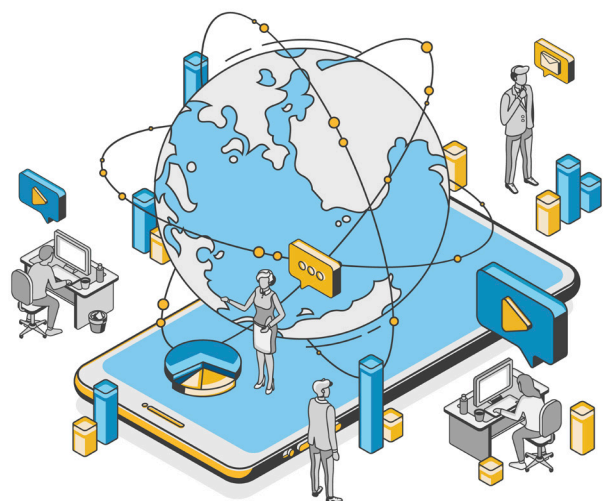
structure construction: by designated conduit asset owners' experiences schedule non-compliance with established project timelines. Delayed conduit completion directly impacts subterranean cable deployment schedules, creating cascading project delays and compromising infrastructure migration milestone achievement within regulatory compliance timeframes.

Recommendations and Solutions.

1) The NBTC collaborates with the Metropolitan Electricity Authority (MEA), Provincial Electricity Authority (PEA), and telecommunications operators through joint cable management plan monitoring meetings. Monthly operational review meetings are scheduled to identify operational challenges and obstacles, ensure efficient plan implementation, facilitate collaborative problem-solving, and achieve cable organization objectives.

2) Critical impediments to organizational 5G technology adoption include insufficient return on investment, as many organizations consider the current mobile internet adequate for their operations. 5G implementation would increase costs significantly, while high infrastructure costs prevent the private sector from fully promoting 5G deployment. Government agencies face annual budget allocation constraints, particularly ministry-affiliated departments, limiting comprehensive technology implementation.

Another critical factor is the slow development of personnel with specialized 5G knowledge for innovation application and advancement. Therefore, the government should provide support through budget allocation, knowledge development, workforce preparation, and comprehensive industry-wide implementation coordination from start to finish.







Key Activity Highlights of the NBTC and the Office of the NBTC



Traditional New Year Royal Observance: Ceremonial Signing of Blessings in Honor of His Majesty the King and Her Majesty the Queen.

On January 1, 2024, Chairman of the NBTC, Clinical Professor Sarana Boonbaichaiyapruk, accompanied by the Office of the NBTC executives, respectfully presented floral arrangements before the royal portraits of His Majesty the King and Her Majesty the Queen, and participated in signing New Year greetings for 2024 at Sahathai Samakhom Pavillion, Grand Palace.



Memorandum of Understanding (MoU) Execution Ceremony for Comprehensive Stroke Care System Development Initiative.

On January 5, 2024: the Office of the NBTC and strategic partnership signed agreement with six healthcare and technology partner agencies through a formal MoU signing ceremony, targeting accelerated development of an integrated Stroke Care Service System enabling proactive medical intervention for Cerebrovascular Disease Patients.

The Office of the NBTC and Royal Thai Police Joint Operation at Mae Sai Border : Illegal Telecommunications Station Bust. Authorities Arrested Operators of Unauthorized Telecommunications Station Illegally Transmitting High-Power Signals Across Borders for Over 40 Kilometers, With Plans to Expedite Regulatory Measures for Border Area Signal Towers.

On January 9, both agencies jointly announced arrest results of illegal telecommunications stations transmitting high-power signals across borders to neighboring countries beyond 40 kilometers. Investigations revealed connections to criminal the call center operations, prompting discussions to expedite the NBTC regulatory announcements addressing illegal signal transmission supporting call center criminal networks





Subcommittee Meeting on Integrated Enforcement Approaches for Technology Crimes, Telecommunications, and National Security.

On April 22, 2024: NBTC Commissioner Police General Nathathorn Prousoontorn provided an operational status briefing regarding Law Enforcement Actions targeting Criminal Call Center Network Infrastructure Disruption, specifically addressing Illegal Fiber Optic Cable Installation across Thai-Cambodian International Border for illegal Communications Operations.

Memorandum of Understanding (MoU) Execution Ceremony between the National Broadcasting and Telecommunications Commission Office and National Cyber Security Committee Office (NCSC).

On April 22, 2024, the Office of the NBTC and the National Cyber Security Committee Office executed a formal MoU establishing Cybersecurity Collaboration Framework for the National Critical Infrastructure Protection.



The Office of the NBTC Digital Rights and Accessibility Promotion, Implements Public Rights and Freedoms in Digital Access through Broadcasting, Television, and Telecommunications Services, Encouraging Thai Industry Technology Development for Equitable Accessibility for Persons With Disabilities.

On May 10 - 11, 2024, the Office of the NBTC hosted a seminar on ‘Promoting Public Digital Rights and Freedoms through Broadcasting, Television, and Telecommunications Services and Community User Empowerment’ with participation from the National Innovation Agency (NIA), Choonhavan Institute for Sustainable SMEs Development (CISMED), and Rajamangala University of Technology Isan.



The NBTC Accessible Touch 2024: “The NBTC’s Roles and Responsibilities in Licensing and Regulating Broadcasting, Television, and Telecommunications Services within the Evolving Landscape of Digital Technology.”

On June 20, 2024, the Office of the NBTC and the King Prajadhipok’s Institute to conduct training featuring distinguished the NBTC Commissioners special lecturers: Chairman of the NBTC, Clinical Professor Sarana Boonbaichaiyapruk, Air Marshal Thanapant Raicharoen, Emeritus Professor Pirongrong Ramasoota, Mr. Torpong Selenon, Associate Professor Suphat Suphachalasai, Police General Nathathorn Prosoontorn, and Associate Professor Somphob Purivigraipong.





Bilateral Consultation Meeting with Korea Communications Commission (KCC), Republic of Korea.

On June 25, 2024, the NBTC Commissioners, Emeritus Professor Pirongrong Ramasoota and Associate Professor Suphat Suphachalasai accompanied by the office of the NBTC'S representatives, held bilateral consultations with the Korea Communications Commission (KCC) at KCC headquarters in Seoul, Republic of Korea. Discussions encompassed terrestrial television services, broadcasting/television/telecommunications regulation, and consumer protection in the context of technological transformation.



The NBTC Knowledge Transfer and Human Capital Development Initiative for Broadcasting Industry Stakeholders under Thailand Broadcasting Industry Future Scenario Analysis Project within Transforming Industry Ecosystem Framework.

From August 13 - 16, 2024, the Office of NBTC collaborated with SCF Associates Limited Company to execute knowledge exchange and capacity development activities for the NBTC personnel and stakeholders on broadcasting industry future scenarios, promotional and regulatory policy approaches, and resource allocation strategies for broadcasting services within the evolving industry landscape.



Starlink Low Earth Orbit (LEO) Satellite Constellation Connectivity Pilot Testing for Remote Education and Telemedicine Service Support Implementation at Prince of Songkla University, Songkhla Province.

On August 20, 2024, the NBTC Commissioners, Air Marshal Thanapant Raicharoen, Emeritus Professor Pirongrong Ramasoota, Mr. Torpong Selenon, Associate Professor Suphat Suphachalasai, Police General Nathathorn Prosoontorn, and Associate Professor Somphob Purivigraipong, conducted high-level assessment through meeting participation and served Starlink satellite internet connectivity demonstration testing for education and telemedicine support applications.



The Office of the NBTC, in Partnership with Digital Television Association of Thailand, Hosted the Commemorative Event “One Decade of Digital Television” Under the Theme “Beyond the Next Step”.

On August 28, 2024, Chairman of the NBTC, Clinical Professor Sarana Boonbaichaiyapruk presided over the opening ceremony and participated in a special panel discussion entitled “Digital Television: National Broadcasting”. The event also featured NBTC Commissioner, Emeritus Professor Pirongrong Ramasoota who shared insights on the future vision of digital television.

The Office of the NBTC Presented Awards to Television Broadcasters for Promoting and Protecting the Rights of Persons with Disabilities to Access, Acknowledge, and Benefit from Information.

On August 30, 2024, Chairman of the NBTC, Clinical Professor Sarana Boonbaichaiyapruk, and the NBTC Commissioner, Mr. Torpong Selanon, presided over the opening ceremony and presented awards in the ceremony to television broadcasters for promoting and protecting the rights of persons with disabilities to access, acknowledge, and benefit from information.



The implementation of the Economic Regulation training program conducted by the Public Utility Research Center (PURC) at the University of Florida, United States.

From October 7 - 11, 2024, the NBTC Commissioner, Associate Professor Suphat Suphachalasai, inaugurated the opening address for the training program. The program featured active participation from the honorary NBTC Commissioners, Air Marshal Thanapant Raicharoen, Emeritus Professor Pirongrong Ramasoota, and Associate Professor Somphob Purivigraipong, also engaged and contributed to discussion. The training aimed to enhance understanding of Economic Regulation principles, including emerging technological issues and contemporary challenges facing regulatory authorities.



The NBTC, In Coordination with National Law Enforcement Agencies, Executes the Strategic Enforcement Initiative “Operation Bridge Infrastructure Disruption” to Dismantle Unauthorized Large-Capacity Transmission Cable Installations Unlawfully Deployed Across Transboundary Mekong River Bridge Infrastructure, Thereby Disrupting Telecommunications-Enabled Criminal Call Center Operations.

On October 20, 2024, the NBTC Commissioners, Police General Nathathorn Prousoontorn, along with Police Lieutenant General Thatchai Pitanilabutr, Assistant Commissioner-General of the Royal Thai Police, and Deputy Secretary-General, Acting Secretary-General of the NBTC, Mr. Trairat Viriyasirikul, disclosed enforcement outcomes regarding the interdiction of unauthorized transboundary telecommunications infrastructure. The illicit network involved unlawful deployment of international internet gateway services through clandestine cable installations spanning the Second Thai-Lao Friendship Bridge (Mukdahan-Savannakhet cross-border telecommunications corridor).



The Formal Wreath-Laying Ceremony Honoring His Majesty King Chulalongkorn the Great (King Rama V) at the Royal Monument, Observed on Chulalongkorn Memorial Day In Accordance With National Commemorative Protocols

On October 23, 2024, Chairman of the NBTC, Clinical Professor Sarana Boonbaichaiyapruk, along with the NBTC Commissioners, and the executives of the Office of the NBTC, participated in the wreath-laying ceremony, in homage to the monument of His Majesty King Chulalongkorn on the occasion of King Chulalongkorn Memorial Day, held at the Office of the NBTC, in remembrance of His Majesty’s benevolence and contributions to the development of communications in Thailand.



The Chairman of the NBTC Had the Honor of Being Granted a Royal Audience During the Royal Kathin Ceremony by the Royal Barge Procession, Held on the Occasion of His Majesty the King’s Auspicious 6th Cycle Birthday Celebration.

On October 27, 2024, Chairman of the NBTC, Clinical Professor Sarana Boonbaichaiyapruk, along with the NBTC Commissioners, and executives of the Office of the NBTC, had the honor of being granted a royal audience with His Majesty the King and Her Majesty the Queen. The audience took place during the Royal Kathin Ceremony, by the Royal Barge Procession on the auspicious occasion of His Majesty the King’s auspicious 6th Cycle birthday celebration.



The Briefing Session on Application for FM Frequency Licensing and Auction Procedures for Local Commercial Radio Broadcasting

On November 19, 2024, the NBTC Commissioner, Air Marshal Thanapant Raicharoen, presided over the briefing session on the application for FM frequency licensing. The briefing was designed to ensure that both incumbent operators and prospective new operators fully understand the licensing procedures and receive clarification on application requirements.

Memorandum of Understanding Signing Ceremony between the Office of the NBTC and Nine Agencies on Cooperation in Regulating Advertisements of Products and Services, Health Products, or Actions that Exploit Consumers through Broadcasting, Television, and Telecommunications Services.

On December 3, 2024, the Office of the NBTC and nine agencies signed a Memorandum of Understanding (MoU) on cooperation in regulating advertisements of products and services to protect consumers in the broadcasting, television, and telecommunications sectors.



Meeting to Present the Results of the Study on Developing Auction Format Specifications for Telecommunications Spectrum Allocation.

On December 17, 2024, Chairman of the NBTC, Clinical Professor Sarana Boonbaichaiyapruk, along with the NBTC Commissioners, Air Marshal Thanapant Raicharoen, and Associate Professor Somphob Purivigraipong, attended a presentation on the study of multiband spectrum auctions tailored to the context of Thailand.



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Mr. Vutlerd Chanahan
Tel: 0 2670 8888 ext. 4650

Executive Director, Regional Office of NBTC 4 (Songkhla)

Mr. Wanna Setthaphong
Tel: 0 2670 8888 ext. 4700

Director, NBTC Sub-region Office 41 (Yala)

Mr. Mahama Kaje
Tel: 0 2670 8888 ext. 4802

Director, NBTC Sub-region Office 42 (Phuket)

Mr. Suwanrak Thongsai
Tel: 0 2670 8888 ext. 4803

Director, NBTC Sub-region Office 43 (Nakhon Si Thammarat)

Mr. Sutin Thongmark
Tel: 0 2670 8888 ext. 4801

Director, NBTC Sub-region Office 45 (Chumphon)

Mr. Wasan Ruengsamut
Tel: 0 2670 8888 ext. 4988

Director, NBTC Sub-region Office 44 (Surat Thani)

Mr. Charnnarong Prekparn
Tel: 0 2670 8888 ext. 4949

Broadcasting and Television Cluster

Executive Director, Broadcasting Policy and Research Bureau

Ms. Jaithip Srinonchai
Tel: 0 2670 8888 ext. 5099

Executive Director, Broadcasting Tariff Bureau

Mr. Tharathep Devakula Na Ayudhaya
Tel: 0 2670 8888 ext. 1819

Executive Director, Broadcasting Network, Facilities
and Equipment Business Licensing Bureau

Mr. Arkom Suwanraksa
Tel: 0 2670 8888 ext. 5401

Executive Director, Broadcasting Competition Promotion
and Self-Regulation Bureau

Mr. Nattanon Leesattruphai
Tel: 0 2670 8888 ext. 5600

Executive Director, Professional Broadcasting Institution
Development and Universal Service Bureau

Mr. Supree Thianthamnul
Tel: 0 2670 8888 ext. 5800

Executive Director, Broadcasting Engineering Standard
Approval Bureau

Mr. Athiwat Eiamdilokwong
Tel: 0 2670 8888 ext. 6088

Executive Director, Legal Broadcasting Bureau

Ms. Somporn Amornchainoppakun
Tel: 0 2670 8888 ext. 5151

Executive Director, Broadcasting Business Licensing Bureau

Mr. Netipong Talubnark
Tel: 0 2670 8888 ext. 5353

Executive Director, Broadcasting Enforcement Bureau

Mr. Somkid Nakapisut
Tel: 0 2670 8888 ext. 5555

Executive Director, Content Regulation and Announcer
Development Bureau

Mrs. Aroon Wongsivawilas
Tel: 0 2670 8888 ext. 5700

Executive Director, Broadcasting Technology and
Engineering Bureau

Mr. Somsak Lamsri
Tel: 0 2670 8888 ext. 5900

Executive Director, Broadcasting Consumer Protection
Bureau

Ms. Rungtawan Jindawan
Tel: 0 2670 8888 ext. 6199

Telecommunications Cluster

Executive Director, Telecommunications Policy
and Resources Management Bureau
Ms. Theetanun Rattanasanyanuphab
Tel: 0 2670 8888 ext. 7089

Executive Director, Telecommunications Tariff Bureau
Mr. Rathi Rangsikamolwat
Tel: 0 2670 8888 ext. 7299

Executive Director, Service-Based Telecommunications
Business Licensing Bureau
Ms. Siriluk Semanguen
Tel: 0 2670 8888 ext. 7489

Executive Director, Telecommunications Technology
and Standard Bureau
Mr. Amporn Deelertcharoen
Tel: 0 2670 8888 ext. 7633

Executive Director, Legal Telecommunications Bureau
Ms. Warunrat Kijphaporn (Acting)
Tel: 0 2670 8888 ext. 7138

Executive Director, Facilities-Based Telecommunications
Business Licensing Bureau
Mrs. Puttachad Manmontri
Tel: 0 2670 8888 ext. 7373

Executive Director, Telecommunications Enforcement Bureau
Mr. Suteera Puengtham
Tel: 0 2670 8888 ext. 7599

Executive Director, Numbering Management Bureau
Ms. Onwaree Jarernporn
Tel: 0 2670 8888 ext. 7799

Executive Director, Government Radiocommunications
Licensing Bureau
Mr. Chairat Tongjub
Tel: 0 2670 8888 ext. 7899

Executive Director, Telecommunications Access Bureau
Ms. Supattra Kittatabarn
Tel: 0 2670 8888 ext. 8099

Executive Director, Telecommunications Consumer
Protection Bureau
Mr. Tri Bunchua
Tel: 0 2670 8888 ext. 8299, 8287

Executive Director, Business Radiocommunications
Licensing Bureau
Mr. Woraphong Niphakornphan
Tel: 0 2670 8888 ext. 7997

Executive Director, Universal Services Bureau
Mr. Chanwut Aumnuaysin
Tel: 0 2670 8888 ext. 8195

Academic Cluster

Executive Director, Policy Analysis Bureau
Ms. Kanokwan Srichaichana (Acting)
Tel: 0 2670 8888 ext. 9089

Executive Director, Digital Economy Data Analysis Bureau
Mr. Thanit Songkran
Tel: 0 2670 8888 ext. 9262

Executive Director, NBTC Research and Development Center
Mr. Pratompong Srinuan (Acting)
Tel: 0 2670 8888 ext. 9168

Executive Director, Quantitative Policy Analysis Bureau
Mr. Pratompong Srinuan
Tel: 0 2670 8888 ext. 9168

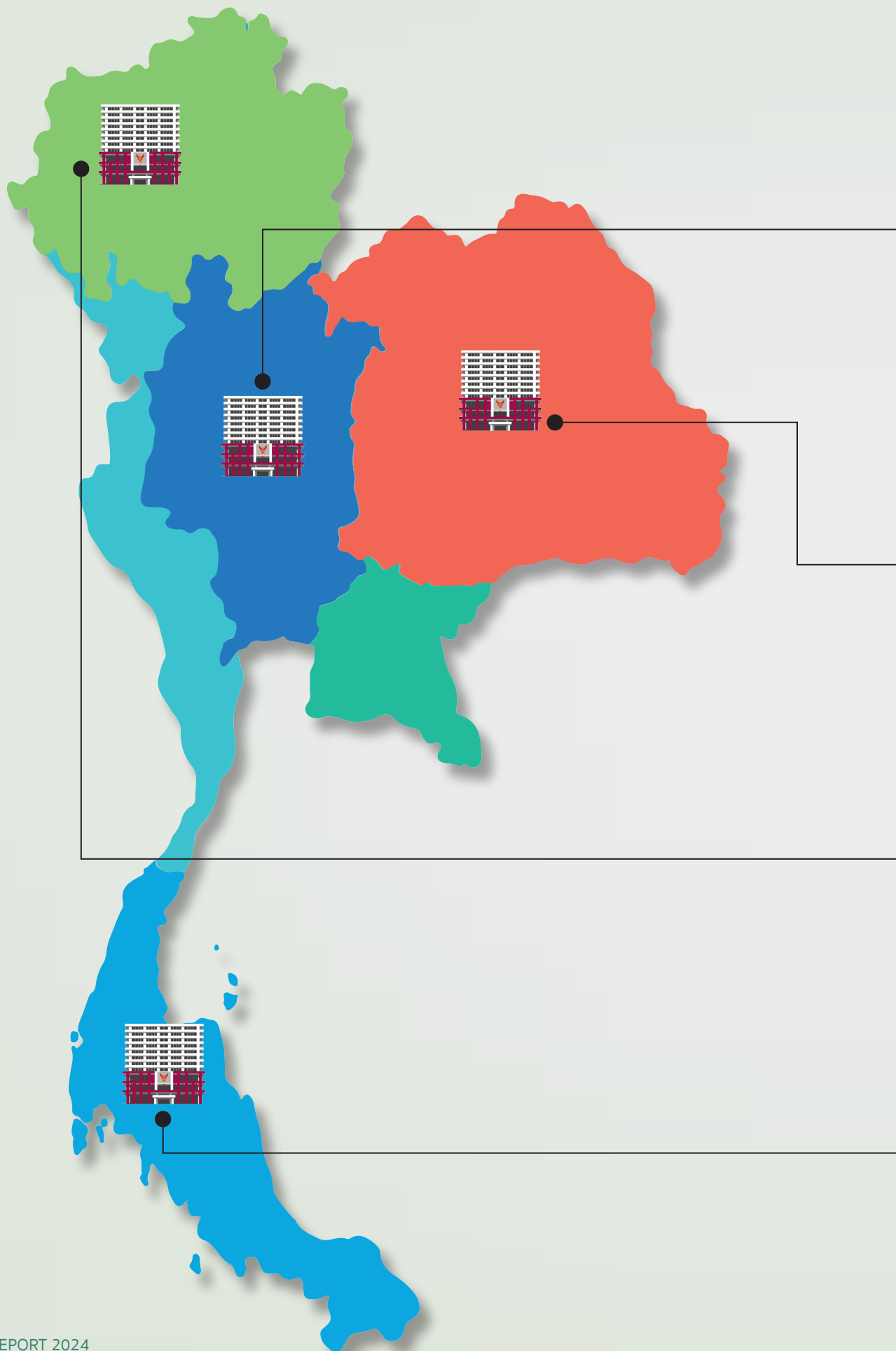
Executive Director, International Academic Affairs Bureau
Ms. Sakonpha Prachuabmoh
Tel: 0 2670 8888 ext. 9365

Executive Director, Office of the NBTC
Mr. Pasu Srihirun
Tel: 0 2670 8888 ext. 1988

Remarks : Data as of December 31, 2024







Locations of the NBTC

Headquarters and Regional Offices Office of the NBTC (Headquarters) (Location: Bangkok)

Four Regional Offices of the NBTC are as follows:

- 1** **Regional Office of NBTC 1** (Location: Bangkok)
The areas of responsibility are as follows:
 - 11** **NBTC District Office 11: Samut Prakan**
Areas of Responsibility: Samut Prakarn, Bangkok, Nonthaburi, Pathum Thani
 - 12** **NBTC District Office 12: Chanthaburi**
Areas of Responsibility: Chanthaburi, Trat, Rayong, Chonburi
 - 13** **NBTC District Office 13: Suphan Buri**
Areas of Responsibility: Suphan Buri, Kanchanaburi, Chai Nat, Sing Buri
 - 14** **NBTC District Office 14: Prachin Buri**
Areas of Responsibility: Prachin Buri, Nakhon Nayok, Chachoengsao, Sa Kaew
 - 15** **NBTC District Office 15: Phra Nakhon Si Ayutthaya**
Areas of Responsibility: Phra Nakhon Si Ayutthaya, Ang Thong, Lopburi, Saraburi
 - 16** **NBTC District Office 16: Ratchaburi**
Areas of Responsibility: Ratchaburi, Phetchaburi, Samut Sakhon, Samut Songkhram, Nakhon Pathom
- 2** **Regional Office of NBTC 2** (Location: Khon Kaen)
The areas of responsibility are as follows:
 - 21** **NBTC District Office 21: Roi Et**
Areas of Responsibility: Roi Et, Maha Sarakham, Khon Kaen, Kalasin
 - 22** **NBTC District Office 22: Ubon Ratchathani**
Areas of Responsibility: Ubon Ratchathani, Si Sa Ket, Surin, Amnat Jaroen, Yasothon
 - 23** **NBTC District Office 23: Nakhon Ratchasima**
Areas of Responsibility: Nakhon Ratchasima, Buri Ram, Chaiyaphum
 - 24** **NBTC District Office 24: Udon Thani**
Areas of Responsibility: Udon Thani, Nong Khai, Nong Bua Lamphu, Loei
 - 25** **NBTC District Office 25: Nakhon Phanom**
Areas of Responsibility: Nakhon Phanom, Sakon Nakhon, Mukdahan, Bueng Man
- 3** **Regional Office of NBTC 3** (Location: Chiang Mai)
The areas of responsibility are as follows:
 - 31** **NBTC District Office 31: Lampang**
Areas of Responsibility: Lampang, Phrae, Tak
 - 32** **NBTC District Office 32: Lamphun**
Areas of Responsibility: Lamphun, Chiang Mai, Mae Hong Son
 - 33** **NBTC District Office 33: Phitsanulok**
Areas of Responsibility: Phitsanulok, Phetchabun, Uttaradit, Sukhothai
 - 34** **NBTC District Office 34: Chiang Rai**
Areas of Responsibility: Chiang Rai, Nan, Phayao
 - 35** **NBTC District Office 35: Nakhon Sawan**
Areas of Responsibility: Nakhon Sawan, Kamphaeng Phet, Uthai Thani, Phichit
- 4** **Regional Office of NBTC 4** (Location: Songkhla)
The areas of responsibility are as follows:
 - 41** **NBTC District Office 41: Yala**
Areas of Responsibility: Yala, Pattani, Narathiwat, Songkhla, Satun
 - 42** **NBTC District Office 42: Phuket**
Areas of Responsibility: Phuket, Phangnga, Krabi
 - 43** **NBTC District Office 43: Nakhon Si Thammarat**
Areas of Responsibility: Nakhon Si Thammarat, Trang, Phatthalung
 - 44** **NBTC District Office 44: Surat Thani**
Areas of Responsibility: Surat Thani, Ranong
 - 45** **NBTC District Office 45: Chumphon**
Areas of Responsibility: Chumphon, Prachuap Khiri Khan



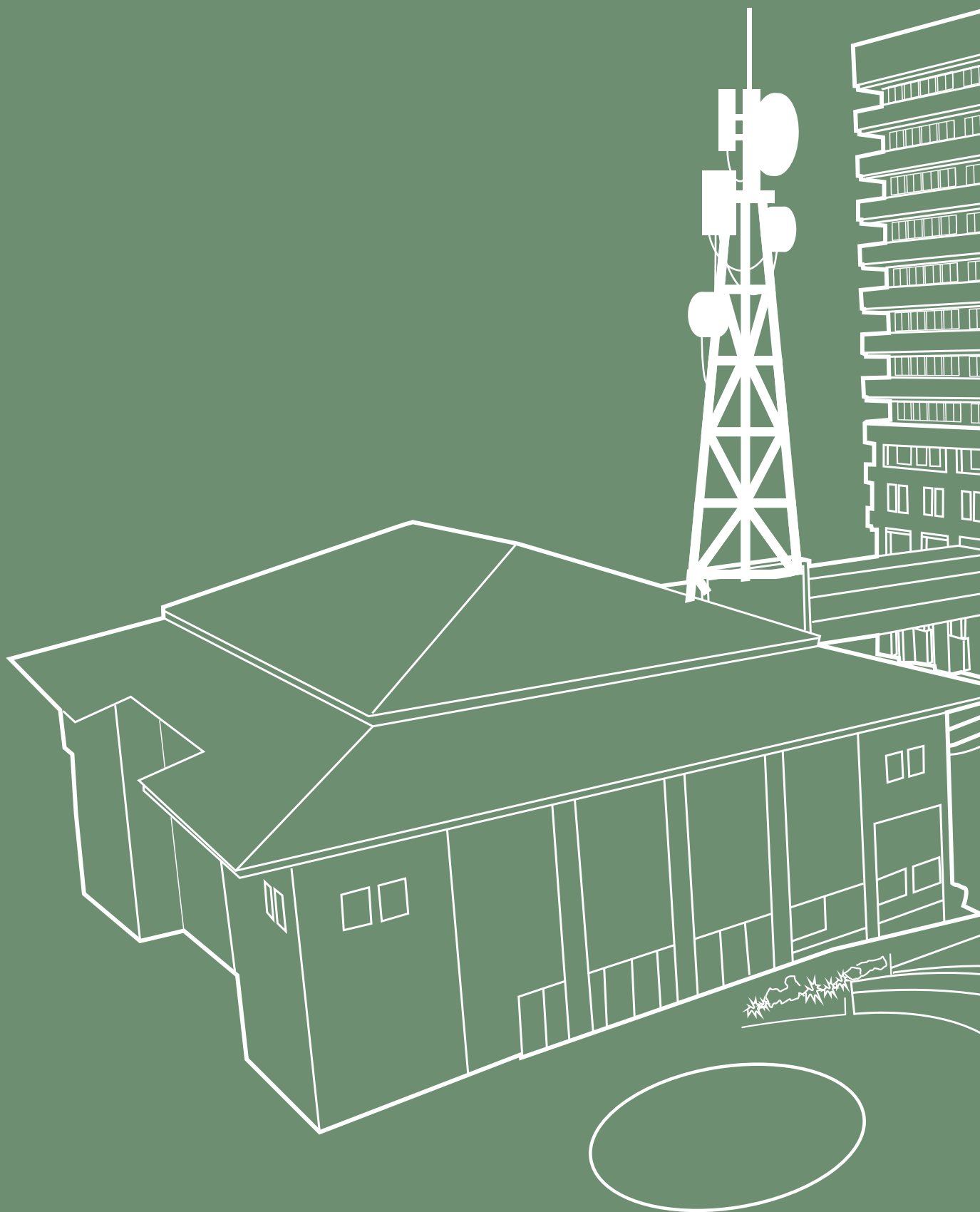
The Working Group of the NBTC Annual Report for the Year 2024

Secretary-General of the NBTC	Advisor
Deputy Secretary-General of the Telecommunications Cluster	Advisor
Deputy Secretary-General of the Broadcasting and Television Cluster	Advisor
Deputy Secretary-General of the Academic Cluster	Advisor
Deputy Secretary-General of the Regional Affairs Cluster	Advisor
Deputy Secretary-General of Strategic and Internal Affairs Cluster	Head of Working Group
Assistant Secretary-General, Strategic and Internal Affairs Cluster	Member
Executive Director, Internal Audit, Performance Appraisal and Anti-Corruption Bureau	Member
Executive Manager, Research and Development Fund Bureau	Member
Executive Director, Spectrum Management Bureau	Member

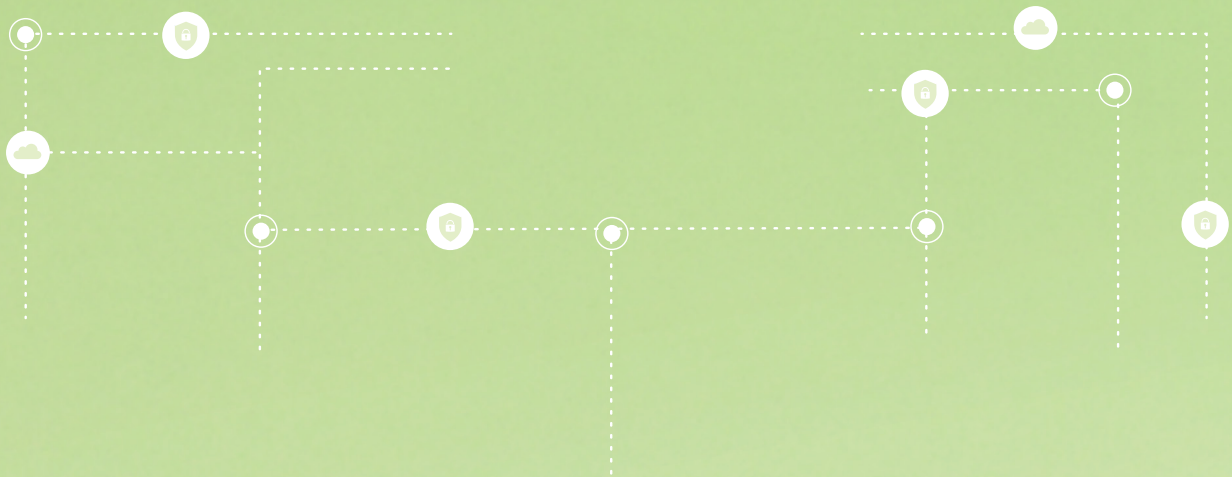


Executive Director, Satellite and Orbit Management Bureau	Member
Executive Director, Finance Bureau	Member
Executive Director, Regional Affairs Bureau	Member
Executive Director, Broadcasting Policy and Research Bureau	Member
Executive Director, Telecommunications Policy and Resources Management Bureau	Member
Executive Director, Policy Analysis Bureau	Member
Executive Director, Human Resource Management Bureau	Member
Executive Director, Strategic and Budget Bureau	Member and Secretariat
Division Director, Academic and Strategic Plan Development, Strategic and Budget Bureau	Member and Assistant Secretariat
Officers of the Strategic and Budget Bureau	Member and Assistant Secretariat









Office of The National Broadcasting and Telecommunications Commission

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