AIBD/ITU/ABU Regional Workshop on
Digital Terrestrial Broadcasting TV and Radio Policy and Transition
5 Jun2017, Qingdao, China

Session3: Issues and Challenges in Digital Broadcasting Transition/Deployment

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Contribution documents to ITU-D SG1 Question8/1

ITU-D Study Group1: Question 8/1
Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services

Thailand Case Study:
Transition to Digital Terrestrial Television Broadcasting
Document SG1RGQ/227(Rev.1)-E

Telecommunication Development Sector
Study Groups

ITU-D Study Group 1 Rapporteur Group Meetings
Geneva, 4 – 15 April 2016

Document SG1RGQ/227(Rev.1)-E
7 April 2016
English only

DELAYED CONTRIBUTION

Question 8/1:	Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services
SOURCE:	Thailand
TITLE:	Thailand Case Study: Transition to Digital Terrestrial Television Broadcasting

Action required: Participants are to consider this contribution.

Keywords: *Transition to Digital Broadcasting, Digital Terrestrial Television, Thailand*

Abstract:

This document provides an overview of Thailand's activities related to transition from analogue to digital broadcasting.

The Thailand's Act on Organisation to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services (2010) stipulates that the National Broadcasting and Telecommunications Commission (NBTC) shall have mandates to put in place a master plan for spectrum management and a master plan for broadcasting in Thailand.

Pursuant to the First Thailand Broadcasting Master Plan (2012-2016), transition from analogue to digital (terrestrial) broadcasting is one of seven strategies of the NBTC. In this regard, the NBTC has developed a roadmap for transition to digital terrestrial TV broadcasting in Thailand. The roadmap defines 39 service areas nationwide and each has 12 channels for Community Services. The total number of DTTB channel is 48 channels, 24 channels are allocated for national Business broadcasting services and 12 channels are allocated for national Public broadcasting services. 5 DTTB networks have been deployed, all operators agreed to share common infrastructure and facilities, network roll out plan target to reach 95% of household coverage within 4 years (2017).

This report consist of background of transition to digital broadcasting, television broadcasting in Thailand, network planning and deployment, service licensing and spectrum auction, receiver and subsidy program, DSO communication, ASO planning and implementation, and lesson learned.

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Digital Terrestrial Television in Thailand:
Frequency planning and technical aspects
Document SG1RGQ/218-E

Telecommunication Development Sector
Study Groups

ITU-D Study Group 1 Rapporteur Group Meetings
Geneva, 4 – 15 April 2016

Document SG1RGQ/218-E
22 March 2016
English only

DELAYED CONTRIBUTION

Question 8/1:	Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services
SOURCE:	Thailand
TITLE:	Digital Terrestrial Television in Thailand: Frequency planning and technical aspects

Action required: Participants are to consider this contribution for inclusion in the final report.

Keywords: *Digital Terrestrial Television, frequency planning, technical aspects, Thailand*

Abstract:

In Thailand, the National Broadcasting and Telecommunications Commission (NBTC) is playing an important role in promoting and implementing the transition from analogue to digital terrestrial television. In 2012, the transition roadmap was developed and DVB-T2 was selected as a national standard for digital terrestrial television (DTT). The technical specifications for DTT transmission, DTT receivers, as well as the first frequency plan were then developed. In 2013, NBTC and broadcasters conducted a field trial for DTT in Bangkok area to find tuning suitable parameter set - a key driver to the new frequency plan, aiming for a coverage target as stipulated in the roadmap. Since then, NBTC has been reviewing and updating relevant technical specifications and the frequency plan, as well as developing DTT technical guidelines.

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	E-mail:	supatrasit.s@nbtc.go.th

Lesson Learned on DSO transition in Thailand
(Country Case Study)

Set up trial

- Trial on the DTT system at the early transition before fully commercial launch was important to test the whole system and trial broadcasting markets.

DTTB Network Rollout

- Sharing infrastructure and facilities
- Ensuring that network rollout, network coverage an network quality of every MUXs are ready to provide broadcasting service the same period for fair competition.
- Regular network quality monitoring
- Setting proper Service Availability, faster recovery, redundancy system/location should be well planned in network design in the first place.
- Utilize existing antenna system and site facilities of existing network operators

Must Carry Rule

- NBTC enforced the rule of 'must carry' for the commercial and public service broadcasters to commence broadcasting DTV content from day one on satellite and cable TV which already cover more than 70% audiences in Thailand to increase DTV eye balls.

Lesson Learned on DSO transition in Thailand
(Country Case Study)

Digital TV Subsidy Program

- Collaboration between the agencies who distribute the set-top-box coupons
- DTV Coupon should be distributed to areas whereas DTTB signal covered.
- DTV coupon value should be enough to cover a qualified set top box with necessary accessories to receive signal
- Proper training for the STB installers prior to distribution of coupon and STB

Receivers

- Collaboration with Vocational school and network operators to help people on STB Receiver Installation, also set up advisory group to support installation.
- Develop application or tool to help the people to equip and tilt the antenna correctly like 'DTV Service Area'
- Having variety of receiver types like portable DTV Receivers e.g. smartphone, tablet, or portable.
- Selecting proper antennas type and model for Set-Top-Box is important to receive signal well.
- Set up advisory group either by dedicated group or volunteer group to support installation.

Collaboration

- Collaboration with industry : ATV and DTV broadcasters, DTTB network operators, manufacturers, retailers
- Collaboration with government agencies and public agencies in national and local level are also key factors to drive a success of digital transition.

Lesson Learned on DSO transition in Thailand

DSO Communication

- Mass communication to public, simply key message
- Getting engagement from government agencies in state and local level, public and relevant. organization.
- Social media Communication such facebook, youtube, twitter

Audience Measurement : Rating of Television Broadcasting

- Rating survey should be conducted to cover all broadcasting platforms including digital platform (i.e. internet) to have real broadcasting rating and user behavior.

Call Center and Information to Support Customer

- Cooperation with DTTB network operators to help people on installation the DTTB receivers, and also build confidence on DTTB network quality.

Capacity Building

- Continuous organizing capacity building on Digital Broadcasting technical, regulation aspects, content development

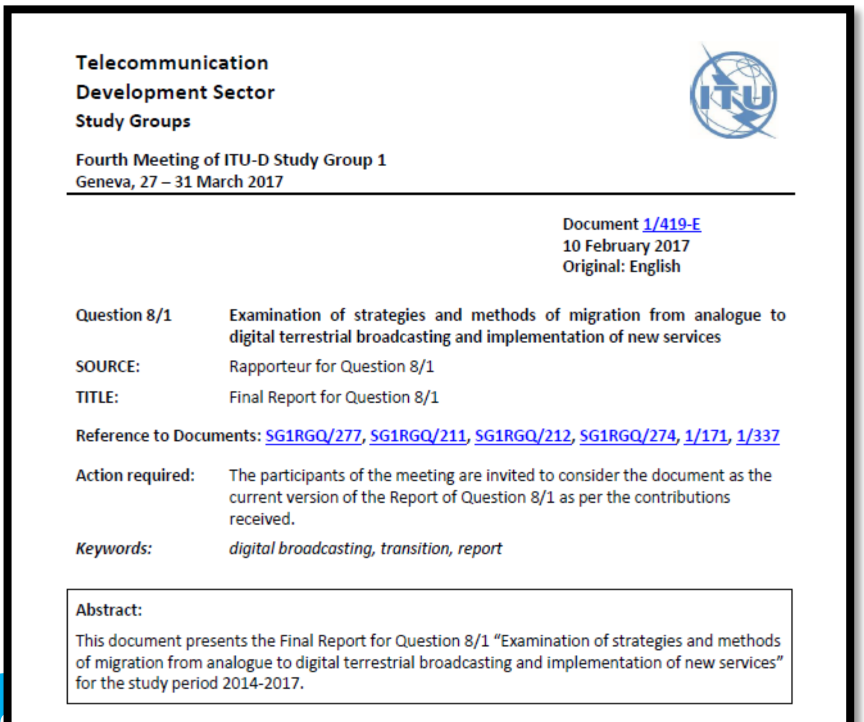
ITU-D Study Group1: Question 8/1

(study period 2014-2017)

ITU-D Study Group1: Question 8/1

Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services

Final Report Question 8/1 Document 1/419-E



Telecommunication
Development Sector
Study Groups

Fourth Meeting of ITU-D Study Group 1
Geneva, 27 – 31 March 2017

Document 1/419-E
10 February 2017
Original: English

Question 8/1	**Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services**
SOURCE:	Rapporteur for Question 8/1
TITLE:	Final Report for Question 8/1

Reference to Documents: SG1RGQ/277, SG1RGQ/211, SG1RGQ/212, SG1RGQ/274, 1/171, 1/337

Action required:	The participants of the meeting are invited to consider the document as the current version of the Report of Question 8/1 as per the contributions received.
Keywords:	*digital broadcasting, transition, report*

Abstract:

This document presents the Final Report for Question 8/1 "Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services" for the study period 2014-2017.

- CHAPTER 1 – Best practices to accelerate the transition from analogue to digital television broadcasting and bridge the Digital Divide with the deployment of new services
- CHAPTER 2 – Communication strategies to accelerate the process of public awareness about digital broadcasting
- CHAPTER 3 – Spectrum issues related to the Analogue Switch-Off process
- CHAPTER4- Use of released spectrum and implement new services and applications
- CHAPTER5-Countries case studies on transition to digital broadcasting and the use of the digital dividend frequency bands

ITU-D Study Group1: Question 8/1

Proposed next Study Period

ITU-D Study Group1: Question 8/1
Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services

Future of Question 8/1 – topics of study

- **Broaden the scope of the question** not restricting it to Analogue to Digital Television Broadcasting:
  - Evolution of the Digital Transition in Broadcasting [DVB-T to DVB-T2, SD to HD, MPEG2 to MPEG4, etc.];
  - Digital Radio (Sound) Broadcasting.
- **Use of the released spectrum** to new services and applications, including collection of case studies and best practice:
  - Bridging the digital divide;
  - Development of rural communications.
- Collection of best practices and countries´ experiences on **interference mitigation** between broadcasting and new services;
- Implementation of **new services and applications**:
  - Community and Regional TV on DTV;
  - New Broadcasting Services: 3D, 4K, 8K, etc.; multimedia/interactive services; mobile television.
- **Economic aspects** of the deployment of new broadcasting services and applications:
  - Deployment costs.
- **Impact of other television distribution platforms** (IPTV, Cable, Satellite, etc.) on terrestrial broadcasting market.

ITU-D Study Group1: Question 8/1
(study period 2014-2017)

ITU-D Study Group1: Question 8/1
Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services

Guideline on Digital Communicationn Strategy from Transition from Analog to Digital Terrestrial Broadcasting Document1/421-E

Telecommunication Development Sector
Study Groups

Fourth Meeting of ITU-D Study Group 1
Geneva, 27 – 31 March 2017

Document 1/421-E
10 February 2017
Original: English

Question 8/1	Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services
SOURCE:	Rapporteur for Question 8/1
TITLE:	Guidelines on Communications Strategies for the Transition from Analogue to Digital Terrestrial Broadcasting

Reference to Documents: SG1RGQ/274, SG1RGQ/212

Action required:	Participants are invited to consider these Guidelines.
Keywords:	*digital broadcasting, transition, communication strategies*

Abstract:
This document contains the Draft Final Guidelines on Communications Strategies for the Transition from Analogue to Digital Terrestrial Broadcasting for Question 8/1.

- CHAPTER 1 –Communication planning to accelerate the process of public awareness about digital broadcasting
- CHAPTER 2 – Information Campaigns for the general public
- CHAPTER3-Media Communication Campaign
- CHAPTER4-Communication strategies targeted low income population

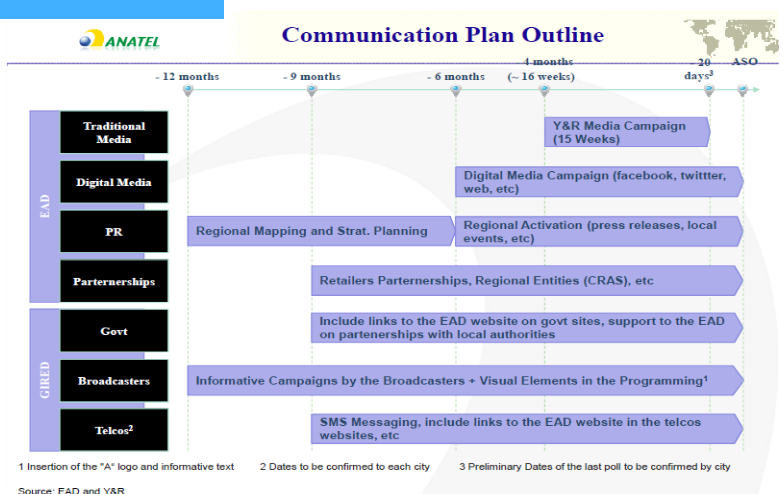
Reference / Contribution from Brazil, German, Hungary, Netherland, Niger, Russia, Serbia and Thailand

ITU-D Study Group1: Question 8/1
(study period 2014-2017)

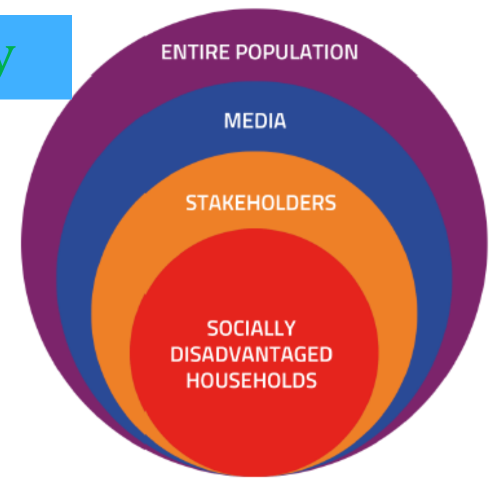
Guideline on Digital Communicationn Strategy from Transition from Analog to Digital Terrestrial Broadcasting Document1/421-E

Chapter1: Communication planning to accelerate the process of public awareness about digital broadcasting

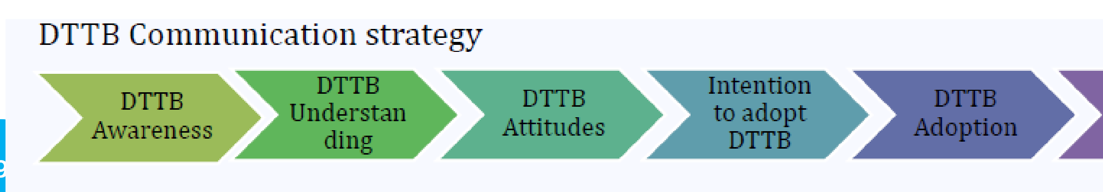
Brazil



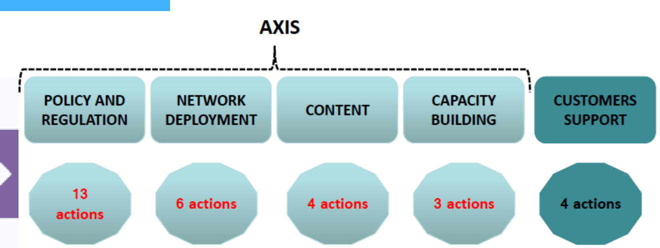
Hungary



Thailand



Niger



Reference / Contribution from Brazil, German, Hungary, Netherland, Niger, Russia, Serbia and Thailand

Over the Top (OTT)

- OTT impact revenue stream of broadcasters
- User behavior change on viewing TV/Radio Broadcasting services
- NBTC Project: NBTC OTT Competition Regulation (completed Jan2017)
- OTT Markets in Thailand
  - Reference to DAAT-AVoD: Market price 143 million US (> 50% is Facebook, 33% is Youtube)
- Way forward OTT
  - Study OTT services and regulation, discussion with players/stakeholders, decide whether regulate OTT services, and then develop rule/means.

OTT categories

Categories of OTT TV Provider and Content

OTT TV Provider

Independent OTT TV Provider

Newly established OTT TV providers who are not related to any existing players

OTT TV from Content Producer

Established by movie or TV producers. They have a valuable content to start with

OTT TV from Free TV Provider

Established by Free TV broadcasters to be an alternative distribution channel

OTT TV from Pay TV Provider

Established by Pay TV providers to provide as an add-on feature to existing satellite, cable and IPTV customers.

OTT TV from Telco Providers

Established by Telco providers who are benefit from utilizing their own network and subscriber base.

OTT TV from Collaborated Providers

Established by a collaboration between similar or different types of existing providers

Content

1) Mass Content

- Content which is in the interest of the public or reflects the mainstream culture
- Available in the dominant language or foreign languages with subtitle

2) Niche Content

- Content produced to serve a specific group of people
- E.g. sports, cartoons and cooking shows

3) User Generated Content

- Content produced by a single or group of independent users in the video sharing platforms

Reference: Project – NBTC OTT Competition Regulation

OTT Revenue/Advertising Model

Categories of OTT TV Monetization Model

Free Platform

Advertising-driven (AVoD) and OTT TV as a Feature

AVoD offers free-view platform with pop-up ad banners and ad video played at the start and/or periodically throughout the video.

While pay TV uses OTT TV as a feature to retain its customers.

Freemium

A hybrid model offering a combination of free, advertising-driven content, transactional and/or subscription-based VoD.

Customers can choose to enjoy advertising-driven videos for free, or subscribe to watch ad-free videos.

Premium/Paid Platform

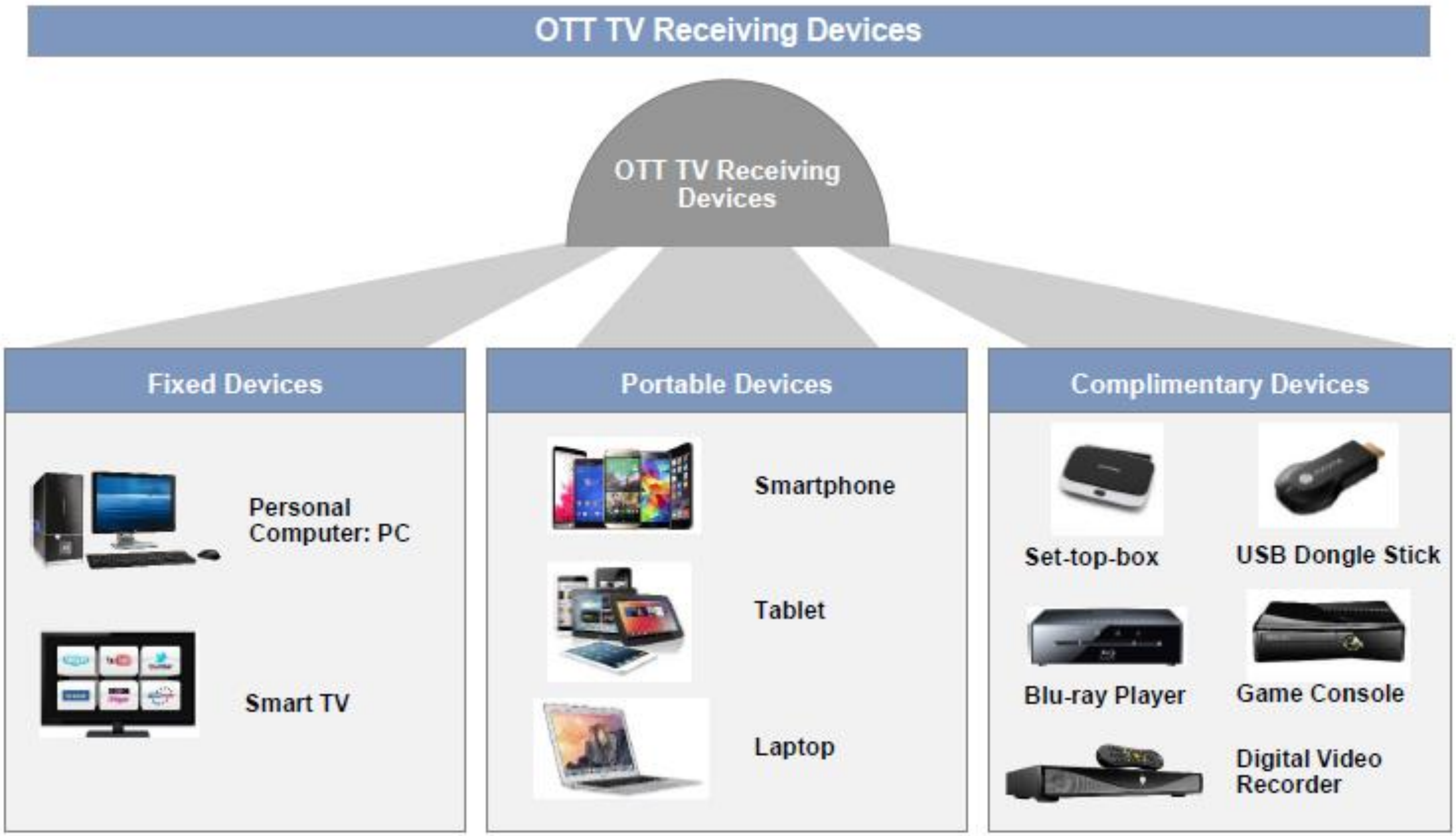
Subscription (SVoD) and Transactional (TVoD)

For SVoD, customers gain unlimited access to the digital content by making monthly/annually, recurring subscription to the operators.

For TVoD, customers pay each individual VoD program and watch in limited time (PPV) or anytime they want (DTO)

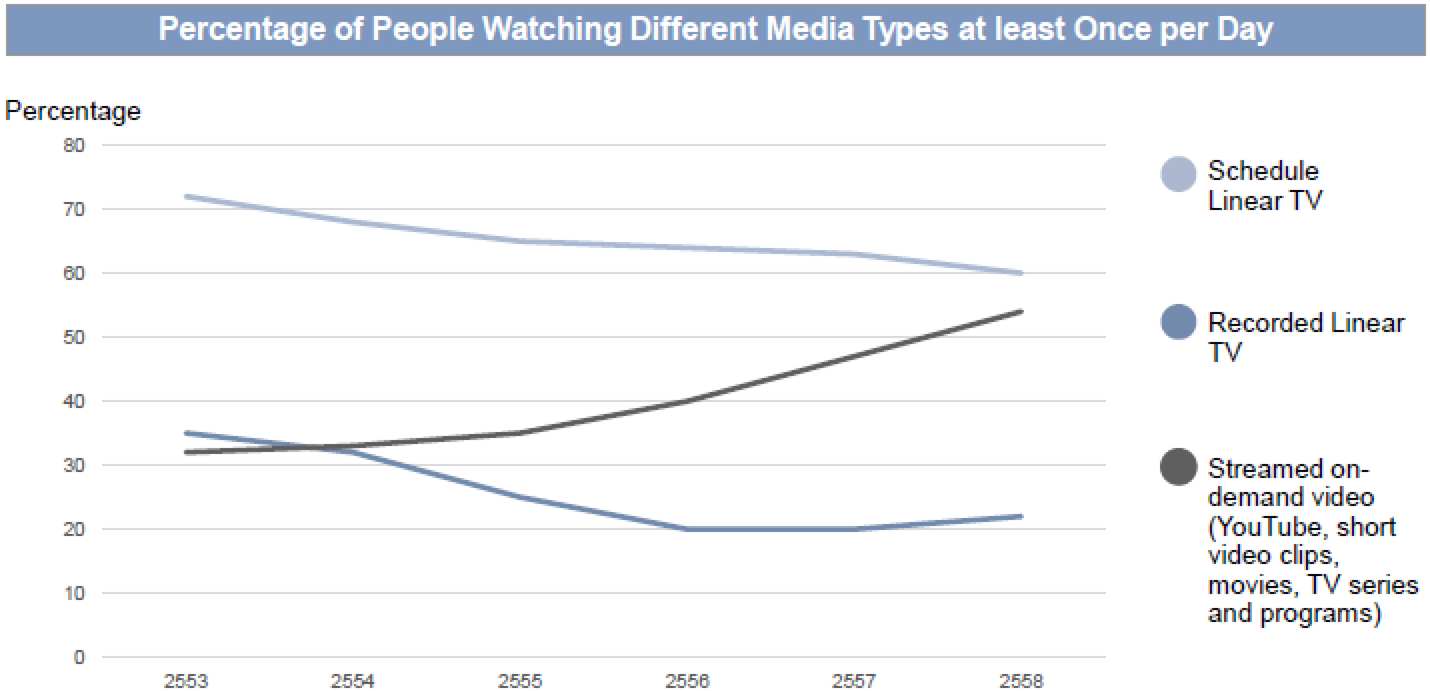
Reference: Project – NBTC OTT Competition Regulation

OTT Devices



Reference: Project – NBTC OTT Competition Regulation

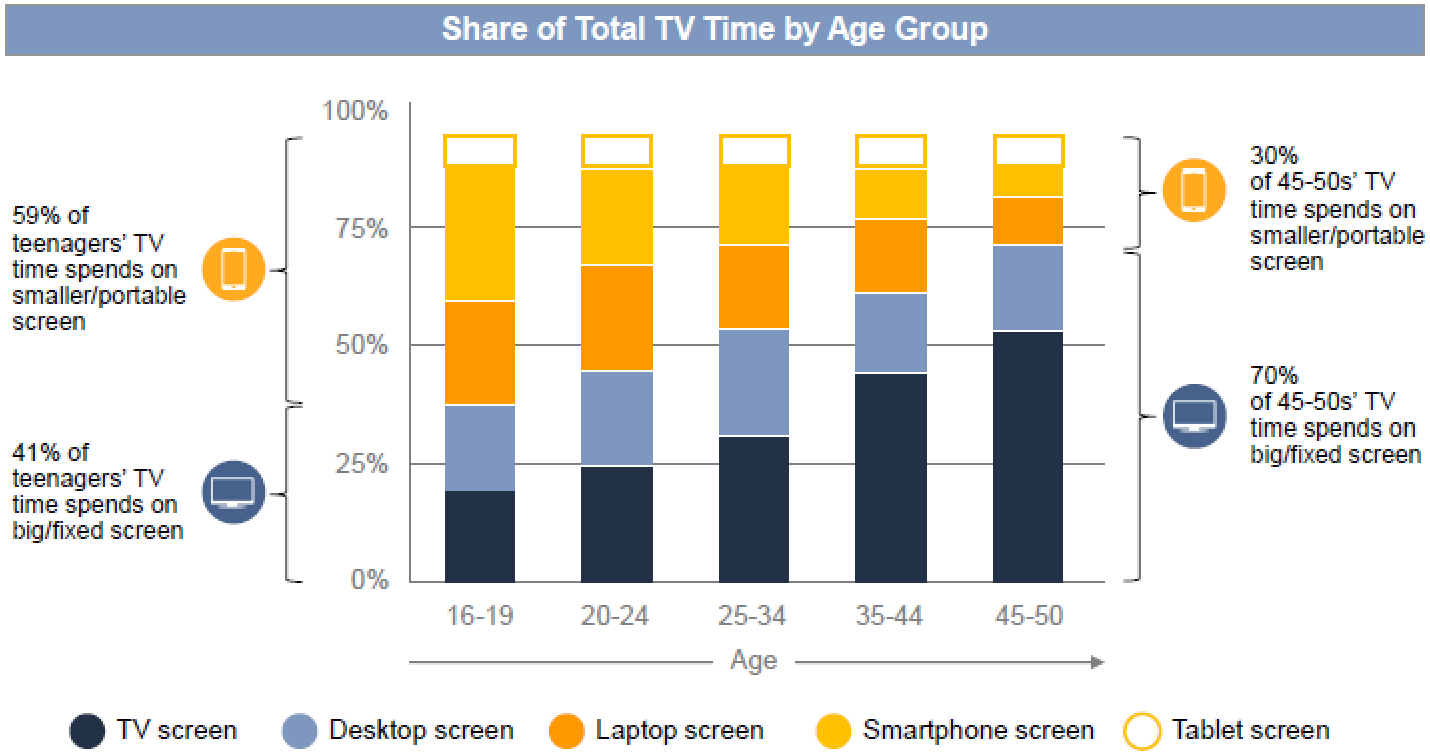
VoD Consumption



Source: Ericsson ConsumerLab, TV and Media, B.E. 2558
Base: At least weekly viewers of video/TV with broadband at home, aged 16–59. in Brazil*, China, Germany, Spain. South Korea*, Sweden, Taiwan, UK, US
*excluded in B.E.2553 figure

Reference: Project – NBTC OTT Competition Regulation

Size of TV Screen



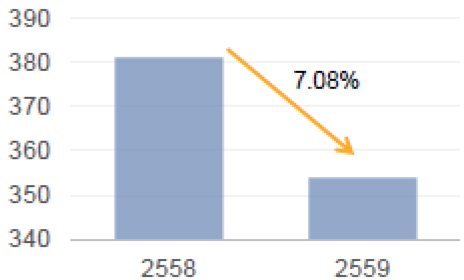
Source: Ericsson ConsumerLab, TV and Media, B.E. 2558
Base: At least weekly viewers of video/TV with broadband at home, aged 16–59. in 20 markets

Reference: Project – NBTC OTT Competition Regulation

Pay TV players/markets has been decreased.

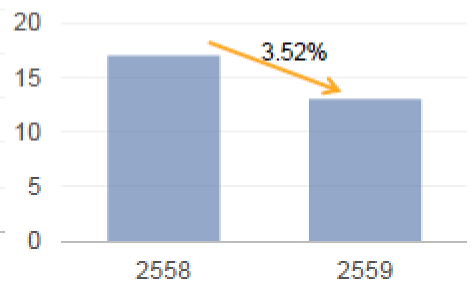
Current situation in Pay TV market

No. of providers



Source: NBTC (May, 2559)

No. of providers



Out of market Aug,2016

The exit from the market caused by many factors;

-Uncertainty of broadcasting regulation
- Must carry regulation: cable and satellite TV providers must pack all 36 terrestrial-based digital channels together.
- Rearrange the digital-TV channel numbers on cable and satellite in an attempt to set a single standard across all platforms.

- Bottleneck Infrastructure in particular in apartment and condominium.
- High cost of acquiring contents in order to secure right to broadcast and attract more customers i.e. sport and live events.
- Competition with among Pay TV providers and other platforms .

Reference: Project – NBTC OTT Competition Regulation

3 types of OTT players in Thailand

OTT TV Players in Thailand

Independent OTT TV Provider:

Local OTT TV

Regional/Global OTT TV

OTT TV from Free TV Provider:

CH7
Web & application:
www.ch7.com/live.html
CH7. Live
CH7

Mono
Web & application:

CH3
Application:
TV3Official
www.thaitv3.com/ดูทีวีออนไลน์/

One
http://www.onehd.net/

Workpoint
Application:
workpointofficial
workpointtv.com/streaming/

CH8
Application:
ThaiCh8
https://www.thaich8.com/

OTT TV from Telco Providers:

OTT TV from Pay TV Provider:

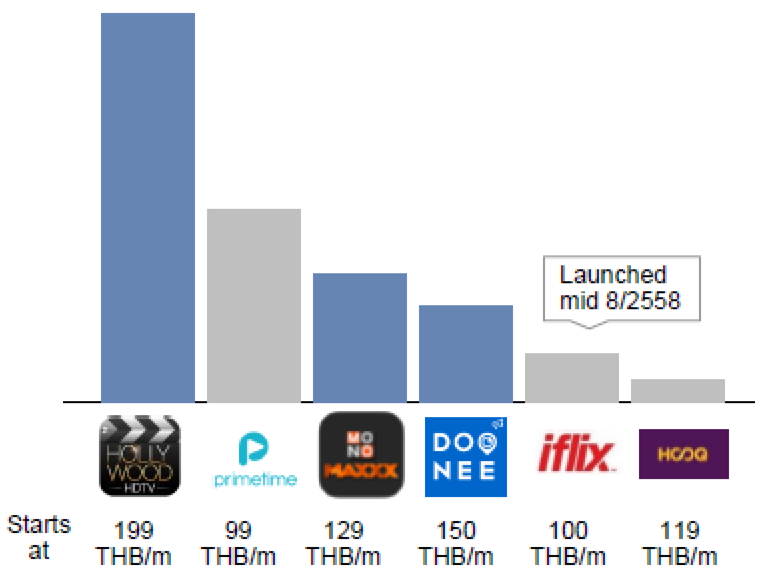
- No OTT TV provider from Content provider or collaborated providers

Reference: Project – NBTC OTT Competition Regulation

OTT TV in Thai: SVoD

SVoD OTT TV in Thailand

2558 OTT TV Revenue in Thailand (THB)



Note: * Forecast number
Source: DBD 9/2559, Mono Technology, TIME database

35 THB=1 US

Netflix:
- Started in Thailand in Jan 2559 (2016)
- Netflix could become a dominant player in Thai SVoD market in the future because of its reputation and economy of scale.

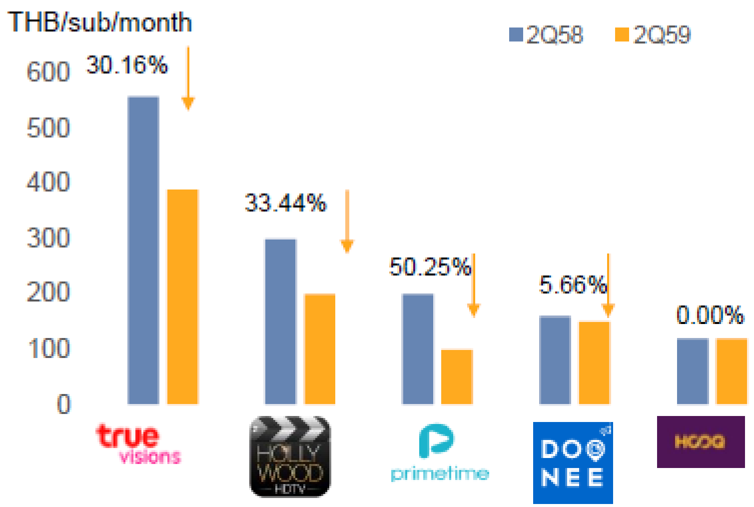
AIS Play:
- As a feature for AIS Playbox customers
- Offer exclusive contents i.e. GMM Bravo, Kik-Doo Taa Ngao Seang
- Act as a application portal for HOOQ, Doonee, etc.

True Visions Anywhere:
- Launched as a feature for TrueVisions customer in 2556
- Currently added SVoD (starts at 100THB/m) and TVoD packages for customers who want to watch only via the application

Reference: Project – NBTC OTT Competition Regulation

OTT TV in Thailand: SVoD pricing

Price Trends and Technologies



-The decreasing in price reflects the competition in the market, in particular for truevisions.

-truevisions has occupied the mass segment, but it lower the price in order to offset with more subscription base they gained.

-SVoD pricing of independent providers is lower than 200 THB/m

Self Developed Platform

Short run technologies needed:

-Video compression- 4K, HEVC

-Digital right management (DRM encryption scheme for securely licensing distributing

-Multiscreen personalization

-Service or equipment to improve user experience (UX)

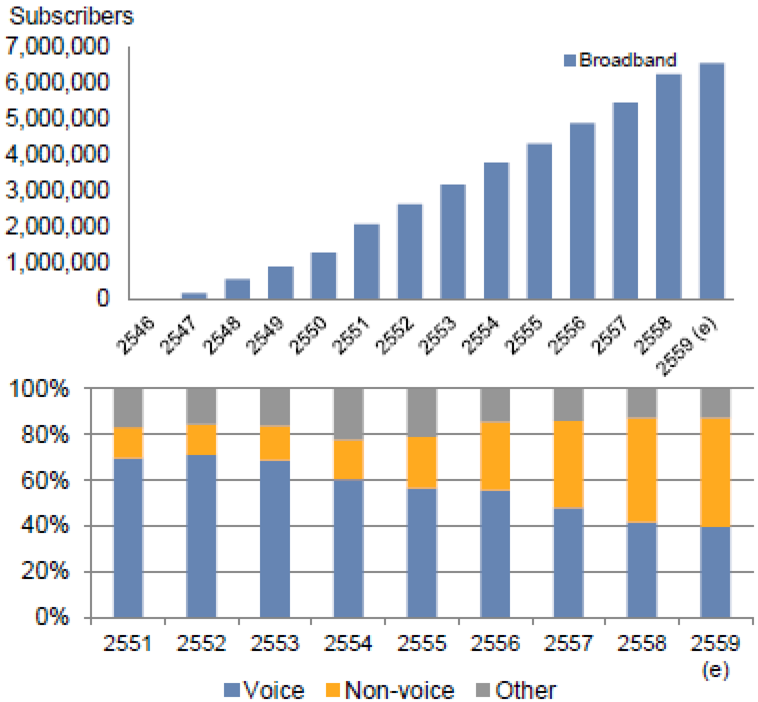
-Technology for live broadcasting i.e. virtual reality and 360° video

Source: TIME database, Digital TV Europe(2016)

Reference: Project – NBTC OTT Competition Regulation

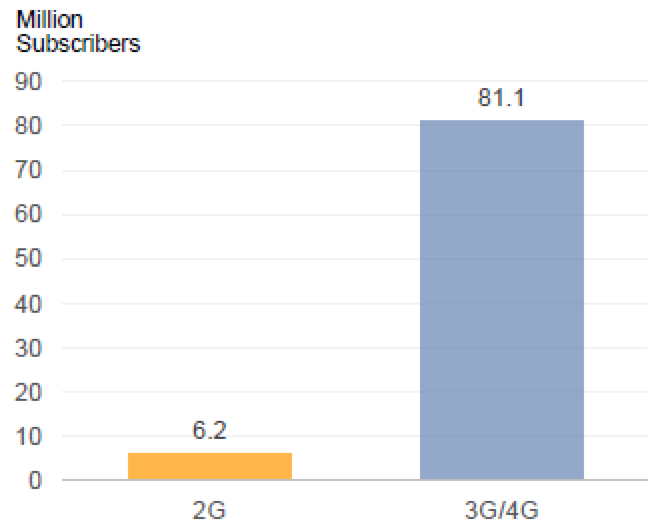
Broadband Growth

Growth in broadband adoption in Thailand



Source: NBTC database, 2558

Migration to 3G/4G is major driver



Source: Annual report of Advance, True and TAC, 2558

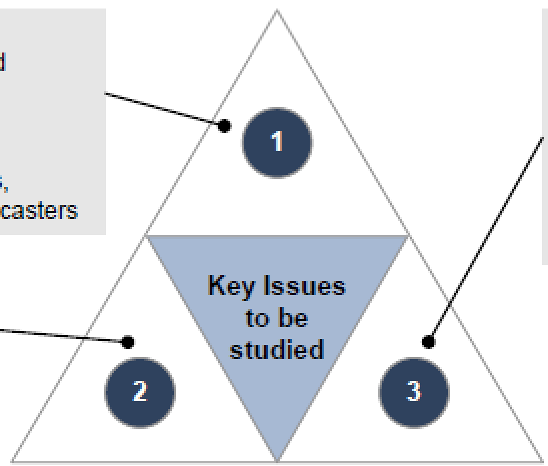
Reference: Project – NBTC OTT Competition Regulation

OTT International Benchmarking

International Benchmarks

OTT TV Business Characteristics
- Linear and non-linear landscape and competition
- OTT TV business model and trends
- OTT TV monetization model
- Cooperation among OTT TV players, Telcos, pay TV operators and broadcasters

OTT TV Regulation
- OTT TV market definition and scope of regulation e.g. network regulation, licensing, online content regulation
- Other relevant policies e.g. government support on tech start ups



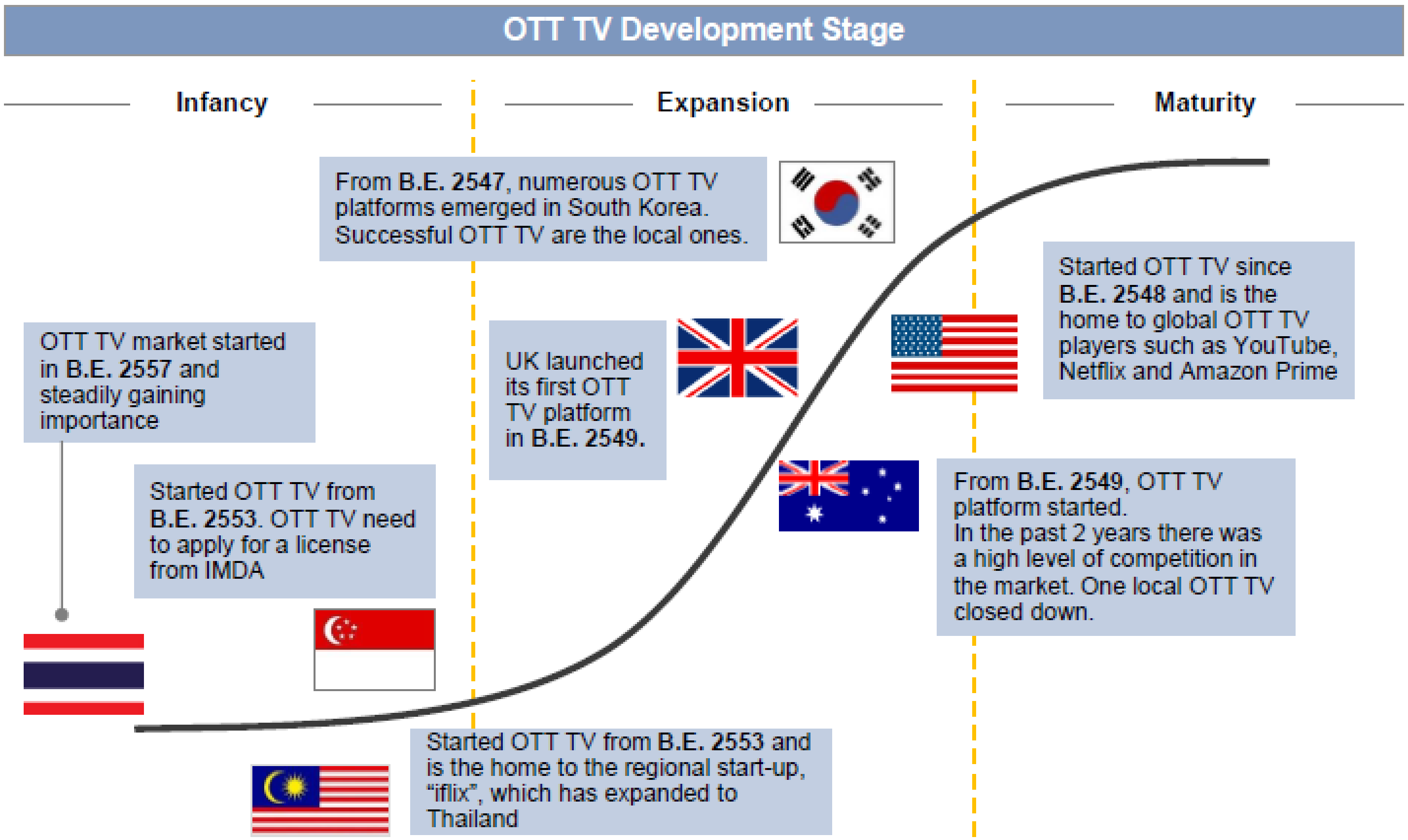
Impacts of OTT TV
- Impacts of OTT TV in different aspects e.g. competition with other platforms, price levels and consumer

Consumer behavior
- Global trend of consumer behavior towards video content consumptions

Regulation: study on each aspects-Prohibit content, On-line rating, Youth Protection, Local Content Quota, Advertising

Reference: Project – NBTC OTT Competition Regulation

OTT: International Benchmarking



Reference: Project – NBTC OTT Competition Regulation

OTT: International Benchmarking

Dominant Players		
The US	YouTube, N, amazon, hulu, CRACKLE	• Dominate by Independent OTT TV player like YouTube, Netflix and Amazon prime
The UK	YouTube, N, amazon, BBC iPlayer, sky *BBC iPlayer viewers must pay TV license fee	• US's players has most of the SVoD market share • UK enjoys Free contents from Traditional TV players
South Korea	pooq, ON EVERYON TV, tving, olleh, oksusu, U+HDTV	• All of the big players are backed by Traditional broadcasters and pay TV providers.

Advertising Based (AVoD) Subscription Based (SVoD) OTT TV As a Feature Freemium

Reference: Project – NBTC OTT Competition Regulation

OTT: International Benchmarking

Dominant Players		
Australia	YouTube, Netflix, Foxtel Go, Stan.	• Australian choose Netflix over local ones to stream movies and series • Popular local OTT TV are from traditional TV players
Singapore	YouTube, Toggle, StarHub Go, SingtelTV GO	• YouTube is the go-to choice for catch-up TV rather than Toggle (Content Owner) • Popular local OTT TV are from traditional TV players
Malaysia	YouTube, tonton, astro GO	• Free OTT TV platforms dominates Malaysian OTT TV market. • Popular local OTT TV are from traditional TV players
Thailand	YouTube, LINE TV, Hollywood HDTV, Mono Maxx	• Thai prefer free platform for online video contents • Independent OTT TV players dominates SVoD OTT in Thailand

Advertising Based (AVoD) Subscription Based (SVoD) OTT TV As a Feature Freemium

Reference: Project – NBTC OTT Competition Regulation

Challenges

- Technology/Transmission Standard
- Spectrum management/licensing
- Network Planning, Deployment, Monitoring
- Receivers
- DSO Communications
- Monitoring transition rate /audience measurement
- ASO as planed
- Revenues from advertising
- Content Development
- Broadcasting Channels/Platforms
- OTT Broadcasting

Thank You

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