FINAL REPORT

A Study on the Future of Television Broadcast / Audio-Visual sector in Thailand under a rapidly changing digital evolution

Prepared for
the NBTC

23 August 2024

A Study on the Future of Television Broadcast / Audio-Visual sector in Thailand under a rapidly changing digital evolution

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On behalf of the

National Broadcasting and Telecommunications Commission

Final Report For:

A Study on the Future of Television Broadcast / Audio-Visual sector in Thailand under a rapidly changing digital evolution

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This report covers the four Phases of the study with Phase 1 covering the Thai audiovisual market, Phase 2 covering two major subjects areas, first the survey of eight countries worldwide in their response to the trends to streaming in a market previously defined by linear broadcast TV, and secondly, the external forces from technology to social networking to new sector business models from the global markets as well as financial investments. The final chapters examine the possibilities of 3 scenarios that could show the way forward for Thai industry.

Structure of the FINAL REPORT

Abstracts

1. Chapter 1: The Thai Audiovisual market
2. Chapter 2: External Forces on the Thai Audiovisual markets
3. Chapter 3: Lessons from Eight Overseas Markets
4. Chapter 4: Three Scenarios for the future sector development
5. Chapter 5: Knowledge Transfer Seminar for NBTC
6. Appendix
   - Appendix 1: TV & Video market-overview for Thai market
   - Appendix 2: Content trends in Thai audiovisual services
   - Appendix 3: Results of Focus group meeting and in-depth interview
   - Appendix 4: Summary of key information of overseas market
   - Appendix 5: Online survey of viewing trend in Thailand
   - Appendix 6: Indications from the UK of future viewing trends by age-group
   - Appendix 7: Assessment of Numbers of DTT Broadcast TV Operators competing in a broadcast licence auction in 2029
   - Appendix 8: Photo collection of focus groups, in-depth interview and onsite meetings with NBTC
   - Appendix 9: The 3500 MHz Geo-satellite C-band migration impacts
   - Appendix 10: Complied presentation slides for NBTC knowledge transfer
   - Appendix 11: Additional appendix

Covering the Thai Audiovisual market development, an eight country survey of current audiovisual developments across the globe, the external forces shaping the Thai internal market with a presentation of three potential future scenarios under an industrial strategy to move the Thai Audiovisual sector forward.

ABSTRACT

An introduction to the FINAL report

This Final Report for the study of the future directions of the Thai audiovisual market in a flux of digital influences examines its opportunities and issues, as digital online technology threatens major changes, but also may bring out the sector's potential as a driver of the Thai economy through its creative capabilities.

Consequently, as a Final Report it must cover all the major facets of the subject. It opens with analysis of the Thai AV market development, covering the age related trends in TV content consumption, due to the different preferences of technology and content by age group A survey of eight overseas markets gave us lessons learnt from countries with similar experiences of new OTT technologies challenging the traditional TV market, bringing social as well as economic challenges. One conclusion is that with the globalisation of the Thai market, as explained in the External Forces study, the major area for concern are regulatory developments, necessary to bring the OTT sector under the needs for well administered services that benefit all citizens. Finally, three scenarios forecast possible trajectories of development, with and without the necessary institutional and regulatory advances necessary.

In this brief abstract, it is however important to bring out some of the key messages and here we present a brief summary of our recommendations for the future regulatory environment as this sets the whole scene for the AV industry future. We suggest that, in considering actions appropriate to the current Thai market situation, solutions to the following main problems would be needed:-

1 Content regulation for OTTs and linear broadcasters needs to be rebalanced. The smaller Thai OTT streaming platforms should be regulated for content quality with removal of harmful material, especially. Thus OTT regulation becomes comparable to that for TV broadcasters. Online protection, verified news and laws against hate peech

have become ever more pressing, demanding enforcement of content moderation and removal of illegal content.

2 Measures should be taken to ensure that Thai users of social media are protected from hate speech, incitement to terrorism and violence and the availability of harmful content to vulnerable consumers. New regulatory directions in the EU DSA could be useful.

3 The NBTC should monitor the numbers of operators and the strength of competition in the market for fixed and mobile operators and in the streaming market. The NBTC should seek to ensure that it has powers to respond to the development of excessive concentration of market power in these activities. Here the EU DMA points the way.

4 For this, the NBTC should examine precedents from other jurisdictions and consider ways in which it can cooperate with other bodies in Thailand (and perhaps ASEAN) in order to curb the high levels of market power of the social media and digital platforms in the AV sector.

5 Stimulation of content production to encourage high quality could also motivate greater viewing for all AV distribution channels and help to reduce the harmful effects of the current Thai streaming content.

6 NBTC should begin negotiations with other AV industry bodies with a view to supporting the establishment of a new body responsible for supporting investment, production, distribution and promotion of Thai produced content.

The challenges of the social networking era in terms of harms to vulnerable people and children are urgent, and implementation of appropriate, effective legislation is needed. Our summary of recommendations above, concerning the NBTC's future regulation of and policy for the Thai AV sector, are based upon the entirety of the present report.

More detailed and specific technical comments for NBTC extra requests are also given in separate Appendices, such as that for the 3500 MHz Geosatellite C-Band migration impacts.

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Acronyms and abbreviations

AAS Active Antenna system –used in basestations for LTE-A-PRO and 5G
AR Augmented reality – mixing current scenes with artificial animated extensions ('metaverse' technology)
AV audiovisual
ARPU Average Revenue Per User
AVOD Advertising (supported) Video on Demand
BSS Business Support Systems (eg customer care, billing)
BVOD Broadcaster Video On Demand
CATV Cable Access Television
CDN Content Distribution Network
CP Content Provider (sources video programming, music, games, streamed or downloaded)
CRM Customer Relationship Management – customer care software, databases and call centres
DMA Digital Markets Act - an anti-trust act in force in 2024 from the EC for global 'gatekeeper' platforms
DSA Digital Services Act – for regulation of online platforms' operations- from the EU - in force in 2024
DoJ Department of Justice, regulator for competition and anti-trust (USA)
DSL Digital Subscriber Line – a form of broadband for copper cabling – either twisted pair or coax
FAST Free Advertising Supported TV – a type of financing for streaming but also for broadcast TV
FBB Fixed (Fibre optic) Broadband
FDI Foreign direct investment
FMC Fixed Mobile Convergence

FO Fibre Optics
FTTH Fibre To The Home (Optical Fibre)
FTTP Fibre To The Premises (Optical Fibre)
FTC Federal Trade Commission (USA), regulator
FWA Fixed Wireless Access (extending broadband mobile into homes and offices with fixed beams)
GB Giga Byte
GDP Gross Domestic Product
GUPPI Gross Upward Pricing Pressure Index
HHI Herfindahl - Hirschman Index, measure of market concentration
ICT Information and Communications Technology – telecommunications & computing equipment, software
IoT Internet of Things
IP Internet Protocol, also Internet Packet
ISP Internet Service Provider
IXP Internet Exchange Point
LTE-A-Pro Mobile - Long Term Evolution-Advanced – Professional: mobile technology
MBB Mobile BroadBand
MIMO Multiple Input Multiple Output (antenna system for basestations)
MNO Mobile Network Operator
MTBF Mean Time Between Failure (of a mobile network)
MTTR Mean Time To Repair (a mobile network)
MVNO Mobile Virtual Network Operator
NRA National Regulatory Agency (or Administration) - the telecommunications regulator
NSA – Non-standalone – a mode of 5G implementation based on LTE-A-Pro infrastructure
OFC Optical Fibre Cable

OSS Operational Support Systems (for network management, security, etc)
OTT Over the Top (services) – IP data services usually carried over broadband networks
RAN Radio Access Network – the cellular radio architecture with basestations, antennae, towers, backhaul, etc
SIM (card) Subscriber Identification Module
SLA Service Level Agreement
SME Small or/and Medium Enterprise
SMP Significant Market Power
STB Set top box (for online OTT or CATV reception)
SVOD Streaming Video On Demand (eg Netflix) also, Subscription Video on Demand
SWN Shared Wholesale Network
ToR Terms of Reference
TVOD Transactional VOD – or pay per view
UMTS Universal Mobile Telecommunications System, also termed 3G in the mobile industry
UPP Upward Pricing Pressure
VFX Visual effects
VOD Video on Demand
VR Virtual Reality – visual and audio immersion techniques for animated scenes (‘metaverse’ technology)
WWW World Wide Web

Chapter 1 The Thai Audiovisual market - Distribution Channels, Value chains and Market Segmentation

1.1 Introduction to the Thai Market Structure

This chapter aims to understand the current situation of Thai broadcasting industry. Start with the overview of percentage of households reached for each broadcasting services. Next, the snapshot of average time per viewers, revenue, and trend of number of viewers are provided.

1.1.1) Overview

Broadcasting Services - households reached. Nielsen regularly releases data on TV platform penetration in Thailand where they consider distribution of households reached via different platforms.

Their most recent finding in 2024 reveals that DTT has reached 15.6%, Local Cable and KU band Satellite TV together at 15.8%, C band Satellite TV at 49.8%, and IPTV, OTT and PAY TV at 18.7%.

Overall trend reveals that DTT reach has been declining, likely replaced by increasing households who opt for internet-based TV and PAY TV. On the other hand, Satellite TV retains its reach penetration at slightly more than 60%. The breakdown details are as follows. Note that the sum of all penetration shares is exactly 100%. This is meant to be interpreted as only allowing viewers to choose one option – that which they prefer. In practice, multiple options might be present in one household.

Table 1-1 Distribution of TV platform penetration in Thailand (in percentages)

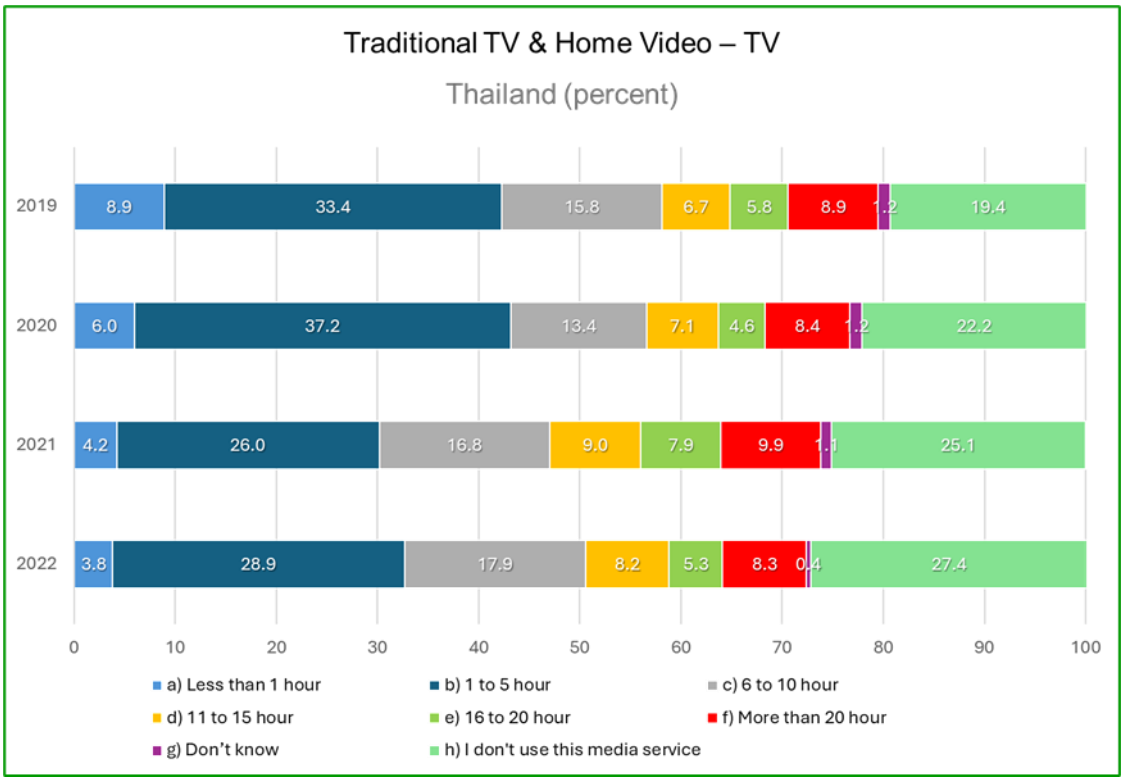
Year	DTT	Local Cable	KU band	C band	Satellite (KU + C)	Satellite + Local cable	IPTV + OTT + PAY TV
2019	23.9	5.1	9.1	52.5	61.5	66.7	9.4
2020	23.0	4.4	12.2	50.5	62.7	67.1	9.9
2021	20.0	3.3	15.0	49.7	64.7	68.0	11.9
2022	19.4	2.7	15.3	46.8	62.1	64.9	15.8
2023	17.6	1.9	14.8	47.6	62.4	64.3	18.1
2024	15.6	15.8		49.8		65.6	18.7

Source: Nielsen 2024

Figure 1-1 shows that average viewing time, in hours per week, seems to have decreased in 2022 compared to the previous few years. All the bigger segments (11 to 15 hours, 16 to 20 hours, more than 20 hours) have shrunk by a few percentage points, while smaller segments. (1 to 5 hours, 6 to 10 hours) increase slightly. More importantly, the number of those who reportedly do not use the media service has been growing since 2019 (Statista, 2023) [1].

[1] https://www.statista.com/outlook/amo/media/tv-video/traditional-tv-home-video/thailand

Figure 1-1 Average time per viewer for traditional TV channels.



Source: Statista Consumer Insights Global 2023

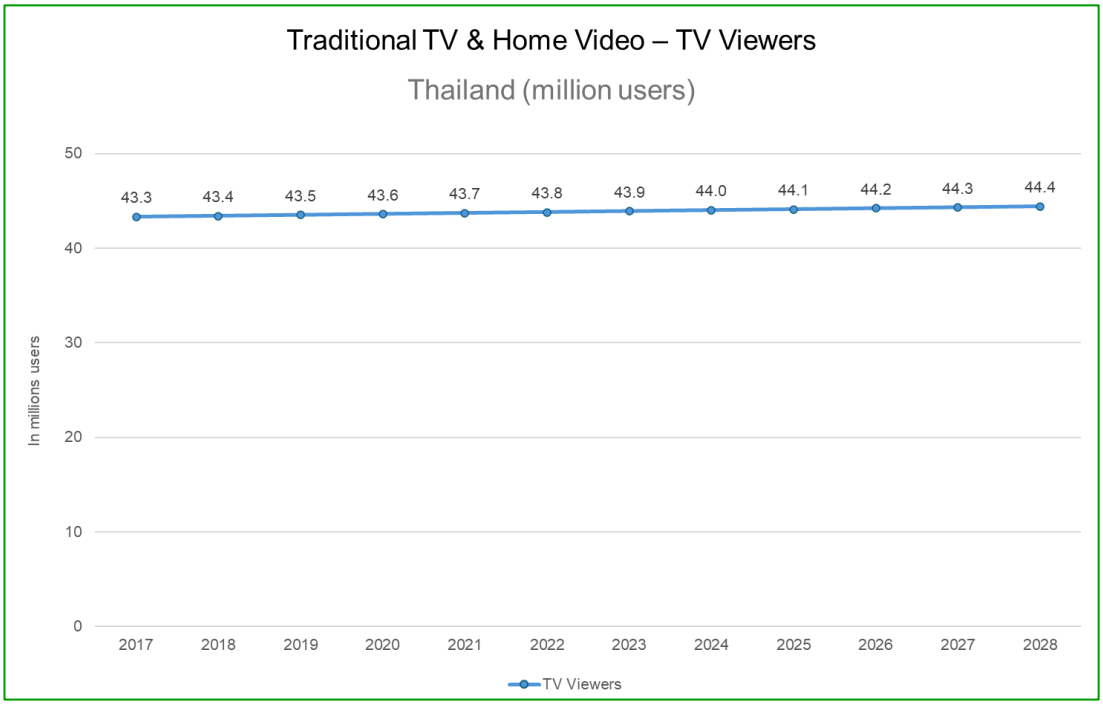
With more content available via both traditional and internet platforms, content providers are facing fiercer competition for somewhat constant viewing time more than ever. The most popular channels compete for viewer's time, and they likely provide similarly captivating content such that viewers are drawn to spend even times among those top channels.

Statista (2023) provided projected revenues from 2024 to 2028 that are quite flat throughout. The annual growth is expected to be just 0.11%. As of 2023, the total amount is 2.22 billion USD, which roughly translates to 79 billion THB. Note also that the data shown is using current exchange rates, i.e., Jan 2024.

Average revenue per user (ARPU) on Pay TV and Traditional TV advertising. Since 2017, Pay TV average revenue per user seems to be decreasing slightly over time. Traditional TV advertising per user dropped significantly in 2020, perhaps due to COVID. It later recovered and remained on a growing path since 2021.The values however are not expected to have reached as high as in the past.

The number of TV viewers is expected to maintain its slight increase trend as shown in Figure 1-2.

Figure 1-2 Traditional TV & Home Video-TV Viewers



Source: Statista Market Insights (2023)

Given that global entertainment landscape has undergone significant changes since digital media have gained traction into our lives, Statista listed many factors that are at play including (1) interplay of technological evolution, (2) cultural nuances, and (3) shifting consumer preferences. Respectively, the distribution channels and future directions of technology and innovation will be discussed in further detail in Chapter 1.2. Then, the value chain of the changing industry is addressed in Chapter 1.3 and followed by the market segmentation (local consumer trends, future direction and business model). Chapter 1.5 presents a current Thai AV policy and regulation with licensing. Lastly, the analysis of key problems in the market and future direction for growth are mentioned in Chapter 1.6.

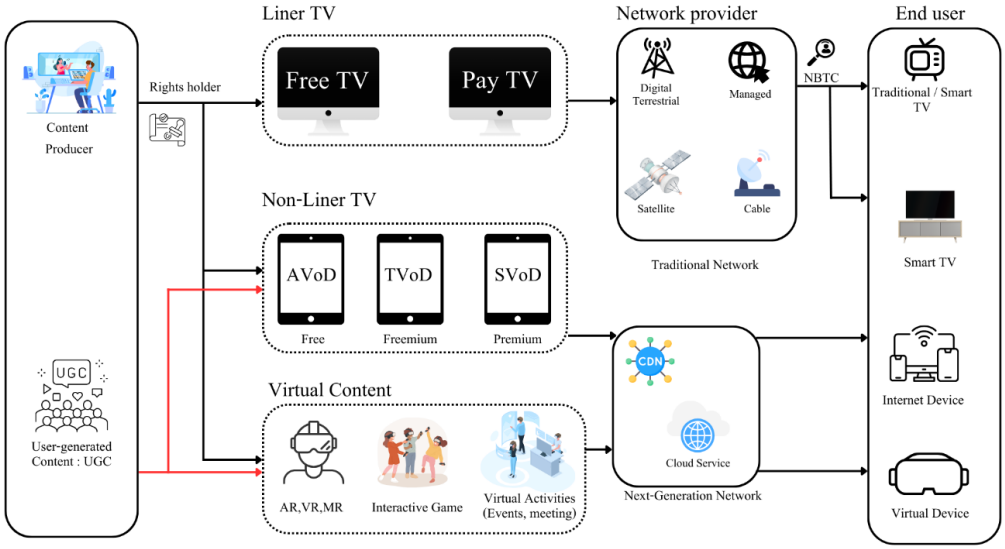
1.2 Current distribution channels and platforms

To understand the distributional channels and platform of Thai AV industry, this chapter will start with the current distribution channels and platforms. The example of business model of distribution channel and platform are presented. Then, the distribution infrastructure and its impact for future growth of Thai AV industry is analysed. The future technologies are also discussed as it is play an important role for both supply and demand side. This chapter is organized as follows.

1.2.1 Distribution channel and Platforms

This section provides introduction to content distribution channels along with interdependent stakeholders and the technology employed through which channels reach its viewers. Then, the current situation of content distribution channels for linear and non-linear are presented, and market structure including business models are analysed. Lastly, the future directions of infrastructures and technologies for content distribution channels are presented and discussed.

Figure 1-3 Media ecosystem in Thailand



Source: NBTC (2024)

From Figure 1-3, the content producer creates content for Linear TV (both Free TV and Pay TV), Non-linear TV (Advertising based video-on-demand (AVoD), Transactional video-on-demand (TVoD), and Subscription video-on-demand (SVoD) and digital content (Virtual content) in form of Extended reality (XR) including AR/VR/MR, games and activities in the virtual world. Moreover, the user-generated content (UGC) i.e. short video clips or reels which are uploaded to Non-linear TV platforms and platforms for digital content is also included.

Content from Linear TV is broadcasted to consumers through traditional networks such as satellite, cable, managed IP, and digital terrestrial TV networks. Non-linear TV and virtual content are broadcasted through CDNs and cloud services, meaning that anyone can access them over the internet.

1.2.1.1 Status of television licensing (as of 1st quarter, 2024)

The status of television licensing in each group is illustrated into Figure 1-4 – 1-6 and Table 1-2 as follows:

Figure 1-4 Digital terrestrial television

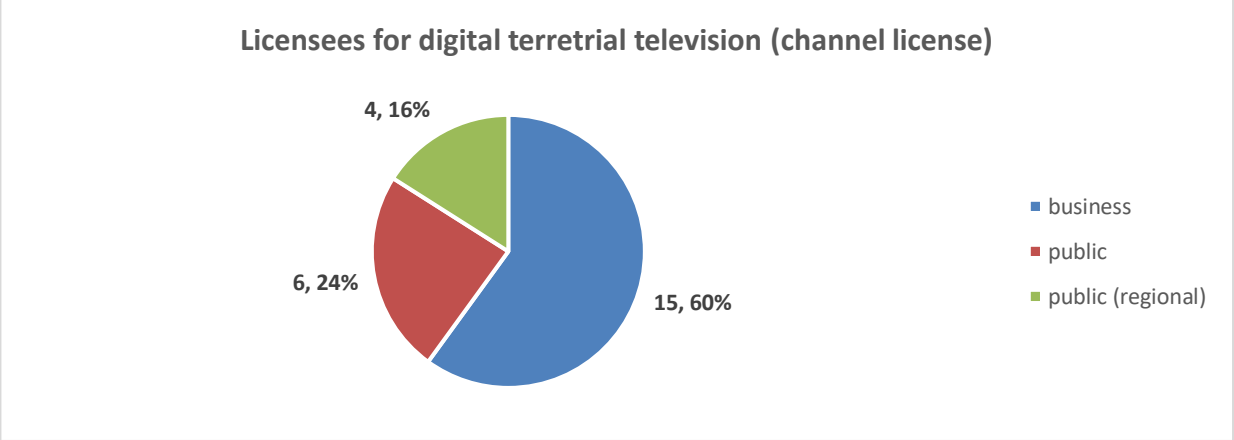


Figure 1-4 shows that there are 25 licenses for digital terrestrial television categorized into 3 types, i.e. business (15 channels), national public (6 channels), and regional public (4 channels)

Figure 1-5 Television service that do not use spectrum

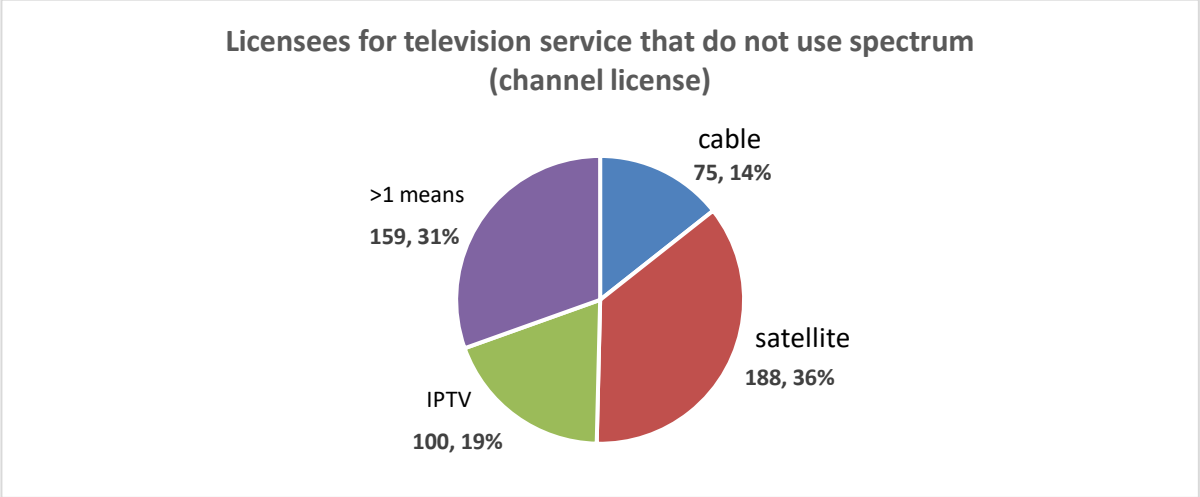


Figure 1-5 shows that there are 522 licenses in total for television service that do not use spectrum, categorized into 4 types of broadcasting means, i.e. by cable (75 channels), by satellite 188 channels, by IPTV (100 channels), and by more than one means (159 channels)

Figure 1-6 Television network that do not use spectrum

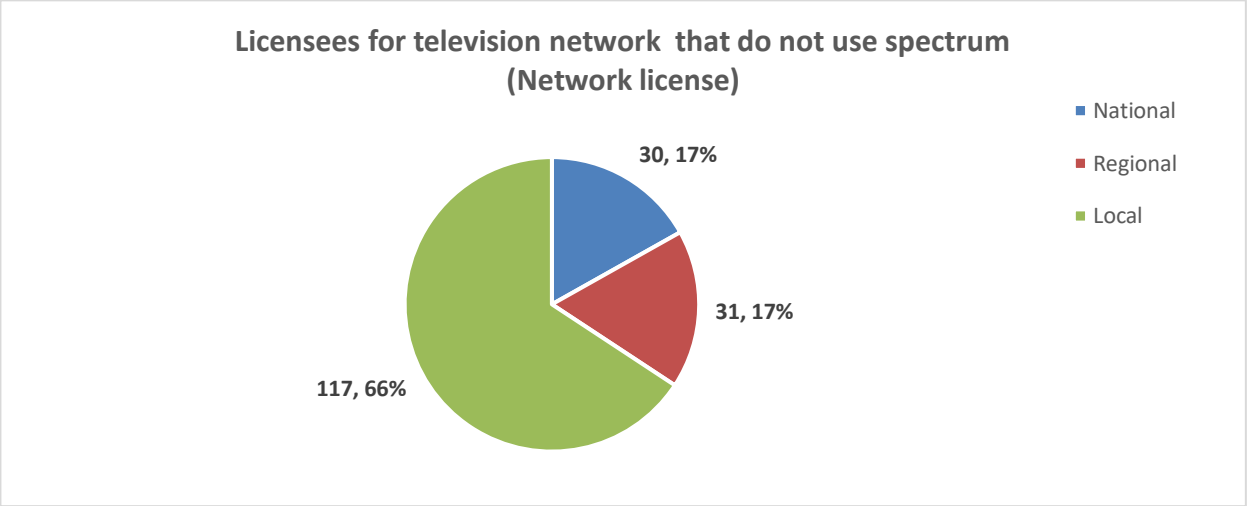


Figure 1-6 shows that there are 178 licenses in total for television network that do not use spectrum, categorized into 3 levels, i.e. national level (30 licenses), regional level (31 licenses), and local level (117 licenses)

For facility licenses in television service, there are 7 providers in total, i.e. Thai PBS, MCOT, PEA, PRD, RTA radio and television, NT and Looktung network.

As for the digital terrestrial television network providers (MUX), there are 5 licenses as shown in the table below.

Table 1-2 Digital terrestrialtelevision network licensee and hosted channels

DTT Network licensee	Hosted channels
PRD	NBT national, NBT regional
RTA radio and television #1	TV5, One31, TV7, True4U, Workpoint, TNN24
MCOT	ThairathTV, MCOT, TPTV, T-sports 7
Thai PBS	Thai PBS, Channel3 HD, ALTV, 8, JKN 18
RTA radio and television #2	Mono 29, Nation TV, GMM25, Amarin TV HD, PPTV

1.2.1.2 Revenue

Considering the broadcasting revenue by type of services which collected by NBTC, it presents the interesting trend as shown in Figure 1-7 – 1-11 below

Figure 1-7 Revenue trends for digital terrestrial television.

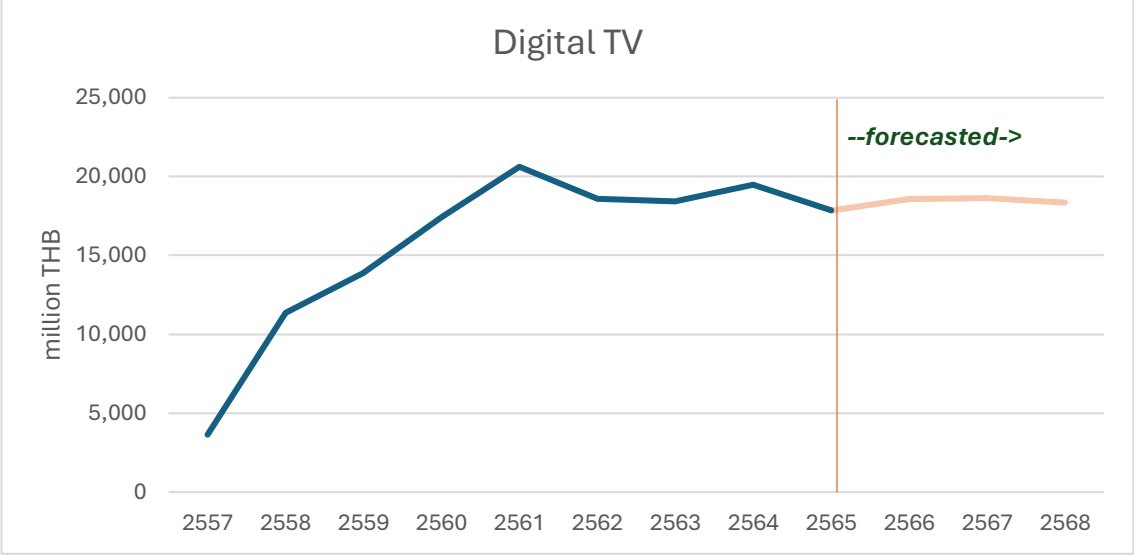


Figure 1-7 reveals trend of revenue for DTT. Revenue exhibits an overall positive trend where it has grown considerably since B.E. 2557 (2014). It however has reached its peak in B.E. 2561 (2018), then slightly declines, and fluctuates within a small window since then. The CAGR from B.E. 2557 (2014) to B.E. 2565 (2022) averages to be 22% due largely to small revenue figure back in B.E. 2557 (2014). Due to the fluctuation, a 3-year moving average is simply used to predict revenues for the next 3 years. Forecasted future income between 2023-2025 has changed only slightly from 2022.

Figure 1-8 Revenue trend for television services that do not use spectrum (channel license)

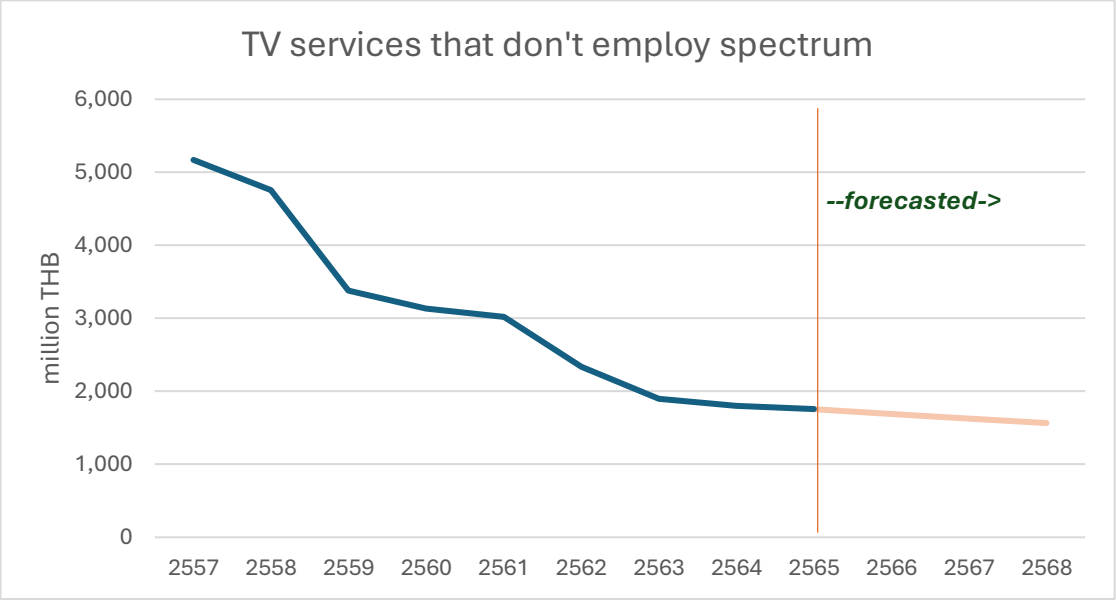
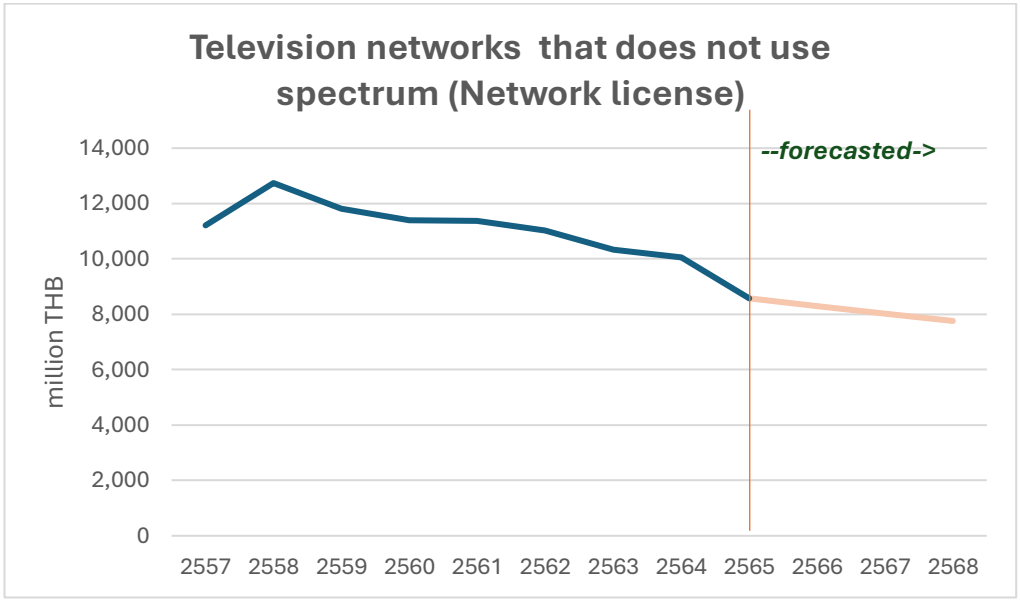


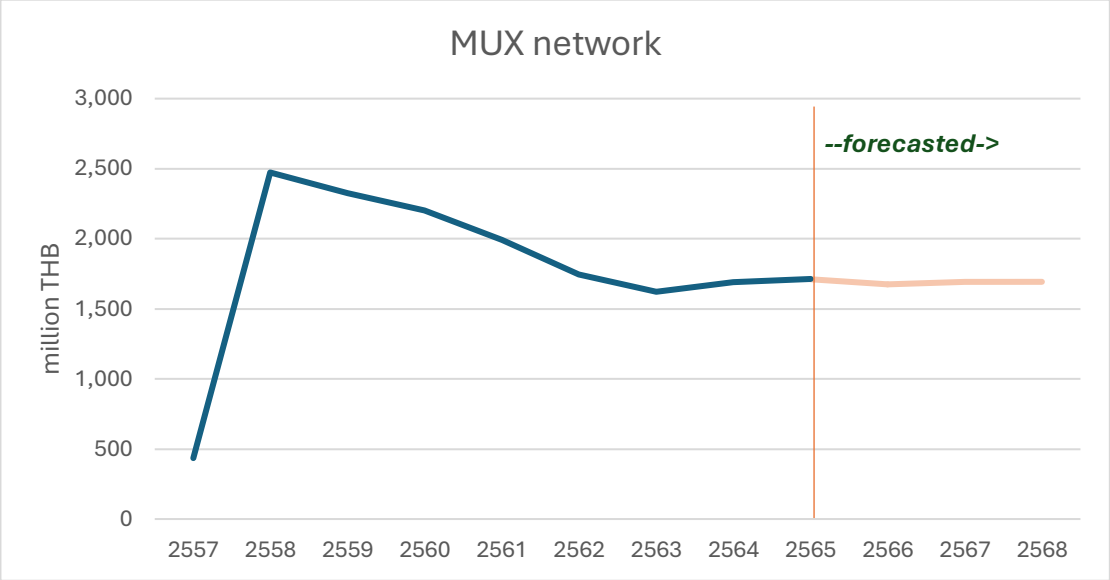
Figure 1-8 shows revenue of TV services that don't employ spectrum. Revenue has been declining since B.E. 2557 (2014) until 2565 (2022) at CAGR of -12.6% per year. The revenue seems to have leveled out since B.E. 2563 (2020) with slight declines afterwards. A minor decline going forward as well is expected. Using the revenue collected within the 3-year frame of B.E. 2563-2565 (2020 – 2022), the estimated change in revenue will be -3.7%. This is then used to predict annual revenues within the next 3 years 2566-2568. It is expected that future income will have a declining trend.

Figure 1-9 Revenue trend for television networks that do not use spectrum (Network license)



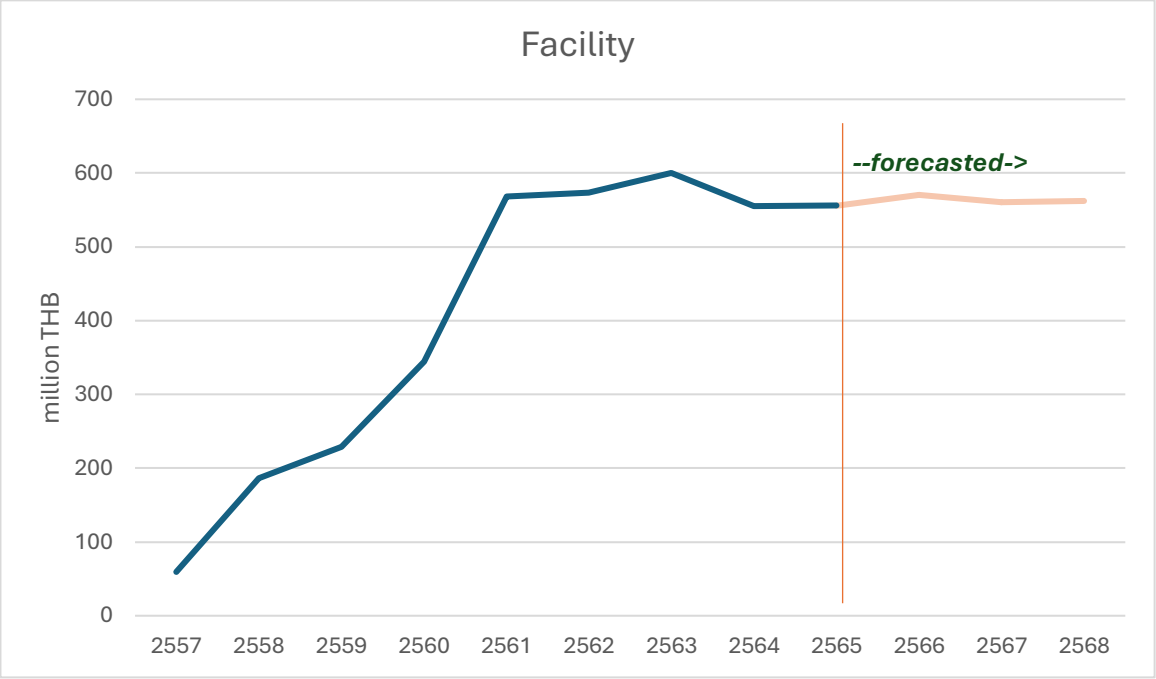
For **network licences** i.e. Cable, satellite and IPTV network providers, their total revenue increased in B.E. 2558 (2015) from B.E. 2557 (2014) as shown in Figure1-9, but then has been declining since then with CAGR of -3.3%. Given its clear trajectory of continuously downward trend, the calculated CAGR is used to predict revenues in the next 3 years. Forecast future revenue between are likely to continue decreasing.

Figure 1-10 Revenue trend of Mux licensees (Mux network)



MUX network's total revenue corresponds to digital TV revenue as showed in Figure 1-10. Its shape slightly differs where the revenue has reached its peak in B.E. 2558 (2015), and then it declines with slight recovery towards B.E. 2565 (2022). Given its correspondence with digital TV and slight fluctuation towards the end, A moving average is used to predict revenues within the next 3 years. It is expected that future income will be relatively stable.

Figure 1-11 Revenue trend of Facility licenses



In Figure 1-11, the total **revenue of facility providers** exhibits a positive trajectory and seems to have hit its peak in B.E.2563 (2020) followed by some decline in B.E. 2564 (2021) to B.E. 2565 (2022). Given the fluctuation towards the end, the method of moving average is used to predict the next 3 years' revenues. It is expected that future income will be relatively stable.

1.2.1.3 Overall summary

The overall summary can be divided into 2 parts as follows.

1) Changing in broadcasting channels and platforms can be summarized as follows.

- Managed IP is expected to grow, following the global trend of more data consumption and more valued added that comes with bundle of internet access and entertainment channels. Managed IP also comes with many sub-channels for consumption such as set-top box and web as well as mobile applications.
- Satellite TV likely persists as Thai consumers do not particularly have any reason to switch as of now. For example, majority of viewers' favourite content on DTT channels are broadcasted throughout all distribution means as per required by the Must Carry.
- OTT uptake seems rather limited for people who can afford their monthly subscription fees. Its consumption could potentially be correlated to fixed broadband uptake as well, as using mobile data to stream OTT contents can be expensive. Still, OTT streaming has been on the rise since 2019.

- DTT is still the second in popularity to Satellite TV, despite mandates by the NBTC to ensure that more than 95% of households have access to DTT service. DTT also faces challenging competition from others including internet-based entertainment, as advertisement expense seems to level for DTT but increase for other media such as internet-based media and outdoor signage. The aftermath of such competition can be seen from the fact that several DTT channels have ceased operation after the auction.
- According to the most recent survey launched by the NBTC in 2023, which was collected by the National Statistical Office of Thailand (NSO), one question asks, "which mean do you mainly use for consuming TV content?" Satellite TV viewers constitute the biggest portion of 43.5%, DTT at 33.9%, internet-based means (e.g., web and app) at 12.3%, with Managed IP at 6.8% and Cable TV at 3.5%.
- Overall media spending has been increasing at 4% in 2022, and 3% in 2023. Online media is expected to claim 40% of total spending, while traditional media (e.g., TV, newspaper, radio, and theatre) would account for 35%. Out-of-home and transit media would account for 20%. Compared to 2023, traditional media has 50% share, online at 35%, and the rest at 15%. This shows gaining popularity of online media.

2) Overall pain points within each distribution channel can be summarized as follows.

DTT

- MUX is considered wholesale level, so they can potentially exploit DTT channels in charging at rates that are exceedingly higher than retail prices. Though this problem is likely minimized due to the NBTC pricing regulation. MUX compensation rate could potentially be lower through infrastructure sharing, which should promote usage efficiency and deployment into underserved areas at lower cost.
- Many DTT channels have quit the market, which shows the sign of market shrinkage. This corresponds to stagnant advertising revenue on DTT and growing ads spending on internet media and outdoor signposts.
- DTT has a lower adoption rate than Satellite TV, despite mandates by the NBTC to have terrestrial network be deployed throughout the nation.
- Must Carry imposes duties that Cable TV and Satellite TV carry DTT channels, reducing potential differences between these distribution channels. Given the high adoption rate of Satellite TV, DTT might be interested in entering a commercial deal with Satellite TV

to have their contents reach most viewers. Intervention through Must Carry is perhaps not needed.

- DTT-owned online platforms' ratings are much worse than their traditional ratings. This suggests fierce competition with hugely popular OTT platforms.

Cable TV

- Cable TV features subscription feature, which seems unpopular among Thai consumers. Its share in the residential market has been dwindling, so does its advertisement revenue.
- Cable TV attempts to provide more value by acquiring premium content and value added through combination with other services such as internet access. The internet quality is however limited in quality compared to fiber optics. Given the trend to consume more data and demand for higher speed, cable internet might gradually lose popularity, rendering Cable TV providers' bundling strategy not viable in the long run.

Satellite TV

- Although satellite TV remains the most popular channel for Thai people, advertising funds has been directed towards DTT and other media. Declining revenue, but relatively constant operation expense, leads to some channels leaving the market.
- Demand however likely persists because growth in OTT consumption tends to be restricted to urban areas with access to high-quality broadband connectivity.
- Access to transponders is potentially a bottleneck within the supply chain since there is limited capacity.
- Satellite TV services is restricted by its simplistic nature of one-way communication. It cannot offer value-added services like Video on Demand, like Cable TV and Managed IP can. Like Cable TV, they need to partner with digital subscriber line providers and telco companies to provide broadband connection on-top. Just like in the case of Cable TV, this partnership might not be viable in the long run as telco companies have entered the entertainment market. The long-run landscape is even bleaker since it could potentially compete with LEO (Low-Earth orbit) broadband services, such as that provided by SpaceX's Starlink. LEO broadband is satellite-based internet service that provides reliable and cost-effective even to remote areas around the world. With reliable access to the internet, users could have browsed for entertaining content not currently hosed on Satellite TV.

Managed IP

- There is potentially an economic issue of tying, which is commercial practice where the service provider sells some of their service along with some other services without making either of them separately available in the market. In this case, Managed IP provider often ties their Managed IP entertainment with their own fixed broadband access.

All Domestic Channels

- OTT contents are typically provided by international providers, notably, Netflix, Disney Plus, Amazon Prime, Hulu, etc. Their contents are readily available via the Internet. They can potentially achieve economy of scales as they sell contents throughout the globe. With higher gross revenue, they can invest into creating more contents with higher quality. They likely compete for viewing time against domestic channels, although they are not regulated as intensely as domestic ones. This is likely the pain point for domestic channels.

1.2.2 Content distribution channels of Linear TV

1.2.2.1 Digital terrestrial TV (DTT)

In the DTT value chain, there are **2 major groups of players**. The first is **TV channels** who aggregate created content and provide services to viewers through channel programming. The second is the **network operators**, e.g., MUX or Multiplex Provider which manage and deliver digital TV channels and other services using Multiplexing technology.

Most players in DTT operate at one level within the supply chain, with few exceptions (all are government-owned enterprises) who are vertically integrated, e.g., MCOT and Ch5, who own both TV channels and wholesale business (MUX). The wholesale parts of the supply chain - aggregation prior to transmission, distribution, and facility provision - are particularly prone to oligopolistic power exercises. There are few operators, as would be expected, given the large required initial investment and that there is no economic need for duplicated networks. There is possibly an issue of double marginalization, making returns to channel operation not as enticing as before. Double marginalization here refers to that MUX possibly charges network users, e.g., DTT channels, with some margin. However, since the NBTC regulated rate at which MUX can charge retail channels, the problem should be minimized. Currently, there are 5 MUX operators, and their networks have been underutilized because many channels have quitted the market. After 2019,

many channels have quitted, such as MCOT family, Spring news, Ch3 Family, Ch3 SD, Bright TV, etc. This suggests the possibility of there being too many MUX networks for current number of channels via DTT.

There are a **limited number of possible DTT channels due to the limited spectrum**. The upper limit is less restrictive for other means of content delivery. There is also the issue of coverage, especially at the beginning, as DTT requires dedicated infrastructure for signal transmission. But with the mandates of the NBTC, the DTT network was said to have covered more than 90% of all households by the end of 2017[2]. By today, it will have reached more. Despite, most households still enjoy Satellite TV[3]. There are factors that potentially discourage consumers from adopting more DTT, such as technical difficulties in receiving signal from local broadcasting stations. According to TP channel infographics[4], they suggest that the antenna be installed at above 10 meters, i.e., on top of the rooftop. That could potentially be problematic for some households, especially those with single-level house.

Figure 1-12 shows advertising revenue for TV, internet media, out of home, radio, print and cinema from 2021 to 2023. There is slight growth in ads revenue since 2021. TV retains the biggest portion, although its magnitude has been decreasing. On the other hand, internet media has seen some growth along with out of home ads, and internet ads.

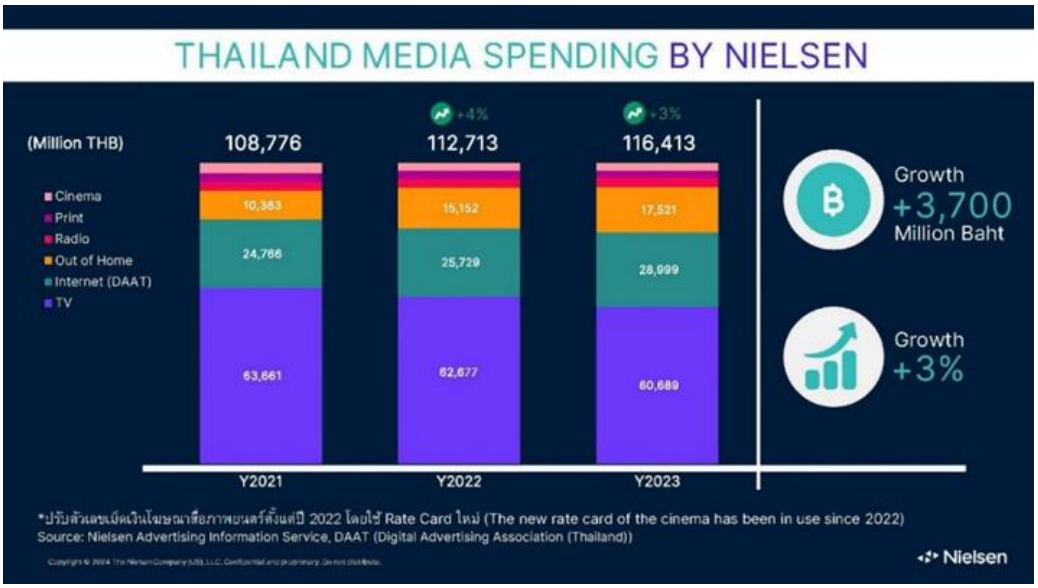
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[2] https://broadcast.nbtc.go.th/tv_info

[3] according to the NBTC survey result from 2023, conducted by the NSO.

[4] https://www.facebook.com/TPchannelFan/photos/a.210181409123559/1140708426070848/?type=3

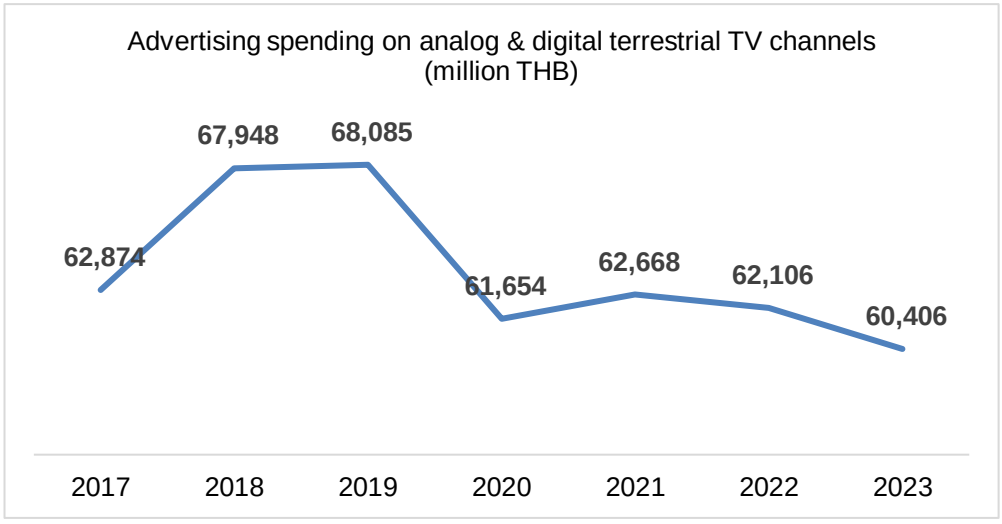
Figure 1-12 Advertising revenue for all media platforms during 2021-2023



Source: https://adaddictth.com/knowledge/Nielsen-Media-Spending-2023

Past advertisement revenue. Nielsen has collected data on advertising spending on both analog and digital terrestrial TV systems. During 2017-2023, all 24 business DTT channels that Nielsen tracked had been broadcasting in Jan 2017; however, 9 of those had stopped broadcasting. This indicates **strong competition in the market**. Some of survivors in the market have deep pockets or strong brand presence. Others have adjusted their business by engaging customer/viewers via online platform. The following figure depicts the trajectory of advertising spending over the years. Total annual spending grew in 2017 to 2019; however, it quickly descended in 2020 and has been decreasing since 2022. From 2021 to 2023, the per annum CAGR is on average -1.82% as shown in Figure 1-13.

Figure 1-13 Past advertising revenue on certain analogue and digital terrestrial broadcast TV channels



Source: Nielsen (2023)

In the **current DTT business model**, there is **no monthly subscription fee**. Once viewers install all necessary equipment, they can access aired channels free of charge. Because of **Must Carry** rules, both Cable and Satellite TV must also broadcast DTT channels, thereby reducing potential differences between different viewing options. The NBTC also imposed a restriction that free-to-air DTT channels be assigned a single fixed number for all platforms in which the channel is hosted[5]. Arguably, this is for the consumers' benefit, so they do not have to consult their TV guide whenever they switch viewing platforms.

Every channel is competing against other digital platforms. There are 21 DTT channels (25 if counting all regional NBT channels separately), but also alternative digital OTT (Over the Top) "channels", such as Facebook, Instagram, Google, etc. That means the advertising revenue pool (i.e. from parties interested in reaching consumers in Thailand) would likely be drawn to other platforms. This trend would likely continue in the foreseeable future due to improvements in digital media outlets. Advertising revenue constitutes a major part of the income to TV channel providers because there is no monthly subscription fee and digital advertising is becoming the main form of all advertising.

Furthermore, the broadcasting industry has started **tracking ratings across platforms**, which began in 2022, as channel providers are interested in obtaining more insights into viewing behaviors, for example, to determine how DTT-owned online platforms perform. The data from the DTT Association (Thailand) reveals that online streaming platforms owned by DTT performed better in Bangkok and nearby metropolitan areas than their counterparts in rural areas. The **ratings for online platforms for all channels, however, perform much worse than their counterpart TV's ratings**. For example, Ch3 rating for TV was 2.153% in August of 2022, while the rating for their streaming platform is merely 0.074%. This highlights that DTT digital platforms are likely to come under tremendous competitive pressure in the future due to strong OTT presence.[6]

Compared to other channels to be discussed below, **DTT potentially has higher operational costs.** But they have been receiving substantial financial aid from the NBTC. Licences

[5] https://broadcast.nbtc.go.th/tv_info

[6] https://www.dataxet.co/media-landscape/2023-th/digital-tv

granted so far would last until 2029, but the NBTC has not published a clear direction on how to reassign licenses, so the future is uncertain for DTT channels.

1.2.2.2 Cable TV

In the Cable TV market, there are many local and regional channel operators. Nielsen's data, as of 2022, reveals that the number of households (also referred to as subscriptions) that view local Cable TV has been declining drastically. The number of subscriptions in 2022 has reduced to merely 20% of 2014's. This may be due to the upsurge in online platforms rather than DTT options.

Nielsen has also collected data on advertising spending on Cable TV. Here we would focus on 2017 to 2023. Nielsen collected data of 19 Cable channels. In January 2017, 12 channels received advertising spending, but 5 of them ceased operation by 2018. A few channels came into being and then went out of business during this period. Only Boomerang and TopNews were tracked by Nielsen until the end of 2023. Boomerang recently declared in 2023 that they are ceasing their operation on Cable TV and only broadcasting their cartoon content via Facebook and YouTube. Their main reasons are changing consumers preferences, high operational expenses for Cable TV, and potential revenue sharing from online platforms. This indicates that **Cable TV share in the residential market has been dwindling**. The decline is particularly sharp compared to DTT, the total amount of advertising spending per year is also much lower.

There are **Cable TV providers at both national and regional levels.** As of 2017, there were 371 network providers, i.e. those owning a Cable network, for Cable TV with a licence. Four of them operate at national levels including: Linear Cable TV, MSS Cable Network, Charoen Cable TV Network, and True Visions group. True is considered the biggest player with extensive network coverage and market share of more than 75%. There were 50 providers who operate at regional level and 317 at local level. Many of these operators, especially local ones, likely have ceased operation due to cord cutting, that is abandoning the cable TV link for other channels. This is corroborated by online interviews with TV managers released by Thansettakij back in 2018[7]. From the NBTC's report on prices of subscription TV, the number of regional providers in 2023 reduced to just 31, while local providers reduced to 126. The fact that current providers constituted merely

[7] https://www.thansettakij.com/business/343053

half of market players 6 years ago indicates that the Cable TV market became significantly less lucrative.

Facility providers constitute the other group that is interdependent with the distribution network providers. The two major licensees are PEA (Provincial Electricity Authority) and NT. These providers own land, building, wired network, poles, and ducts.

As for business model of Cable TV, current operators are competing with content by finding premium content and having exclusive rights that would differentiate themselves from others. True visions, for example, has always acquired rights to broadcast soccer matches including both national and overseas matches. Only those operating at the national level tend to have sufficient cash to acquire exclusive content rights, while regional and smaller operators often band together to obtain rights to air or negotiate with bigger players. Local smaller players often air local content that appeals to users in the community.

These operators are also competing in terms of quality. Many have focused on digital systems in place of analog, as digital systems enable more channels and better quality. Most packages involve monthly subscription fees. True Visions, for example, offers both Cable TV as a standalone package starting at 299 THB per month. **They also aim to provide bundles of service when given the chance**. True Visions also offers the basic package of Cable TV for free for True Move mobile users and True Online internet users, but this basic package features only free-to-air channels. Those who are using other services from True can pay an additional 100 THB per month, instead of 299, to upgrade and receive more channels[8]. This type of deal is very similar to AIS where they provide AIS PLAYBOX free of charge for fixed internet subscribers.[9]

True Visions also offers an innovative set-top box, so called TrueID TV InnoHybrid. It permits content delivery via both Cable and the Internet. Live TV would be mainly delivered via Cable. But in case weather conditions are extremely bad, so that it disrupts signal transmission, the service would be continuing to be provided via the Internet. This box also comes with True fiber internet service.[10]

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[8] https://truevisions.co.th/packages/

[9] https://aiscallcenter.ais.co.th/ikm/acc/index.php?kmid=KM1079375

[10] https://help.trueid.net/th-th/detail/xlaKzPzZqNVe

In addition to Cable TV, Charoen[11] also provides Managed IP, as Internet access, over leased line, with a Wi-Fi solution system for corporate users, especially hotels and apartments. They also rebranded themselves as a solution provider across several platforms of interest. Currently they only operate in 14 areas within big cities across Thailand. To capture both target groups, they offer both analog and digital TV systems[12], but the digital system features 150 channels while analog has just 60 channels. The standalone analog system is priced at 100 – 200 THB/month, while the standalone digital one is priced similarly. Since 2019, Charoen has also acquired several local Cable TV operators, each of which has a customer base of fewer than 5,000 households on average. Acquisition allows the firm to promptly access new groups of viewers.[13] More recently in 2022, FOT, a company owned by Charoen, established an investment contract with SIMAT, a tech company, to provide internet services, Cable TV solutions, and to acquire infrastructure needed for telecom communications.

Regional providers often offer 60 – 70 channels on their analog systems at a price of 100 – 200 THB/month, while digital systems permit up to 100 – 200 channels but at the higher price of 170 – 350 THB/month, according to the 2023 report on prices of subscription TV by the NBTC. Some regional providers also bundle their TV services with fixed broadband internet access too at an additional price of 100 – 250 THB/month.

Providers must adapt to adjust to the new competitive environment. Movement towards **bundling and partnership** is also seen elsewhere. For example, Cable providers in the US are offering their own streaming services or partnering with streaming providers. Comcast's Xfinity offers access to Netflix and Amazon Prime Video to stay relevant. This move towards bundling is seemingly practiced by all providers nowadays. Comcast also offers more flexible pricing plans to compete with price against cheaper alternatives. They offer both preset bundles of channels as well as 'a la carte' channel selection. Some other providers offer short-term contracts with no penalty for ending the contract, to avoid long-term commitments that are not as favorable now given higher competition within the market.[14]

[11] https://www.cabletv.co.th/

[12] https://www.cabletv.co.th/%e0%b8%9a%e0%b8%a3%e0%b8%b4%e0%b8%81%e0%b8%b2%e0%b8%a3/cable-tv-solution/

[13] https://www.thansettakij.com/business/403203

[14] https://homelinkd.com/blog/the-future-of-cable-tv-adapting-to-streaming-services

1.2.2.3 Satellite

Thansettakij news revealed that, in 2018, Managing Director of Charoen Group expected a decline in Satellite TV, because **advertising funds were directed towards DTT**. This led to price competition where Satellite TV channels cut their price of advertisement per minute. He mentioned that ads price [in 2018] averaged 500 – 2,000 THB per minute, whereas it used to be more than 10,000 THB. The operational cost [in 2018] of Satellite channel was about 1 million THB per month; thus, it is natural that **some channel providers left the market for good**[15].

It is likely that demand for satellite TV in Thailand will persist regarding to national statistic survey (2023) which was commissioned by NBTC because growth in OTT content consumption is likely generated by (1) those living in urban areas with access to high-quality broadband connectivity, or (2) those with sufficient income to pay for monthly subscription fees for OTT platforms. Rural areas might not have sufficient fixed network coverage with high bandwidth for streaming high-quality data. This could either be interpreted as implying that they already possess other means to connect to the internet, i.e., via mobile which is more affordable and more convenient. Given that streaming via mobile devices might be costly due to the huge data consumption, a significant proportion of consumers without a fixed broadband subscription would continue to enjoy major entertainment content via channels other than OTTs.

In term of **players and business models**, there are many players in the Satellite TV market. According to NBTC's study by TURAC (2020), the market share for satellite TV is as follows. First in the lead is PSI who sold about 10 million set-top boxes. This is followed by IPM who sold 4 million; GMM, at 3.5 million; DTV, at 1 million; and RS, at 0.5 million. Some other players including Infosat, IdeaSat, Leotech, and ThaiSat sold together about 4 million. Overall, 23 million boxes have been sold, meaning that PSI led with a market share of 44%. Although there are many players (e.g., 22 aggregators back in 2020), the **barrier to entry is considered substantial** given that potential entrant needs to **compete for access to transponders** which are limited in number. Satellite TV operators must use transponders for signal transmission to and from earth stations, the transponders could become a bottleneck within the supply chain. Both Thaicom 6 and 8, which are used for C-band and KU-band Satellite TV services respectively, are close to be fully utilized[16].

[15] https://www.thansettakij.com/business/343053

[16] https://www.lyngsat.com/Thaicom-6.html

Thus, limited channel capacity resources potentially limit the number of service providers as well in these bands.

Despite offering a wide range of channels and wide coverage for easy accessibility, **Satellite TV can be affected by bad weather conditions such as heavy rain, and its equipment installation requires professional assistance**. In contrast, other popular means like Cable TV provides a wide range of channels and reliable signal quality which is less easily affected by weather conditions. However, accessibility to Cable TV depends on infrastructure within the vicinity. Cable TV is likely to be more expensive overall due to equipment fees and additional monthly subscription charges. Channels offered via Cable TV are likely more limited compared to satellite TV too. In comparing DTT, its transmission infrastructure, following the mandates by the NBTC, has been deployed almost throughout the whole country. This makes **DTT** more accessible, and thus **a closer substitute to Satellite TV than any other distribution means**.

Due to lacking a return uplink channel for direct one-on-one connection, **Satellite TV receivers cannot offer value-added services like video on demand, or VoD**, as in Cable TV and Managed IP can. Instead, they are offering Push-VOD. This technology allows downloading content to a locally installed set-top box in the viewer's home through satellite connectivity. It can even work without an internet connection. This allows linear content to be consumed at later time without latency and buffering time in case of bad weather. There are transnational operators like SES who offer this Push-VOD service for direct-to-home operators (DTH) across the globe as well. This strategy is appealing especially to the younger audience who values flexibility in consumption.

Satellite TV is also adding an edge into their devices by partnering with digital subscriber line (DSL) and telco companies to deliver a back channel via the satellite operator's ground stations through a hybrid land line box that provides the broadband connection for the Satellite TV set-top box in the home. This provides some sense of bundling and value-added services to a single purchase from the consumer's point of view. Apparently, this is like the Cable TV hybrid box marketed by True Visions. **The partnership might not be sustainable in the long run though, as broadband providers have entered the entertainment market and penetrated into all market segments**. The telco operators could also launch their own set-top box like AIS and TRUE do.

The long-run landscape for Satellite TV is even bleaker, as current geo-satellite TV's advantage for providing accessibility to rural users can be challenged by SpaceX Starlink who provides LEO broadband services. Starlink should theoretically be able to support Managed IP and

streaming services as well. Once the price for Starlink becomes much more affordable, it could directly compete with geo-satellite TV services across the globe.

As for business model, satellite TV packages often involve one-time payments including satellite dish, set-top box, and installation fee. Some providers sell both **dishes** and **boxes**, while others focus only on boxes. For example, PSI provides both dishes for C-band (4,200 THB)[17] and KU-band (2,900THB)[18]. Interestingly, **some firms such as PSI has expanded into other businesses** such as solar cell panels and IoT smart home system since they already gain expertise in equipment installation especially wired structure. GMM Z sells only set-top boxes for both C-band and KU-band at the price of 659 – 990 THB. Some box series can connect to the internet with additional equipment like USB Wi-Fi or LAN.

IPM used to sell set-top box for Satellite TV service in the past but stopped doing so in 2023. They instead acquired local firms that operated local Cable TV services and provided free set-top boxes. In exchange, they collect monthly subscription fees for the bundled services. Their boxes are compatible with any satellite. In the past, they also offered both one-time payment box (but no satellite dish), and free box with free dish but a monthly fee. True Visions sells set-top box for Ku-band that comes with True Visions package. They only offer monthly subscription payment starting from 299 THB/month.

1.2.2.4 Managed IP

Managed IP involves sending traffic data through telecommunication networks and the Internet. Fixed broadband service providers, as the network provider, thus constitute major players in the market. Managed IP serves as tangible evidence of the convergence between telecommunication and broadcasting. Managed IP features two-way communication, which makes it different from typical broadcasting services where consumers are solely at the receiving end. Once requested, the server can provide content via the Internet, allowing video on demand service as well.

Although both Managed IP and OTT share this property, the feature that sets Managed IP apart from OTT is the prerequisite of the set-top box and dedicated network for hosting content[19].

[17] https://www.psi.co.th/productcategory/%E0%B8%88%E0%B8%B2%E0%B8%99%E0%B8%94%E0%B8%B2%E0%B8%A7%E0%B9%80%E0%B8%97%E0%B8%B5%E0%B8%A2%E0%B8%A1-psi/c-band/

[18] https://www.psi.co.th/product/ku-band-s3-1/

[19] https://medium.com/@iptvltd.com/how-to-start-an-iptv-business-9829ed6e6eda

OTT is thus more mobile in a sense. Furthermore, Managed IP is said to be the future of the television business, as it avoids traditional delivery systems that employ satellite dishes, cable network, antennas, etc. and their various encoding standards.

In Thailand, Managed IP is available for both linear and non-linear programme through Internet Protocal Television (IPTV) and broadband service. AIS playbox is the example of the managed IP under linear distribution platform. AIS playbox is providing services under the regulation of NBTC since it received a not using frequencies licences-IPTV.

1.2.3 Non-Linear Content distribution channels

1.2.3.1 Managed IP

Managed IP allows users greater control over what and when they consume content. It enables flexibility, a wider range of content than traditional channels, and interactivity. It has **some disadvantages including, firstly, decent internet speed requirement** (e.g., at least 25 Mbps[20]). Secondly, the viewing experience might be interrupted without stable internet connection or with traffic congestion. Internet protocol TV has had various forms over the years with signal formats for delivering TV images originally over low bandwidth copper carriers such as twisted pairs, for digital subscriber lines (xDSL), and then through DOCSIS series of protocols for end-to-end fibre. Thus, although it was originally intended to deliver digital TV services over analogue voice lines, or coaxial copper cables for CATV, Managed IP now encompasses broadband fibre to the home (FTTH) using the FBB networks such as those from AIS Fibre and True Online. The technical requirement, however, highly depends on location and time of day for traffic peaks. Furthermore, Managed IP is seemingly susceptible to security risks as malicious parties seek to steal user data and personal information[21] as other OTT services. AIS Play[22] and True ID[23] are examples of the managed IP under non-linear content distribution channels.

Contents available on Managed IP platforms include free-to-air channels, multi-channel broadcast that depends on a chosen package via interactive TV and specifically curated ones such as pay-per-view (PPV), video on demand (VOD) using broadband capability Managed IP.

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[20] https://www.kijiji.ca/kijijicentral/technology/internet-speed-needed-for-iptv-streaming-complete-iptv-guide/

[21] https://www.linkedin.com/advice/0/what-best-iptv-security-practices-user f1jje#:~:text=IPTV%20offers%20many%20benefits%2C%20such,as%20personal%20information%2C%20viewing%20preferences%2C

[22] https://aisplay.ais.co.th

[23] https://help.trueid.net/th-th/detail/GQ56Lv9Z9r0y

Standard and Poors (S&P) expect that Managed IP is playing a bigger role as telecommunication operators from Indonesia, Malaysia, Singapore, Thailand, and Vietnam are offering Managed IP and broadband bundles. Southeast Asia's Managed IP customer base reached 13.7 million at the end of 2022, equivalent to 10% population penetration of cable TV users. Furthermore, they expected a per annum CAGR of 3.33% from 2022 to 2027, while pure Cable and Digital TV subscriptions are more likely to decline gradually in overall Southeast Asia market while Thailand has no DTT subscription. As for Thailand, S&P Global estimated that Managed IP would reach 1.4 million subscribers by the end of 2022 growing possibly to 2.6 million by 2027.[24]

Currently, there are many Managed IP providers including NT Managed IP, 3BB Cloud Managed IP, AIS Playbox, and PSI Managed IP. In March 2023, S&P Global noted that 12 out of 16 Managed IP operators in Southeast Asia offer **Managed IP-fiber broadband bundles**, while the rest offer Managed IP as value-added service or as stand-alone package. **Most providers nowadays are telco operators**, giving the multichannel sector growth in the foreseeable future. NT, 3BB (acquired by AIS in 2023), AIS and TRUE are vertically integrated providers who function both as service provider and network provider. For the telco providers, offering Managed IP increases value added to Internet access services. Kim, et al. (2020)[25] finds that **broadband penetration, broadband quality, service fee, and broadband usage cap all play important roles in determining Managed IP penetration rate**. That means vertically integrated providers can potentially customize an optimal bundle of services along with Managed IP. For example, they can adjust internet speed as needed to ensure smooth running of Managed IP service, while non-vertically integrated players would face more restrictions from their service partner(s).

In contrast to bundling, the Managed IP provider PSI competes with content by introducing set-top box that simply needs to connect to any Wi-Fi service or device. Once connected, the viewer can enjoy either PSI TV with the same channels as those available on its satellite TV service as well as YouTube. As PSI is a horizontally integrated player, they focus on delivery of myriad content from several sources.

Managed IP providers in Thailand charge monthly subscription fees. Thus, Managed IP usually appears as an add-on package in addition to internet access. Fixed broadband providers

[24] S&P report was published in April 2023. They estimated number of subscribers via some modelling, because the NBTC does not have exact number, Then, term of 'estimated' is used, since the number came from some modelling and not from exact statistics.

[25] https://www.sciencedirect.com/science/article/abs/pii/S0308596119301429

often restrict usage of Managed IP with their own broadband internet. Such practices can be considered tying, although consumers potentially enjoy those bundled services at a discount. They perceive value added, despite the potentially higher switching costs.

Some examples of promotions by current providers are given. NT, for example, offers a package of 78 channels including 36 DTT channels, basic channels, and premium channels for the price of 150 THB per month. Set-top box must be bought separately, and Managed IP can be bought as a stand-alone product. They also allow users to pay supplementary fees to access the same content via NT application and website.

AIS encourages service adoption by offering AIS PLAYBOX as a default option to AIS Fibre subscribers, who pay at least 599 THB/month, free of charge. Broadband subscribers can watch DTT channels as well as some others. It offers a premium option that includes HBO GO, VIU Premium, Monomax, etc., at an additional 299 THB/month. The content can be accessed via AIS PLAYBOX website includes Netflix and has applications too, at slightly cheaper price. They also provide further customization of content.

Charoen also offers Managed IP service with access to more than 160 channels along with fixed broadband internet at the price of 299 – 599 THB/month. GMM Z sells set-top box for Managed IP service where viewers need to have internet connection and Wi-Fi set up. This Managed IP would be able to access channels that are available on GMM Z Satellite TV service. The price is in the range of 799 – 2,490 THB, but just a one-time payment.

Lastly, Managed IP providers are directly competing with bundled-service provider True, who offers internet packages along with entertainment channels via either TrueID or cable TV under the brand of True Visions. The war on bundling interrelated services and combining intriguing content likely will continue in the foreseeable future.

1.2.3.2 Over-The-Top (OTT)

OTT services have gained traction due to their convenience and cost effectiveness. Users need not have a dedicated network nor specific devices like a TV to access content delivered via OTT platforms. The most convenient feature of OTT services is that it can be **accessed via smart phones**. Smartphone penetration for Thailand, as of 2023, was at 71.5%, while 2022's was 65.7% and 2021's was 59.9%. The penetration rate has been increasing constantly at about 5% per

year and is expected to continue so and saturated at 97%.[26] This adoption by far exceeds penetration rates of all other traditional TV. **The potential customer base for OTT channels is thus the biggest.**

Notably, according to SpotX (2021), 51% of Thai video consumers now consume through OTT, with 70% watching video content on video-sharing platforms. In contrast, 50% of consumers still reported watching TV. For weekdays, 65% of OTT viewers spend two or more hours watching content, and this increases to over three hours during the weekends.[27] Back in 2022, the NBTC released a news article saying that **the value of OTT streaming in Thailand has been on a rise since 2019** and is expected to reach approximately $877 million in the next three years. The number of OTT streaming users is anticipated to hit 2.1 million soon.[28]

Data from Statista (2023)[29] below reveals that **overall revenue from OTT streaming services are likely increasing over years to come, with major attributions to OTT video advertising and video streaming (SVoD).** Also expected is growth in free ad-supported streaming TV (FAST) and pay-per-view (TVoD). FAST here is slightly differs from AVOD, as AVOD stands for advertising-based Video on Demand. AVOD allows viewers to choose what and when they watch content on demand, while FAST is traditional TV experience where users choose a channel and watch whatever is scheduled to be broadcasted at the time. FAST are free, and many FAST platforms might offer video on demand content too.

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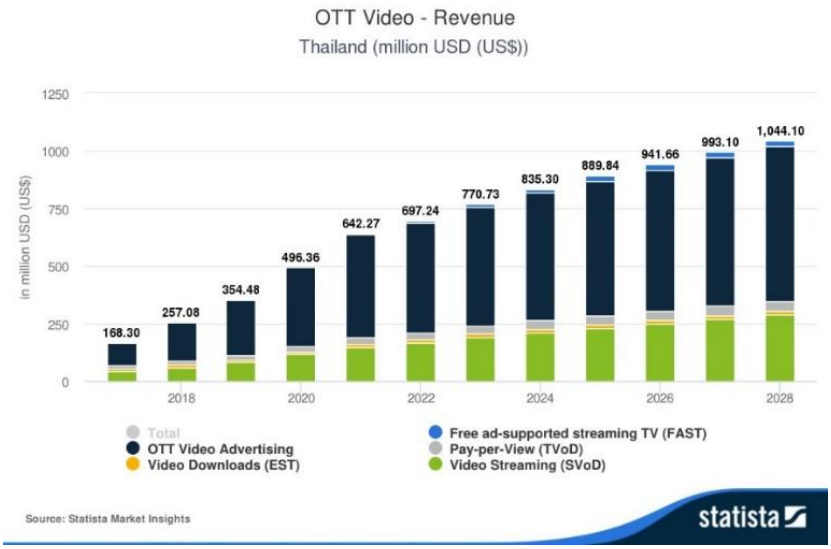
[26] https://www.statista.com/outlook/amo/media/tv-video/ott-video/thailand#key-market-indicators

[27] https://bidmath.com/blog/the-key-drivers-and-trends-of-ott-growth-in-thailand/

[28] https://www.nationthailand.com/thailand/general/40023006

[29] https://www.statista.com/outlook/amo/media/tv-video/ott-video/thailand

Figure 1-14 OTT Video-Revenue



Source: Statista (2023)

In addition, findings from Statista indicates growth for all types of users, especially the free OTT video viewers. Growth is anticipated to be continuous for all types of OTT use except for those viewers who prefer downloading and storing videos in local storage devices. Specifically, the distribution of age groups that consume OTT streaming services in 2021. Consumers aged 25 – 34 years seem to constitute the biggest portion, followed by those aged 35 – 44 years old and then 18 – 24 years old.

Lastly, the distribution of viewers by viewing time, measured as hours per week, is also analyzed. The portion of those in the categories of 1 to 5 hours, 6 to 10 hours, and more than 20 hours increases marginally in 2022 from 2021. When compared to 2019, the portion of 6 to 10 hours shows the most significant growth. Moreover, it shows that throughout 2019 to 2022, 10% of people have switched to consuming OTT videos.

Three major players provide content via OTT platforms including (1) telecommunication operators, (2) international players, and (3) traditional TV channel operators.

Telecommunication operators who participate in video streaming services are AIS and TRUE group. According to YouGov (2023), 7% of survey respondents reportedly subscribe to AIS Play, while 22% to TrueID.[30] These operators offer streaming services along with mobile and fixed services. **Offering bundled services** is effective for promoting customer retention, as doing so

[30] https://business.yougov.com/content/47753-ott-video-streaming-services-platforms-thailand-popularity-vs-satisfaction-netflix-disney-plus-amazon-prime

increases value added. Consumers also realize cost savings and convenience.[31] Their decisions to partake in the broadcasting market also signify a convergence movement. Furthermore, they would be able to obtain more insights into customers' preferences, allowing even further increased value added to their services by serving suitable customized options. This calls for new business strategies for telecommunication operators such as **partnerships with content providers and their own content creation**. Increasing volumes of traffic also call for the need to upgrade infrastructure to provide a seamless experience for consumers.

International players. According to YouGov (2023), international players are quite popular in Thailand, as 35% reply to having subscribed to Netflix, followed by 13% for Disney+ Hotstar, also 11% for Viu, 11% for WeTV, and 10% for iQIYI from China. Netflix offers both international and regional content, so does Disney+ Hotstar, while the latter three are focused on Thai, Chinese, and Korean content. Most of these are subscription-based video platforms, where users pay a monthly subscription fee for unlimited access to content hosted on the platform. Nevertheless, consumers may potentially be dissatisfied due to the added-on costs of multiple subscription services for entertainment, according to Global Web Index's survey.[32] Possibly in the future, platforms like Amazon Prime Video (whose current popularity sits at 4%) that offer pay-per-view videos might gain more traction. This means users can rent a movie that they want to watch, but they must do so within some fixed period.

These international players are a force to be reckoned with, as they can **achieve economies of scale with huge view counts**. With a multitude of available options for entertainment, consumers are **prioritizing content quality**.[33] In 2023, all main streaming services increased their prices. Reportedly, they charged roughly twice as much as before. Charging higher prices leads to higher revenue that is arguably needed to cover increasing production costs. For example, Disney in Q1 2023 reported QoQ revenue growth of US$600 million, but also a US$1 billion rise in production costs. **Major players are investing more money in acquiring intellectual properties to attract and retain viewers**. The general trends in the global market to much higher content quality but at the penalty of rising costs dictate the need for lower cost content production bases. This is now underway with whole productions and specific enhancements such as visual effects

[31] https://www.acrocommerce.com/article/product-bundling-in-telecommunications-article

[32] https://www.moengage.com/blog/bookmyshow-ott-video-streaming-growth/

[33] https://medium.com/@guilhermecm4191/how-unpopular-business-strategies-are-actually-working-for-streaming-services-2a51d2bdab87

(VFX) no longer being pursued in high-cost centres (USA) but in lower-cost centres of technical expertise (currently France).

Some companies have free cash flow from alternative sources. For example, Apple could have reallocated funds to feed into its movie production sector for Apple TV+. Others such as Netflix do not have such a privilege, thus they need new means—other than content acquisition and exclusive content production—to retain their leading position. One way is to increase subscriptions as seen in Netflix's password sharing banning.[34] Such policy led to a surge in subscribers and Netflix's decision to not uplift the ban. Another way is to increase average revenue per user (ARPU), which major players have done so in the past year. ARPU can also be increased via advertising revenue, for example, from subtle product placement in their own content. Free-to-use video sharing platforms like YouTube run advertisements and implement revenue sharing with channel owners. It also provides a subscription option so users may avoid delays in content loading and interruptive ads embedded within each video. Alternatively, OTT platforms need not increase subscription fee, but might potentially insert more ads every now and then.

Lastly, **these platforms have been expanding into other industries.** Netflix launched several mobile games based on their series. YouTube also provides access to web-based games under the "Playable" section while Disney is now investing in buying Epic Games.

Traditional TV channel operators. These channel operators launched their own websites and applications and posted their contents onto free platforms like YouTube. For example, Ch 7 owned platform called "Bugaboo TV" where past series, gameshows, and news were posted. Content creation is important, but **another challenge that content owners must overcome is making sure that the content reaches the targeted audience and engages them.** A single channel to distribute content, e.g., traditional TV channels, is no longer enough. In contrast, **multi-channel approach**, like the approach of Ch 7, **is crucial for maximizing reach and engagement**, reducing risk through diversification, and gaining better insights from influx of behavioral data from several channels[35]. According to Google Play accessed in Jan, 2024, Bugaboo TV has 5M+ downloads with average of 3.9 stars on reviews[36], while it was featured as #24 in Entertainment in

[34] https://www.forbes.com/sites/kateoflahertyuk/2023/10/25/the-netflix-password-sharing-crackdown-is-working-and-others-will-certainly-follow/

[35] https://aicontentfy.com/en/blog/importance-of-multi-channel-content-distribution-for-reach-and-engagement

[36] https://play.google.com/store/apps/details?id=com.bugaboo.TV&hl=en&gl=US

App Store[37]. These indicate a successful reach for audience, despite lower rating of their online platforms when compared to DTT platform. Furthermore, having several channels to deliver content allows plenty of opportunities to recycle and repackage their content. A multi-channel approach is thus the business model of choice for TV channel operators now.

Table 1-3 Example of online movie streaming companies

Global Streaming Companies	Regional Streaming Companies	Domestic Streaming Companies (typically operate within the framework of mobile phone/broadband networks)	TV Broadcasters & Streaming Providers
- Netflix - HBO GO - Prime Video - Disney+ Hotstar - AppleTV+	- Viu - iQIYI - WeTV - YouKu - GagaOOLala	- TrueID - AISPLAY	- MonoMax (Mono) - oneD (ONE) - 3Plus (3HD) - Bugaboo (7HD) - VIPA (Thai PBS)

Note: some online movie streaming businesses, including Line TV, iFlix, and HOOQ, have recently ceased operations in Thailand.

1.2.4 Distribution Infrastructure

Thailand has also been one of the fastest-growing digital economies in the region for the past two years. The proportions between the digital economy value and the GDP is estimated to be ~6.9% in 2023 and is expected to reach around 11.2% by 2027[38]. According to the Portulans Institute's 2023 Network Readiness Index, Thailand was ranked 42nd out of 134 economies globally and 3rd in the ASEAN region. The growth in distribution Infrastructure and competition among providers will also impact the future growth in traffic and Thai AV sector. Three major distribution

[37] https://apps.apple.com/th/app/bugaboo-tv/id454693118

[38] https://cdn.twimbit.com/uploads/2024/02/21201908/Thailand-fixed-broadband-market-updates-2024-edition-5.pdf

infrastructures consist of fixed broadband, mobile network and content distribution network are discussed as follows.

1.2.4.1 Fixed broadband market

The telecommunications landscape in Thailand has undergone a significant transformation since 2020, owing to mergers and acquisitions. In 2021, the merger of state-owned telcos CAT Telecom and TOT Plc resulted in the formation of National Telecom (NT). True Corporation (True Corp) was formed in February 2023, post the merger of TrueMove and DTAC. Additionally, AIS acquired 3BB and a 19.0% stake in Jasmine Broadband Internet Infrastructure Fund in Nov-2023.

Key highlighted of fixed broadband market[39] are remarked as follows.

- To gain market share in Thailand's fixed broadband space, telcos are focusing on four key strategies: expanding fibre optic infrastructure, introducing high-speed broadband plans, bundling attractive content offerings, and offering competitive pricing. As a result, the fixed broadband subscriber base expected to grow at a CAGR of 6.8% over 2023-2027 to reach 19.1 million.
- Due to intense competition, the overall average ARPU in the fixed broadband segment declined to approximately USD 12.5 (THB 447.9) in 2022 from USD 13.7 (THB 488.4) in 2021. However, the ARPU is expected to continue decreasing, though at a slower pace due to the increasing demand for high-speed packages and bundled services.
- The overall increase in subscribers will offset the ARPU stagnation, leading to fixed broadband revenue expanding at a CAGR of 5.8% between 2023-2027, reaching USD 2.7 billion (THB 97.9 billion) by 2027.
- Thailand’s fixed broadband market is dominated by few major players like AIS, True Online, 3BB and TOT, with AIS and True Online together accounting for ~45%of the overall fixed broadband revenue in 2022.
- In November 2023, the strategic acquisition of 3BB and Jasmine Broadband Internet Infrastructure Fund, enabled AIS to emerge as the largest fixed broadband player in Thailand with ~4.7 million subscribers in Q3-2023, displacing True Corp, which has 3.8 million fixed broadband subscribers.

[39] https://cdn.twimbit.com/uploads/2024/02/21201908/Thailand-fixed-broadband-market-updates-2024-edition-5.pdf

These evidences confirmed that the demand for broadband internet access has been fuelled by the "new normal" post pandemic reality and the ongoing trend of digitalization. This demand is coming from both consumers and enterprises. Looking ahead, the fixed broadband market is expected to continue its robust growth trajectory, driven by the sustained momentum of the digital shift and its ever-increasing demands for reliable connectivity. Fibre-optic network expansion, high-speed offerings, attractive content bundles, and competitive pricing are the primary battlegrounds in the Thai fixed broadband market. Thai telcos are employing a multi-pronged approach, leveraging these elements alongside targeted marketing and innovative solutions to attract new subscribers and boost revenue.

1.2.4.2 Mobile Market

Thailand's telecommunications market has experienced robust growth in recent years. This growth is driven by surging demand for connectivity, including 5G and fixed broadband, alongside widespread adoption of digital technologies. The sector boasts a mature landscape with a diverse mix of public and private players. The growth trajectory is expected to continue, propelled by the imminent arrival of 5G technology, successful spectrum auctions, and ongoing network upgrades by major telecommunications providers. Additionally, the auctions in the 700MHz band (previously designated for digital TV broadcasting) and the 3.5 GHz range are expected to further augment network capacity, reinforcing Thailand's stature as a regional leader in telecommunications infrastructure. AIS has committed to acquiring the 700MHz spectrum license from National Telecom (NT) for USD 419.6 million (THB 14.9 billion) and has concurrently entered into equipment lease and roaming agreements.

Key highlighted of mobile market are remarked[40] as follows;

- Amidst the intense competition, telcos continue to offer unlimited data plans at competitive prices in the prepaid as well as postpaid segment, resulting in low ARPU levels. As a result, the mobile segment revenue is estimated to witness moderate growth (CAGR) of 1.4% over 2023-2027 to reach USD 8.2 billion (THB 294.6 billion).
- Thailand's mobile operators are making significant efforts to provide a superior 5G experience. They are addressing challenges such as expanding the coverage to a larger population, offering more affordable 5G handsets bundled with attractive packages, and

[40] https://cdn.twimbit.com/uploads/2024/02/21204747/Thailand-mobile-market-updates-2024-edition-1.pdf

placing greater emphasis on AR/VR content to attract users. As a result, the adoption of 5G is expected to increase from 12.8% of the total subscriber base in 2022 to approximately 38% by 2027.

- The recent merger of TrueMove and DTAC into True Corp has reshaped the landscape of Thailand's telecommunications industry, resulting in True Corp having the highest mobile subscriber share of ~52% in 2022, surpassing AIS (market share ~42%) which was the market leader until 2021.
- Thailand's mobile market is characterized by a relatively high proportion of postpaid subscribers, accounting for ~30% of the total subscriber base. True Corp reigns its supremacy in the Thailand's mobile market, holding the highest proportion of postpaid subscriber penetration (30.5%) in 2022 as compared to 28.5% of AIS.

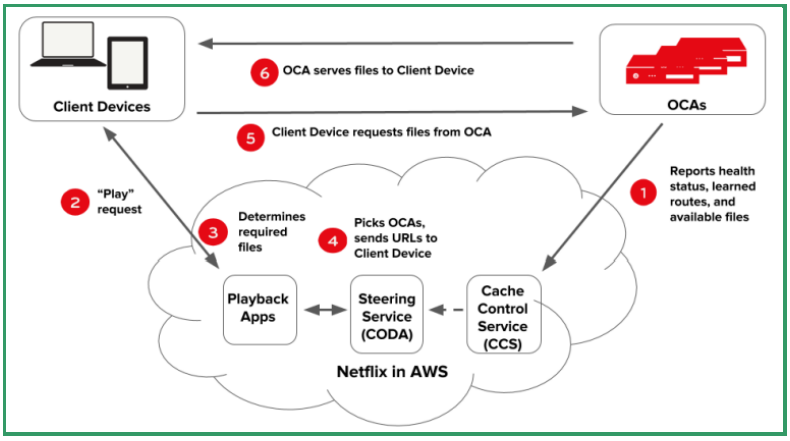
While mobility segment remains the largest revenue contributor for Thai telecom operators, the primary drivers of future growth will shift towards fixed broadband and the enterprise segment. The mobile market, although still the largest, is expected to exhibit a moderate growth (CAGR) of ~1.4% over the 2023-2027 period. This slower pace reflects high market saturation, evidenced by maturity and the widespread practice of holding multiple SIM cards, inflating penetration rates. Thai telecom operators are strategically shifting their focus, bolstering capabilities for mid-range and premium devices while building robust digital infrastructure for highspeed data and cloud solutions. This, coupled with the government and private sector's concerted effort to establish Thailand as a regional data centre hub, positions them for sustained revenue growth.

1.2.4.3 Content delivery networks (CDNs)

Content distributed via OTTs can **reach its viewers directly via the Internet**. In the past, content was contained in a single server. Once a user requested content, data would travel through many networks and routers, where some could be congested due to high traffic volumes. This might lead to data packet loss and, thus, a reduction in content quality. **Nowadays, content is likely to be distributed via content delivery networks (CDNs)**, which are geographically distributed networks of servers and data centres that host content and make content spatially close to end users. Content owners pay CDNs to deliver contents to their end users, while a CDN operator either owns its own networks and hosts the content themselves or pays internet service providers (ISPs) and network operators to host CDN servers in their data centres. **There are thus many players involved in the delivery of content via OTTs, but many of these players, apart from ISPs and internet exchange points (IXPs), are beyond a single national border.**

Currently the biggest streaming service in the world with reportedly nearly 250 million global paid memberships as of 2023, Netflix launched its own CDN under the name "Open Connect", where Netflix peers with ISPs across the globe. [41] Netflix argued that this system helps ISPs save costs significantly. Netflix installs Open Connect Appliance (OCA)[42] within the internet exchange points, where OCAs are interconnected with ISPs. Peering and settlement terms are needed this way. OCAs can also be deployed inside the ISP networks. Under this alternative, ISPs directly control customers' routes to content stored within the OCAs. The diagram below provides more technical details on what needs to be done once a customer requests access to play back some videos. It also illustrates involvement with various ISPs and Cloud services, for example, by AWS. In the case of Thai content provider, the content would be stored in servers hosted by local ISP.

Figure 1-15 Open Connect Appliance



Source: https://openconnect.netflix.com/Open-Connect-Overview.pdf

Akamai, one of global leading CDN providers, revealed that the traffic in Thailand is continuously increasing 30% since pandemic in 2020 and showed a steady traffic growth.Akamai deploys its service inside major ISP networks, located in 8 cities in Thailand which are Bangkok, Chiang Mai, Khon Kaen, Nakon Ratchasima, Chonburi, Pattaya, Surat Thani and Hatyai. More than 90% in-country traffic delivery. Akamai is partnering with varies IX in Thailand to send traffic to IX members (BKNIX, BBIX Thailand and TH-IX). However, there are some challenges that need to take into account i.e. Internet congestion, bottlenecks and deployment difficulties.[43] Apart from Akamai,

[41] https://www.digitaltrends.com/home-theater/most-popular-streaming-services-by subscribers/#:~:text=Netflix%20is%20the%20biggest%20streaming,11%20percent%20year%20over%20year.

[42] https://openconnect.netflix.com/Open-Connect-Overview.pdf

[43] Yeungs (2021) CDN Trends from Akamai's perspective Document from BKNIX Peering seminar forum.

Cloudflare, and Limelight Networks are leading the way in Thailand. These companies provide CDN solutions that leverage peer-to-peer technologies to enhance the delivery of digital content. As the demand for high-quality and low-latency content delivery rises, CDN become integral for businesses in Thailand and there is a high demand for CDN service in Thailand.

In addition, data centers have quickly become critical Internet infrastructure, and their importance continues to grow exponentially. This growth is not just to accommodate future technologies — Internet of Things, Large Learning Models (LLMs), and quantum computer technologies — but also cloud, streaming, and gaming services, which are improved by having content stored as close to users as possible. According to PeeringDB, Thailand has 34 data centers serving its ~72 million inhabitants. In comparison, Singapore, with a population of ~6 million, has 47 data centers.[44]

1.2.5 Future directions of infrastructures and technologies for content distribution channel

Advances in broadcasting technologies, including High Definition (HD) and Ultra High Definition (UHD) broadcasts, have improved the viewing experience. The proliferation of smartphones and high-speed internet has been crucial in the growth of OTT platforms, allowing users to access content anytime, anywhere. Each content distribution channel has its own advantages, but also faces unique challenges and opportunities. Moreover, the future directions of infrastructures and technologies for content distribution channels, including Augmented Reality (AR), Virtual Reality (VR), live streaming, and platforms like AppleVision, are shaping up to be highly immersive and interactive, significantly altering the way content is consumed and experienced.

VR/AR in Broadcasting and Streaming: VR and AR technologies are revolutionizing broadcasting and streaming by offering more immersive experiences. They enable viewers to interact with content through interactive elements such as polls, comments, or quizzes, thereby deepening engagement. This technological evolution is likely to set broadcasters and streaming services apart from their competitors, attracting and retaining viewers with unique experiences.[45]

AppleVision Pro and Immersive Entertainment: Apple has made significant strides with its AppleVision Pro, which introduces Apple Immersive Video. This technology offers users a highly immersive experience, allowing them to feel like they are in the center of the action. For example,

[44] https://pulse.internetsociety.org/blog/unpacking-thailands-internet-resilience

[45] https://playboxtechnology.com/2023/06/the-future-of-entertainment-how-vr-and-ar-will-change-the-way-we-consume-media/

Apple has developed content like "Alicia Keys: Rehearsal Room," which provides an intimate look into the artist's creative process, and "Prehistoric Planet Immersive," which transports viewers into the world of dinosaurs. These experiences suggest a future where viewers can engage with content in a more interactive and immersive manner than traditional media.[46]

The future of content distribution channels is evolving towards more personalized, immersive, and interactive experiences, driven by advancements in AR, VR, AI, and new platforms like AppleVision. The integration of these technologies in various sectors, from entertainment to education, indicates a significant shift in how we will consume and interact with content in the near future.

Looking towards 2024 broadcasting trends, numerous studies highlight the growing importance of immersive experiences powered by Extended Reality (XR) technologies. This includes Augmented Reality (AR) and Virtual Reality (VR), which are transforming how audiences engage with content.[47]

AR is revolutionizing live shows and sporting events.[48] Viewers can now superimpose digital information onto the real-world broadcast, enriching their understanding and enjoyment. Imagine seeing real-time player statistics displayed on the field during a football match or trivia pop-ups during a game show. This creates a dynamic and interactive viewing experience.

Streaming platforms are also leveraging AR to craft immersive storytelling experiences. By blurring the lines between the narrative and the audience, AR can create a sense of being part of the story itself.

Recent research on media innovation[49] shows that audience demand for experiences has driven media producers to develop and use immersive and interactive technologies to create more engaging, interactive, and participatory experiences. Media labs in media organizations in many countries are experimenting with the development and use of these technologies, applying them to educational programs, interactive programs, and programs where viewers can respond, set the story, and choose their own story paths. These technologies are being applied to a variety of media

[46] https://www.apple.com/newsroom/2024/01/apple-previews-new-entertainment-experiences-launching-with-apple-vision-pro/

[47] The top trends in the broadcasting industry for 2024. (n.d.). https://www.wtvision.com/the-top-trends-in-the-broadcasting-industry-for-2024

[48] Chemitiganti, V. (2023, December 9). Media & Entertainment Industry – 2024 AR/VR/Metaverse Trends (2/2). Vamsi Talks Tech. https://www.vamsitalkstech.com/opinion/media-entertainment-industry-2024-ar-vr-metaverse-trends-2-2/

[49] Srisaracam, S. (2023). Analyzing Media Innovation in Five Countries and the Challenge of Developing Media Innovation in Thailand. Journal of Management Science Chiangrai Rajabhat University, 18(1), 25–54. Retrieved from https://so03.tci-thaijo.org/index.php/jmscrru/article/view/263967

formats, including educational programs, interactive programs, and programs where viewers can respond, set the story, and choose their own story paths.

However there has been some rejection of AR/VR in major content creators over the last decade, as the technology can have adverse effects both health, mental health and behavior[50] on many viewers. That is perhaps why it has not taken off as expected from its major launch in 1991, with W Industries in the UK and others in Europe and the USA. Media experts within Thailand noted this aspect, when canvassed on its consideration for 5G mobile applications for an NBTC study.

Moreover, its immersive use in online gaming, with avatars as proxies for players has led to significant protests in the EU and UK due to various issues (i.e. protecting children and teenagers and online safety) that have been raised.

A further trend in content creation is the use of pattern recognition applications using so-called generative models, or 'AI', for content production. This is starting to be used specifically for VFX, translation, lip-synching, etc. in advanced studios, worldwide. It is raising a range of issues of content rights and ownership, especially on copyright for text, storylines, reuse of voice patterns, facial identity, and facial expressions. It thus formed some part of the recent Hollywood strike by creative staff and has led to various undertakings to resolve the dispute.

1.3 Value chain of the changing industry

Referred to Figure 1-3, the media ecosystem in Thailand, this chapter will elaborate the value chain of changing industry by focusing on 3 aspects. Firstly, Local content production and its key imports in products and services. Then, employment including employment skills present and lacking for production, and followed by funding, subsidies and policy, regulation with the legal environment is also explained respectively.

1.3.1 Local content production, key imports in products and services

In the content production ecosystem, key players produce audiovisual content for content service providers, encompassing both broadcasting service providers and streaming service providers at both local and global levels. These key players serve as the starting point of the value chain in the audiovisual industry, including the following:

[50] https://arxiv.org/pdf/2304.01648

1.3.1.1 Content providers in TV broadcasting services and broadcaster-owned streaming platforms

Content providers for TV broadcasters and their streaming platforms include:

1) In-house studios producing news and other programs.
2) Outsourced production companies, individual creators, and foreign program rights holders.
3) Co-producing with content providers, involving time-sharing without rental fees and revenue sharing based on agreed proportions, or time-sharing in advertisements.
4) TV shopping programs leasing airtime.
5) Acquisition of program rights from local and international producers.

From the strategies mentioned above in terms of content production and acquisition, there are key players involved in content production as follows:

1) In-house studios, which are internal units of broadcasters responsible for producing programs for broadcasting across various channels of the broadcaster. They mainly produce news programs. In 2021, the broadcasters with the highest proportion of programs created by in-house studios were ONEHD, GMM, ThairathTV, and PPTV, respectively. This group of entrepreneurs is considered relatively new, leading to the need for a substantial amount of self-produced content. Additionally, conventional TV channels like Ch7 and Workpoint also prioritize content creation by their own production facilities, with Ch7 focusing on dramas and Workpoint specializing in expertise-driven variety and game shows.[51]
2) Outsourced: These entities include production companies, individual content creators, and holders of foreign program rights.

Key trends:

- Production companies previously leasing airtime are shifting to outsourced production due to low ad revenue.
- Some producers are positioning as independent, supplying content across platforms.
- Top TV shopping companies had high ad spend in 2021.
- Broadcasters acquire foreign movies/series, especially from Asia.

[51] https://www.prachachat.net/ict/news-879120

1.3.1.2 Content providers in Global and Regional streaming services in Thailand

In 2023, Netflix was the most popular video streaming service in Thailand with 35% subscriber share. Local provider TrueID was second at 21%, followed by Disney+ Hotstar (13%), Viu (11%), WeTV (11%), iQIYI (10%), and AIS Play (7%).[52]

The Thai SVOD video streaming market is forecasted to grow by 0.6 million users (11.07%) to reach 6.05 million users by 2027, continuing its upward trend.[53]

Netflix has localized its strategy, partnering with Thai content producers across film, TV, and studios. Its approaches include:[54]

1) Bringing existing Thai content to the platform
2) Acquiring rights to unreleased Thai content
3) Investing in and co-producing Thai Netflix Originals

Other major OTT players are also partnering with local content creators to serve the growing Thai streaming market.

As an introduction to the creative structures in Thailand, a list of types of production facilities is given below with production houses with film studios, major companies, and broadcasters that produce content.

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[52] https://business.yougov.com/content/47753-ott-video-streaming-services-platforms-thailand-popularity-vs-satisfaction-netflix-disney-plus-amazon-prime

[53] https://www.statista.com/forecasts/1255907/video-streaming-svod-users-thailand

[54] Hadida, A. L., Lampel, J., Walls, W. D., & Joshi, A. (2021). Hollywood studio filmmaking in the age of Netflix: a tale of two institutional logics. Journal of Cultural Economics, 45, 213-238.

Table 1-4 Example of types of creative production entities in Thailand

Production House	Film production company/studio	Film Company	Broadcaster
- BRAVO! Studio - H2L Media Group - Thongkham Films - SK Global Entertainment - SONGSOUND PRODUCTION - LAND OF SMILE FILM - BENETONE FILMS - Bear Cave - Bison Idea - TRASHER BABY ONE TIME	- Transformation Films - CJ Major - Film GURU - M39 - Thai Major - GMM STUDIOS - Jungka Bangkok - Hollywood (Thailand) - Smalt Pictures	- GDH - Sahamongkol Film - Five Star - M Studio - M Pictures - Neramitnung Film - BEC STUDIO	- GMM TV - Channel 3 - Workpoint

Note:

A production house is a company that specializes in creating various media content, such as films, commercials, television shows, music videos, and other digital media products. In the film industry, production houses are often hired by film production companies (studios) to manage the entire production process, encompassing filming, costume and makeup, lighting, sound, and editing.

A film production company, also known as a studio, is an entity that receives instructions or requirements from financiers or investors. They then appoint a producer to oversee and select a director for the film production process. Examples of film production companies include Transformation Films, CJ Major (in collaboration with South Korea), Film GURU, M39, and Thai Major Co., Ltd., which received production orders from the film company M Pictures (as of 2024, M Pictures no longer operates as a film company). The Studio operations are driven by profit motives and employ a system similar to an industrial setting, utilizing both monthly salaries, freelance arrangements, and even hiring external companies to handle specific tasks. One such example is hiring a production house to develop and produce a film.

A film company, is an entity that serves as a source of funding or investment. It plays the role of commissioning or specifying requirements for the film production company's team. The team then appoints a producer to oversee and select a film director to carry out the production process. Film companies often handle all stages of the process themselves, from development and production to distribution, exhibition, and consumption, with the ultimate goal of generating profit**.** For example, GDH**,** Sahamongkolfilm, Five Star, M Studio.

The rise of OTT technology has led to competition with traditional TV for ad revenue and viewership. OTT meets consumer needs more cost-effectively, driving transformation in the Thai broadcasting industry.

TV broadcasters have adapted by airing content concurrently on digital TV and OTT platforms like Netflix to reach streaming audiences. Content producers get paid directly by Netflix, eliminating need to wait for ad sales, and gain global distribution opportunities.

Film/series studios and production companies are partnering with global OTT platforms like Netflix, Prime Video, Viu to create local Thai content. Formats include:

1) OTT platform-owned originals
2) Acquired rights to existing Thai content
3) Co-productions between OTT and Thai producers

Netflix's model provides creative freedom but they own full rights. Promotion may be limited as Netflix focuses on expanding catalogue for subscriber recommendations.

1.3.1.3 The revenue sources for professional content creators in the Thai AV industry

Thus, at present, the revenue sources for professional content creators in the Thai AV industry can be broadly categorized into three main formats, namely:-

1) Revenue from being a producer and service provider (channel owner) in the television industry includes income from advertising through self-produced content via television channels, as well as other revenue streams such as co-production.
2) Revenue from being a content producer, content service provider, and copyright owner on OTT platforms.
    - Revenue from selling content rights for broadcasting internationally (simulcast) to increase revenue from existing content, including selling finished program content and program formats, such as the case of Workpoint TV.
    - Revenue from producing content through OTT platforms using strategies to create content that is attractive, relevant, and suitable for the international target market of OTT service platforms, focusing more on producing content for OTT platforms rather than television in various formats. i.e.
        - Producing content for various OTT service platforms.
        - Collaborating in producing original content for OTT service platforms.

- Creating one's own OTT platform and generating revenue from content under the "Single content, multiple platform" strategy to serve both domestic and international markets.

3) Revenue from purchasing intellectual property rights (IP) from foreign sources to adapt and develop content with cultural proximity.

In today's content production landscape, there is an increasing potential and a greater quantity of content producers due to the emergence of new platforms. This has made it easier for aspiring content producers to access avenues for publicizing their work. However, there is still a lack of innovative and internationally appealing content. This is because some producers approach content creation from an artistic perspective, while others lack financial support to facilitate presentation and diverse content creation. For instance, documentary-type content often requires high production costs, and producers may lack collateral to access funding sources. Additionally, there is a lack of skills in utilizing technology and a shortage of market research data that could better cater to consumer needs.[55] With the ease of entry into content production, new producers often lack an understanding of ethical considerations, production standards, and intellectual property rights. Consequently, the quality of content may not be sufficient for entry into mainstream platforms

1.3.2 Employment, Essential skill for content production and Funding in creative media industry

This section provides an overview of education and employment in creative media industry, and the funding strategies in current audiovisual players in the industry. This section presents some challenges to the content industry due to lack of new recruits with far deeper creative education and higher production competences.

Education Landscape and the Creative Workforce

The education in the sector specifically related to the Thai Audiovisual (AV) Industry, starts from the basic level through the lifelong learning process and these shape the workforce in the creative industries.

Vocational institutions are one source of professionals for the workforce for the AV industry, including the Information Technology and Communication Technology segment, Fine Arts, and the

[55] https://www.cea.or.th/th/single-industries/Creative-Industries-Development-Report-2021-Broadcasting

Entertainment and Music Industry branch. These three vocations collectively account for 4.3% of all students in the Thai Creative Industries field at the vocational education level.

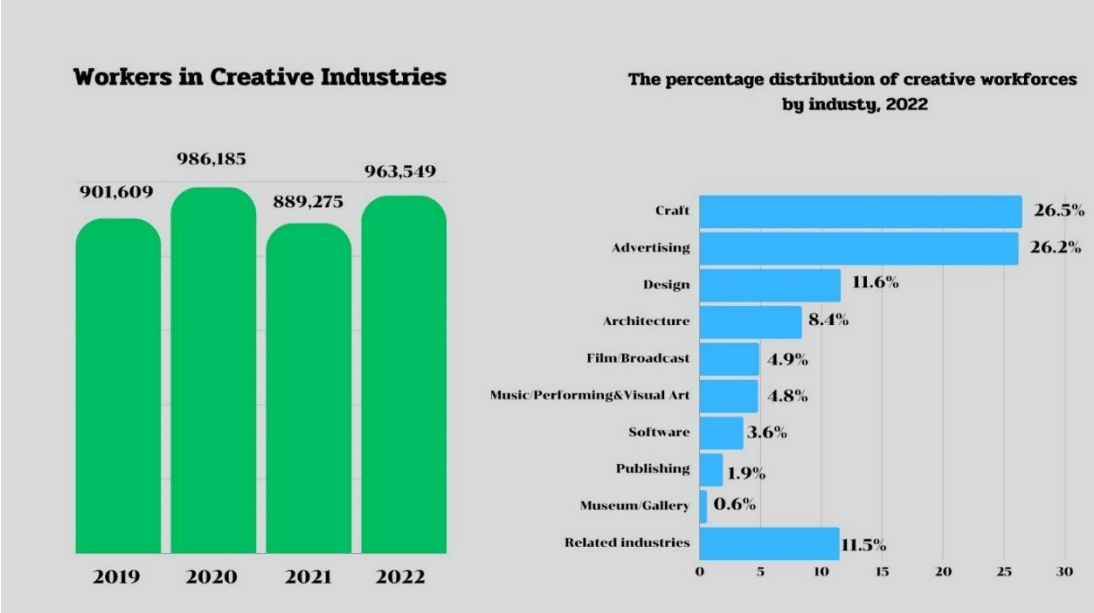
This represents a small proportion, however. In the realm of higher education, disciplines related to the AV industry fall under the Arts and Humanities field. When comparing the number of graduates in the Arts and Humanities field to the overall number of graduates across all disciplines, it is found that they account for approximately 12%. Furthermore, educational institutions in Thailand play a crucial role in nurturing content creatives. However, the curriculum in these institutions has not been sufficiently adapted to the changing landscape of online technologies and visual effects used in digital media production today.

More specifically, it is found that the current educational institutions offering film-related courses have not been able to meet the business needs of the film industry adequately. There is also a lack of coordination in developing the film industry among the government sector (responsible for policy setting), the private sector (which acts as a crucial economic driver), and the education sector or film schools (which serve as talent incubators and workforce generators to drive quality production).

Employment: Creative labor in an OTT world – a need for more talent and vital new skills

In 2022, the number employed in the creative industry increased to 8.35% of the Thai total workforce, or 0.963 million workers. The film/broadcasting workforce is in the 5th rank with 4.9%as shown in Figure 1-16. This is relatively low compared to Crafts (26.5%), Advertising (26.2%) and Design (11.6%).

Figure 1-16 Distribution of creative workforce by industry.



Source: CEA (2024) [56]

As for content expansion for the current trading of program copyrights, content provider companies play a significant role in both domestic and international transactions.

Specifically, it is obviously observed that foreign production companies often use Thai labor for manual or technical processes, while higher-level tasks or content design are more often undertaken by foreigners or their nationals. This situation has resulted in limited development opportunities for Thai creative labour in terms of content compared to their foreign counterparts.

Moreover, the impact of over-the-top (OTT) and streaming services on the broadcasting and television industry is significant. When content creators in the creative industry establish relationships with international streaming networks, concerns arise about the supply chain in the pre-production, production, and post-production processes needing to align with international standards. In comparing VFX skills and technology between France, for instance, and Thailand, the educational facilities, equipment and levels of skills, techniques, and volume of demand for new projects are stark.

This difference leads to a call for the development and elevation of the Thai creative industry's work practices, such as

[56] The Future of the Creative Workforce: at the Crossroads of Transformation

https://www.cea.or.th/th/single-research/The-Future-of-the-Creative-Workforce

- Expanding creative educational facilities to the level of Europe, specifically France
- Adopting globally recognized content creation methods,
- Implementing structured work schedules,
- Monitoring, and controlling quality at every stage,
- Ensuring wages are attractive so recruitment and retention is not a problem.
- Recommending internationally recognized labor regulations.

Note that already today there is a shortage of labor to meet demand when working according to international standards in producing Thai films and television media. Today's organizations in content creation and distribution face a shortage of personnel, and the influx of OTT and streaming services seeking original content exacerbates this scarcity. While the proliferation of OTT and streaming platforms increases the dissemination of works, it also leads to a decrease in average revenue per content piece. This, in turn, affects the production budget allocation, requiring cost-cutting measures.[57]

Challenges for the Thai industry – finance, skills, technologies, techniques, motivation

People in Thai media industry voices their needs in developing digital skills to pursue competitive advantages in the robust competing AV market, such as, digital content creation, monetization in digital platform, content creation with mobile devices, audience data analytics, vdo content editing.[58]

Also, the film production industry faces significant challenges despite having skilled personnel. Key issues include limited opportunities for personnel development during the production process or work periods, lack of motivation among workers, and a predominantly freelance workforce. There's also a lack of skill development among personnel, such as English language proficiency, production techniques, editing processes, post-production processes, economic knowledge, and marketing skills.

Various forms of development can address these issues, including training programs, job shadowing, scholarships for learning relevant skills, or meeting the demands of the labor market. Additionally, there is a lack of networking development, particularly in terms of forming associations or unions for negotiation and advocating for various benefits. Furthermore, a lack of professional

[57] https://www.nbtc.go.th/Information/ผลการศึกษาวิจัย.49215/aspx

[58] https://www.depa.or.th/th/article-view/digital-skills-media-industry-project

standards for personnel in the film industry holds it back, as well as the establishment of organizations to oversee professional development benefits for members.

Room for development in the content production industry includes: -

- Business acumen development - which should also be prioritized to ensure producers can pursue their careers more securely.
- Enhancing the skills and knowledge of content producers,
- Specific expertise in how to incorporate technology into content production.
- Intellectual property rights.

Furthermore, it is important to recognize and promote quality producers or works through competitions or awards to motivate producers to create high-quality content. Developing funding sources to support diverse and inclusive media production and fostering creativity should also be emphasized.

Funding and subsidies in the creative media sector

Funding and subsidies are one of the critical components which drive the audiovisual industry and create industry growth. The source of current and future funds for the Thai broadcasting industry comes from various organizations. Current funding and subsidies include local commercial investments and public sector funding.

- **Local Commercial Investments:** Local businesses often invest in content distribution channels to reach their target audience. This local commercial investment can take the form of regional advertising or sponsorship of specific content segments, crucial for regional channels and local broadcasting stations. Additionally, partnerships with local businesses and product placements are commonly used to generate revenue for both traditional and digital media platforms. Thai content creators and influencers often collaborate with brands to create sponsored content for their social media channels and YouTube, further diversifying their income streams.[59]
- **Public sector funding**, encompassing government grants, public broadcasting fees, and other state-sponsored initiatives, remains a cornerstone for channels focused on educational, cultural, and public interest content. Public sector funding in Thailand primarily supports public broadcasting entities like the Thai Public Broadcasting Service

[59] https://www.bangkokpost.com/business/general/1722495

(Thai PBS). Thai PBS is partially funded by government allocations and viewer contributions, making it one of the main sources of independent and diverse content in the country.[60] On the other hand, the National Broadcasting Services of Thailand (NBT), which is the public broadcasting arm of the Government Public Relations Department, a division of the Thai Government, is primarily funded by the Thai government. Public sector funding in Thailand primarily supports public broadcasting entities. There have been calls for these broadcasters to improve their source of funding[61] and audience rating. Therefore, trade-off between cost of public funding and social benefits need to consider for the policy makers.

Regulatory obstacles to Foreign Direct Investment (FDI)

Diversified Foreign Direct Investment (FDI) models are one of the future funding possibilities for the creative media sector. FDI plays a pivotal role in content distribution, especially in emerging markets. International investors and media conglomerates often invest in local channels, bringing in capital, technology, and expertise. Emerging markets might witness diversified FDI models, focusing on sustainable development, local content production, and equitable profit-sharing arrangements.

However, Sections 13 and 15 of the "Broadcasting Act B.E. 2551 (2008)", setting forth qualifications and restrictions for applicants of commercial broadcasting service licenses, are designed to ensure that the entities responsible for broadcasting services in Thailand are stable, financially secure, and significantly controlled by Thai nationals, reflecting a policy of maintaining national sovereignty over public communication channels. The Act includes provisions that could potentially impact the extent and nature of Foreign Direct Investment (FDI) in Thailand's broadcasting sector. This could reduce diversified FDI models in several ways

To harness the potential of FDI in Thailand, regulatory authorities should establish clear guidelines and oversight mechanisms to ensure that foreign investments benefit the local content industry without compromising cultural diversity and market competition. The question of balance to encourage both FDI models is evidently of importance.

[60] https://org.thaipbs.or.th/organization/authority

[61] https://statemediamonitor.com/2023/10/national-broadcasting-services-of-thailand-nbt/

Other Future funding possibilities

Enhanced Local-Global Partnerships - Future funding could see a blend of local and global investments, where local content benefits from global technologies and distribution networks. Traditional media will need to adapt to digital advertising and subscription-based models, while digital-first platforms explore alternative monetization strategies.

Public-Private Partnerships (PPPs) -Public-Private Partnerships could emerge as a viable model, combining public sector's mandate for quality and accessibility with the private sector's efficiency and innovation. Public-private partnerships could be explored to strengthen public sector funding. Collaboration between government agencies and private entities may provide the financial stability needed for public broadcasters while ensuring their editorial independence.

The funding landscape for content distribution channels is ever-evolving, with each source—local commercial, public sector, and FDI—bringing unique strengths and challenges. A balanced approach, respecting local content integrity while leveraging global resources and technologies could pave the way for a robust and diverse media landscape. Thailand's content distribution landscape relies on local commercial funding, public sector support, and foreign direct investment. Adapting to changing consumer behaviors and technological advances, diversifying revenue streams, and fostering responsible FDI will be key to the industry's continued growth and sustainability.

1.3.3 Policy, regulation with the legal environment currently

This section mainly focuses on policy and regulation as well as licensing schemes that are implemented on the broadcasting value chain in Thailand. The topics are organized as follows:

- First are the implications drawn from the first and second Broadcasting Master Plan.
- Second are the licensing schemes and duties imposed onto licensees. Then, related policy and legal environment is presented.

1.3.3.1 Implications drawn from the first and second Broadcasting Master Plans

The first Broadcasting Master Plan was effective from 2012 to 2016. It comprised 7 strategies, varying in scopes and attempting to address all the stakeholders within the market. The details are as follows:

1) Strategy for licensing of radio frequencies and audio broadcasting and television broadcasting services
2) Strategy for regulating audio broadcasting and television broadcasting services

3) Strategy for protection of audio broadcasting and television broadcasting consumers
4) Strategy for promotion of rights and liberty in communications
5) Strategy for development of broadcasting services' quality
6) Strategy for transition to digital broadcasting transmission
7) Strategy for development of management system for the NBTC to become an efficient regulatory body

Overall master plan focused on implementation of license schemes and rebuilt principles of regulations. For example, they regulate program plans (e.g., which program is being aired at what time, overall composition of different types of content) to ensure content quality and public security. It also focused on consumer protection and supported rights and freedom in communication. Lastly, it managed allocation of the frequency spectrum and declared spectrum plans. It also pushed for digitization of broadcasting system by, for example, supporting coverage of digital terrestrial TV service.

The **second Broadcasting Master Plan** comes into effect from 2020 to 2025, with the revised version comprising of 4 strategies. The details are as follows:

1) Strategy for developing Thailand's radio industry to international standards, aligned with the digital context.
2) Strategy for developing Thailand's television industry to international standards, aligned with the digital context.
3) Strategy for promoting and regulating content, consumer protection, and promoting rights and freedoms for efficient access to and utilization of public information in the digital world.
4) Strategy for digital-focused service provision and regulation.

This master plan emphasizes responding to digital contexts that influence various aspects of the radio and television industries more effectively. For instance, it aims to create a balance between the demand for frequency resources and the available frequencies in radio and television operations. Concerning television operations, it focuses on multidimensional proactive policies, such as evidence-based regulation based on insightful data, efficient resource utilization, fairness, and elevating content production to international standards. Additionally, it includes revising laws to align with digital contexts.

More specifically, the Master Plan now focuses on efficient spectrum management such that consumers can easily access broadcasting services. In lieu of this, the Commission also states

the intention to revamp regulatory principles such that they correspond to the newly emerging context. The NBTC thus aims to increase accessibility of channels so that all people, especially those living in regional areas, can receive news. New broadcasting technology should be facilitated into actual employment in the market. New regulatory regimes must be applicable under new contexts, including convergence trends, for the broadcasting industry. To accomplish these goals, the NBTC plans on studying and revising current laws, and ensuring participation of relevant stakeholders along the process, including those from the media industry, with content production.

Current licensing schemes can be summarized as follows:

1) Individuals or firms seeking to provide broadcasting services, be it **service provider, network provider, or facility provider**, must pay the fee for processing their requests. Furthermore, every licensee must also **pay an annual fee** that is **based on annual revenue**. Fee rates increase in a ladder-like manner like personal income tax calculation. Deductibles are possible, however they vary with types of licenses, e.g., whether the licensee uses spectrum, whether it is public, community, or business type of license.

Table 1-5 The fee structure

Revenue per year	Fee rate (%)
0 – 100 mTHB	0.125
Above 100 – 500 mTHB	0.25
Above 500 – 1,000 mTHB	0.5
Above 1,000 – 10,000 mTHB	0.75
Above 10,000 – 25,000 mTHB	1.0
Above 25,000 – 50,000 mTHB	1.25
Above 50,000 mTHB	1.5

The fee in total, however, is capped at 2% of total revenue per year. This clause ensures that the NBTC does not impose too much of a financial burden onto the providers.

2) There is **technical requirement on TV broadcast network providers** for DTT (on both sending and receiving ends).[62] As for Satellite TV, there is requirement on the receiving end. Cable TV and IPTV do not have such a requirement.
3) **Content-wise, the program schedule must satisfy some restriction depending on license type.** For example, 70% of programs broadcast by the public-type licensee must be either news or content that benefits the public. A similar percentage is imposed onto community-type, with additional restrict that at least 50% of all content be relevant to own community. Lastly, at least 25% must be news or content that benefits the public for business-type licensees. Additional condition is imposed onto regional and local business-type licensees whereby licensees need to create at least 50% of aired content by themselves.[63]

1.3.3.2 Regulation of the telecommunications and media industries

The NBTC has implemented some **notable regulatory actions in the telecommunications and media sectors** including:

1) **Allocations of 24 DTT channels** (those other than public ones) **through auction** in 2013, totalling more than 50 billion THB. At the time, TV was still valued highly; but soon after, the broadcasting market was disrupted by the entrance of OTT streaming and video-on-demand services. Advertising revenue was partially redirected towards digital channels, while too many players seemed to have entered the DTT market. Eventually many auction winners quit the market.
2) The NBTC imposed **standards on calculation of compensation rate for usage of terrestrial network for DTT**. The formula ensures that the rate reflects expense incurred by the network operators.
3) **Content distribution within a channel throughout the day and the entire week is regulated**. Thus, the NBTC limits, for example, the average number of minutes of advertisement that may appear in an hour within each day. The aired content must be categorized based on appropriate age.

[62] https://broadcast.nbtc.go.th/technical_regulations

[63] https://broadcast.nbtc.go.th/data/document/law/doc/th/560500000005.pdf

4) The NBTC imposed **Must Have Rule**, which requires that major events (live broadcast), e.g., FIFA World Cup Final, Olympic Games, SEA Games must be available through free-to-air TV. Its intention is to ensure that everyone "must have" access to watch these events free of charge. On April 2024, NBTC has approved the removal of the FIFA World Cup from its "must-have" rule, which mandates that major sporting events be accessible on free TV channels.

5) A further rule is the **Must Carry Rule**, which requires that broadcasting channel operators (e.g., Cable and Satellite) "must carry" whatever content that is broadcasted on free-to-air DTT on their platforms. They must continuously broadcast the "free" content without making adjustment, duplication, changing the order of the programs or resolution. **The Must Carry rule could potentially make DTT lose its competitive edge over other free-to-air platforms like Satellite TV** that are also capable of delivering HD content. **All DTT channels thus compete based on content.** It has been found that news and soap operas are key to the popularity of DTT channels. **News is particularly important**, given that it constituted **52% of content** that Thai people consumed in 2022 according to Nielsen[64]. COVID-19 and global news were quoted as a reason that make the TV dramas lose out to news. The price for advertising per minute during popular news hours has thus increased. Rating becomes one of the biggest deciding factors on which each channel wins advertising revenue.

6) In 2018, the NBTC enacted Notification on recalling previously assigned spectrum that was found to (1) not be utilized beneficially, or (2) currently utilized but in ways that do not meet its potential value, or (3) be able to create more value when assigned for other purposes. This Notification might affect operators that involve the use of spectrum frequency. For example, C-band satellite operation might be affected, because it uses 3.4 – 4.2 GHz band. New standards and the majority of past spectrum auctions concur that 3.3 – 3.8 GHz is key mid-band for future 5G deployment along with low-band, e.g., 700 MHz, and high-band, i.e., 26 and 28 GHz.[65] That means the current band for Satellite downlink might be reallocated for IMT service, potentially pushing Satellite service providers to operate within just KU-band (10 – 12 GHz). This would significantly affect

[64] https://www.dataxet.co/media-landscape/2023-th/digital-tv

[65] https://5gobservatory.eu/5g-spectrum/

current Satellite TV viewers all over Thailand, the largest broadcast TV community, greater than DTT viewers.

7) In 2014, the NBTC enacted principles regarding the determination of those deemed to have significant market power (SMP) in the broadcasting market and specific measures that those with SMP must follow. This policy is implemented to prevent these providers from exercising their market dominance.[66] However, they have never named any operator to have SMP in the broadcasting industry.

The NBTC defined markets for both retail and wholesale levels. The retail market includes just a single market for TV service provision that does not employ spectrum. This refers to TV services through networks that do not use spectrum including Cable and Satellite

There are also 3 wholesale markets including (1) signal sending and facility provision through Cable network; (2) signal sending and facility provision through Satellite network, including both subscription and non-subscription bases; (3) TV signal sending through terrestrial network, including both DTT signal delivery and core facility provision. Here, subscription is defined as a service where viewer must express their want to receive said service, i.e., service provider does not allow everyone to publicly access its service.

In the domain of regulating content among audio-visual service providers under the jurisdiction of the NBTC, there are two main aspects: program scheduling regulation and content regulation, as stipulated in the Broadcasting Act B.E.2551 (2008).

1) **Program scheduling regulation.**
   - TV service providers are required to submit program schedules before broadcasting, once a year. This includes details such as program name, type, airing day and time, language, and appropriateness rating according to age groups.
   - The allocation of program types, such as news and content that benefits the public, by commercial services is set at 25%, while public service and community service channels are allocated 70%.
   - Additionally, there are specified time slots designated for broadcasting socially constructive content or programs for children and youth. Services are also mandated

[66]https://publicinfo.thaipbs.or.th/information/rules/%e0%b8%9b%e0%b8%a3%e0%b8%b0%e0%b8%81%e0%b8%b2%e0%b8%a8/%e0%b8%ab%e0%b8%a5%e0%b8%b1%e0%b8%81%e0%b9%80%e0%b8%81%e0%b8%93%e0%b8%91%e0%b9%8c%e0%b8%81%e0%b8%b2%e0%b8%a3%e0%b8%9e%e0%b8%b4%e0%b8%88%e0%b8%b2%e0%b8%a3%e0%b8%93%e0%b8%b2%e0%b8%81%e0%b8%b3%e0%b8%ab/

to provide facilities to promote and protect the rights of persons with disabilities and underprivileged individuals, such as audio descriptions, closed captions, and sign language. Mandatory programs include the national anthem and news from the Royal Family.

2) **Content Regulation.**

- TV service providers are restricted from airing content that is considered illegal under the Broadcasting Act B.E.2551 (2008) section 37.
- TV service providers are responsible for selecting, acquiring, and regulating programs and their content, as well as ensuring that any announcements or advertisements distributed via broadcasting adhere to professional standards and ethical principles of media as detailed in the announcement regarding criteria and procedures for licensing broadcasting services in 2012.

In terms of promotion and development, the NBTC has a legal responsibility to promote professional ethics by fostering collaboration among service providers and media professionals in the television and radio industries. This aims to ensure the effectiveness of self-regulation mechanisms.

Moreover, The NBTC establishes measures to promote socially beneficial programs and encourages the production of programs within the scope outlined in the draft NBTC announcement currently under consideration. This includes providing financial support for the production and dissemination of programs that are beneficial to society, such as Children and Youth Programs, co-production programs, programs that promote social diversity in various dimensions, and programs that promote local identity or have cultural significance.

Apart from the laws and regulation in previous section, there are important laws and policies related to broadcasting and telecommunications services as follows:

- Act on the Organization to Assign Radio frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) and the amendments
- Telecommunication Business Act B.E.2544 (2001) and the amendment
- Film and Video Act B.E. 2551 (2008) (the draft Act for Film and Game, B.E....is in consideration)
- Digital Development for Economy and Society Act B.E.2560 (2017)
- Computer-related Crime Act B.E.2550 (2007) and the amendment
- Electronic Transactions Act, B.E. 2544 (2001) and the amendments

- Personal Data Protection Act B.E.2562 (2019)
- Royal Decree on the Operation of Digital Platform Service Businesses that are subject to Prior Notification, B.E. 2565 (2022)
- Royal Decree to establish the Creative Economy Agency (Public Organization) B.E. 2561 (2018) (the draft Act for the Promotion of Creative Culture, B.E. .... (THACCA) is in consideration)
- Copyright Act B.E. 2537 (1994) (as amended up to Copyright Act B.E. 2565 (2022)
- Consumer Protection Act B.E.2522 (1979) and the amendments

Multiple primary regulatory agencies, such as the National Broadcasting and Telecommunications Commission (NBTC), the Ministry of Culture, the Ministry of Digital Economy and Society, Electronic Transactions Development Agency, Creative Economy Agency (Public Organization), Department of Intellectual Property and the Consumer Protection Board are tasked with enforcing these laws.

Specifically, the Film and Video Act of 2008 (B.E. 2551) is also included in laws and policies related to creative media sectors. The Film and Video Act of 2008 (B.E. 2551) designates Film and Video Censorship Committee under the Ministry of Culture as the authority responsible for examining and granting film screening licenses and ratings, as well as regulating film and video businesses. This includes the licensing of foreign film productions in the Kingdom of Thailand. Relevant agencies involved in the regulation include the Ministry of Culture, the Ministry of Tourism and Sports, the Consumer Protection Committee, the Office of the Prime Minister, and the Department of Intellectual Property under the Ministry of Commerce, collectively representing state regulation.

The structure of the film industry in Thailand heavily emphasizes government regulation and control, particularly in terms of content scrutiny. This has resulted in limitations on the development or creation of film content to avoid censorship or work suspension. Additionally, laws related to foreign film production in Thailand involve numerous processes, often requiring significant time from obtaining filming permits to content review and suitability assessment, impacting the operational costs of film production.

State support measures for the Thai film industry are relatively limited, including funding, personnel development, and legal penalties. Various government agencies responsible for different aspects of the film industry **lack cohesive coordination**, leading to a **lack of a unified vision in promoting and supporting** the film industry effectively.

However, in early 2024, the Ministry of Culture was in the process of reviewing and amending laws regarding films, proposing a draft of the Film and Game Act... to modernize and update the legislation. The key essence of the law is that the government will not have the authority to order producers to amend or censor the content of films and games, including banning them. Instead, it will support the implementation of a rating system by private sectors according to jointly agreed criteria, promoting creativity alongside social responsibility, and providing guidance tools for viewers and parents in supervising children and adolescents. The state will exert control only as necessary.[67]

In summary, the preliminary problems, and obstacles of the current regulatory framework for the audio-visual and film and video industries include[68]:

1) **Audio-visual industry:**
   - Content regulation issues arise from license holders not adhering to regulations and unclear regulatory coverage,
   - Consumer protection concerns stem from limited authority of officials, focusing only on television market, requiring coordination among multiple agencies to address issues effectively. Thus, the fraud, data protection and child protection of online harms are yet to be adequately dealt with, especially for over the top (OTT) platforms.
   - Infrastructure service delivery faces challenges due to the need for collaboration among various agencies and laws to address issues like online offenses.

These challenges highlight the complexity and inefficiency of the current regulatory framework, impacting content regulation, consumer protection, and infrastructure service delivery within the broadcasting industries, which now include online services.

2) **Film and Video industry:**

The main problems are content-related. This includes challenges such as difficulties in categorizing content, inability to enforce ratings with viewers effectively, legal interpretation issues, and legal challenges, especially concerning over-the-top media services. Regarding the Film and Video Act, which defines films as materials, **there may be interpretation issues** regarding whether it covers digital files for over-the-top (OTT) television services.

[67] https://region1.prd.go.th/th/content/category/detail/id/57/iid/242035

[68] https://www.nbtc.go.th/Information/ผลการศึกษาวิจัย.49215/aspx

1.3.3.3 Other relevant legislation and governing agencies relating to the media and telecommunications sectors

In addition to the above legal provisions, each player in the broadcasting value chain will face specific legal issues, intellectual property rights (IPR) concerns, and censorship challenges that are influenced by the country's unique legal and cultural landscape. These legal issues, for IPR, censorship and related policies are discussed below.

Specific Legal: Computer Crime Act: The Computer Crime Act of Thailand addresses various cybercrimes, including defamation, hacking, and the dissemination of false information online. Content distribution channels need to comply with this law to avoid legal repercussions.[69]

Intellectual Property Rights (IPR)

Thailand has faced longstanding challenges with intellectual property rights, particularly in combating piracy of movies, music, and software. Content distribution platforms must take measures to prevent the distribution of pirated content, and copyright holders often pursue legal action against infringers.[70] The Motion Picture Association (MPA) has consistently highlighted Thailand as a significant market for film piracy, with illegal streaming and downloading being major concerns.[71] White Bullet's latest research shows that the average estimated ad revenue per ad unit for a piracy website illegally providing access to copyrighted content across Southeast Asia increased by 20% in the first half of 2022. Singapore leads, with an increase of 47%, followed by Malaysia with an increase of 18%, meaning pirates are making more money month on month from each ad they can attract to their websites. By contrast, the average estimated ad revenue per ad unit for a piracy website in Europe decreased by 4%, so pirates are now making less money from each ad across the European continent. Situation for Thailand is better than other countries since the pirate rate decreases 6% during the first half year of 2022[72].

Currently, the primary law governing intellectual property related to television, broadcasting, and film services in Thailand is the Copyright Act of 1994 (B.E. 2537), as amended.

[69] https://www.mdes.go.th/law/detail/3618-COMPUTER-RELATED-CRIME-ACT-B-E--2550--2007-

[70] https://ustr.gov/sites/default/files/files/reports/2021/2021%20Special%20301%20Report%20(final).pdf

[71] https://www.motionpictures.org/wp-content/uploads/2022/10/2023-NTE-Report-MPA-Comments.pdf

[72] https://avia.org/wp-content/uploads/2022/11/Asia-Video-Industry-Report-2023_AVS.pdf

This law designates various creative works as subject to copyright protection, including films, broadcasts, and musical works. It prohibits the following acts without authorization:

- Reproduction or adaptation of copyrighted works
- Public dissemination of copyrighted works
- Rental of originals or copies of copyrighted works
- Public performance or viewing (for broadcasts) for commercial gain

These unauthorized acts are considered copyright infringement and subject to legal penalties.

The rapid growth of OTT (Over-the-Top) television services, which allow viewers to watch content on demand through mobile devices and other electronic equipment, has significantly impacted copyright issues. However, the provisions related to the protection of broadcasts in the Copyright Act of 1994 have only undergone minor amendments, reflecting the outdated nature of these provisions.[73] Furthermore, several challenges hinder effective copyright enforcement, particularly in cases of film copyright infringement. To address the challenges and ensure effective copyright protection in the digital era, the following measures are recommended: strengthening criminal Penalties, enhancing law enforcement training, public awareness campaigns to educate the public about copyright laws, the importance of respecting intellectual property rights, and the consequences of copyright infringement.[74]

Licensing and Royalties

Content distribution channels in Thailand often negotiate licensing agreements with copyright holders for the distribution of copyrighted materials. Ensuring that these agreements are legally sound is crucial to avoiding IPR disputes.[75]

The issue of copyright and fairness in competition arises when creative content, such as movies or series, is presented online, where there is a risk of copyright infringement through

[73] https://so04.tci-thaijo.org/index.php/botbundit/article/view/262535

[74] https://so04.tci-thaijo.org/index.php/jar/article/view/241822/164452

[75] https://www.ipthailand.go.th/en/%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B8%A3%E0%B8%B0%E0%B8%87%E0%B8%B1%E0%B8%9A%E0%B8%82%E0%B9%89%E0%B8%AD%E0%B8%9E%E0%B8%B4%E0%B8%9E%E0%B8%B2%E0%B8%97/%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B8%A3%E0%B8%B0%E0%B8%87%E0%B8%B1%E0%B8%9A%E0%B8%82%E0%B9%89%E0%B8%AD%E0%B8%9E%E0%B8%B4%E0%B8%9E%E0%B8%B2%E0%B8%97.html

downloading and redistributing files. Business operators in content production reflect two different groups of concern[76]:

1) Some of them do not worry about copyright issues: They argue that the relatively low cost of OTT subscription memberships mitigates concerns about copyright infringement.
2) Some of them are calling for assistance in managing copyright issues from regulatory authorities: Others advocate for regulatory bodies to address copyright problems effectively.

Self- Censorship

Self-Censorship: Content distribution platforms often practice self-censorship in Thailand to avoid potential legal issues and government intervention. This can lead to a chilling effect on freedom of expression and limits the diversity of content available.[77]

Social Media Monitoring: The Thai government actively monitors social media platforms for content that may be considered offensive or illegal. Content distribution channels need to comply with government requests for content removal, which can lead to concerns about censorship and free speech.[78]

Royal Decree for digital platforms

Royal Decree on the Operation of Digital Platform Service Businesses that are subjected to prior Notification, B.E. 2565 (2022) proposed by the Electronic Transactions Development Agency (ETDA) is a law issued to regulate digital platforms that provide services to consumers in Thailand. This law is part of an effort to improve digital platform service operations to meet service standards that have transparency and fairness, including promoting and supporting digital platform service operators to have good practices or appropriate self-regulatory mechanisms in line with relevant laws and to provide appropriate consumer protection in the rapidly evolving digital economy. The main goal of this law is to designate duty for digital platform service business, which is an "electronic intermediary" service, to notify the service to ETDA, especially large-scale digital platform services which is a platform with a significant impact and a large customer base, including e-commerce markets and online food delivery services. This law divides digital platforms into 3 main groups:

[76] https://www.nbtc.go.th/Information/ผลการศึกษาวิจัย.49215/aspx

[77] https://rsf.org/en/country/thailand

[78] https://www.hrw.org/world-report/2021/country-chapters/thailand

general digital platforms, low-risk digital platforms or small digital platform operators, and large digital platform services having specific characteristics. Each group has specific requirements and regulations.

This law has the scope of regulating service providers who have customers in Thailand, including foreign providers who have customers in Thailand. They have the duty to notify important information necessary to ETDA before doing business. The business information includes the name of the business operator, type of service, contact information, shareholder information, customer information (if any), complaint information, etc. Foreign digital platform operators must appoint a representative or coordinator in Thailand and must take steps to ensure that their services or products comply with Thai regulations in terms of language, domain name, and transactional considerations such as the use of Thai Baht and the compliance with Thai law in conducting transactions. The digital platform service provider has a duty to report the above information to ETDA on an annual basis. If the digital platform service provider violates this Royal Decree, there may be penalties, including fines and criminal penalties. and may lead to suspension of service in Thailand. This reflects the importance that both domestic and foreign digital platforms must comply with the guidelines set by ETDA, building economic and social confidence, and make people have more confidence in using platform services that they will be protected if there is a problem using services on the platform, especially foreign platforms that provide services to consumers in Thailand. This will cause digital platform service business operators to act more strictly within the framework of the law.

Article 5 of this Royal Decree specifies that the control and supervision of digital platform services, which is the provision of electronic intermediary services with data management to create connections using computer networks between operators, consumers or service users to enable electronic transactions, whether or not a service fee is charged, shall be in accordance with this Royal Decree, excepting in cases where any law specifically specifies the control and supervision of digital platform services. The NBTC resolution at NBTC Meeting No. 16/2023 on 9 August 2023 approves the provision of video-on-demand service (VoD) and video sharing platform services (VSP) as services under NBTC's supervision. The Office of NBTC has a duty to inform ETDA in accordance with Section 5 of the said Royal Decree. Currently, the NBTC is in the process of preparing regulation for broadcasting service providers over the internet to be consistent with the regulation as stated in this Royal Decree.

Related policies/ strategies from the Creative Economy Agency

The Creative Economy Agency (CEA) was established in 2018 with the mission to promote the creative economy as the driving force to a balanced and sustainable economy. CEA has outlined strategies to support the enhancement of structural factors in the broadcasting industry in Thailand. These strategies include:

1) **Establishing collaborative agencies between relevant organizations**: This strategy focuses on identifying primary hosting agencies as well as establishing collaborative partnerships with organizations involved in the industry.
2) **Reducing legal regulatory constraints to be more flexible and adaptable to current changes**: This strategy involves conducting studies and gathering information on legal regulatory constraints that hinder the operations of both public and private sector organizations. For example, shifting from heavy regulate toward light touched regulate and create sustainable ecosystem for both service providers and consumers
3) **Adjusting the funding processes of relevant sources to be suitable for supporting new content creation**: Having funding sources that can support the creation of new content, including new forms of funding to develop industries, is a crucial structural factor. Supporting the creation of diverse and high-quality content, such as high-quality documentary production, requires significant investment. Therefore, supporting capital from government agencies is essential to enable private entities and producers to efficiently produce new content.
4) **Developing a database system and conducting studies that are beneficial to the industry**: Another crucial infrastructure aspect for supporting the operations or decision-making of relevant agencies in the industry is the development of a central database for Thailand's broadcasting industry. This involves collecting important data, particularly fundamental data, from existing agencies that store information.
5) **Preparations for dealing with the risks of artificial intelligence applications**. Since the introduction of ChatGPT in late 2022, AI has rapidly developed and is revolutionizing the creative industry. It assists content creators in developing new ideas and innovations. This issue has become a topic of discussion across all sectors, including the mass media industry. Many believe that one of the sectors most impacted by AI in Thailand is the mass media industry because AI can almost replace humans in various aspects such as news writing, translation, advertising, and data aggregation for analysis in a single process. For instance, Thai PBS has utilized AI to read scientific, technology, and lifestyle news content on its website through the selection of station announcer voices to narrate the

news. However, a study on "The Use of ChatGPT in Thai Newsrooms" found that Thai mass media outlets are still hesitant to fully embrace AI in their operations but rather opt for experimental use due to concerns about the reliability of AI-generated information. Nonetheless, content creators in the media still express concerns about the integration of AI in newsrooms, fearing they might be replaced by AI. Given the current economic situation in Thailand, many organizations find it necessary to reduce costs, and any position that can be replaced by technology is often eventually eliminated. Positions most susceptible to such circumstances include translators and rewriters.[79]

6) **the draft Act for the Promotion of Creative Culture, B.E. (THACCA draft Bill)** the Creative Economy Agency (CEA) is a member and assistant secretary of the National Soft Power Strategy Committee. There was a resolution at the meeting of the committee No. 1/2023 on October 3, 2023, specifying the preparation of the Soft Power Development for Economy and Society Act (THACCA Act) as one of in the urgent plan to be a law that establishes a national policy and plan regarding the country's soft power strategic plan. Systematic integration of soft power development mechanisms of government agencies and the private sector including supporting the infrastructure and enabling factors necessary for the development of soft power will lead to sustainable economic growth in the long term. The industries specified in the draft of THACCA Act include Festival, Tourism, Sports, Game and e-sports, Fashion/Jewelry/crafts/cosmetics, Design and Architect, Music, Film/Animation/Dramas/ TV program, Book/Printing, Food and Beverage. Therefore, content creators and service providers in the broadcasting industry could receive support under this draft Act as one of the creative cultural industries. This includes supporting the expansion of professions and businesses in the creative cultural industry, promoting the development of high-level skills among professionals, and allocating budget from the Creative Cultural Promotion Fund to promote and develop the industry in line with strategic goals.

From all above, license holders in the broadcasting which including broadcasts using frequencies (e.g., free-to-air) and not using frequencies[80] (e.g., cable and satellite) are both subject

[79] https://www.dataxet.co/media-landscape/-2024th/generative-ai

[80] Broadcasts not using frequencies means radio or television broadcasting which is not required to apply for an assignment of radio- frequency spectrum under the law on organization to assign radio frequency and to regulate the broadcasting and telecommunications services

to direct regulation in various aspects, such as service provision, program schedules and content, user protection, and copyright infringement or indirect participate. Similarly, film businesses must operate within the framework of laws and direct oversight, such as the Film and Video Act of 2008, which regulates aspects like film examination, content categorization, ratings, and penalties for violations.

However, for OTT streaming services, there is no specific legislation or direct oversight tailored to them yet, lacking the comprehensive regulation seen in traditional industries. For example, regulations regarding program schedules and content, protection of children by specifying prohibited content and rating appropriateness, advertising, protection of rights for people with disabilities, and various fees are not as well-defined for OTT streaming services.

In sum, there are various government agencies related to the regulation and promotion of audio- visual services in Thailand as shown in Figure 1-17. NBTC plays an important role in the audio-visual industry as a regulator and responsible for frequency management and licensing according to the laws. Ministry of Culture and Ministry of Digital Economy and Society are the policy makers. In addition, three main government agencies which are ETDA, CEA and DIP play the role of supporter through various laws to ensure the competitiveness audio-visual sector.

Figure 1-17 Various government agencies related to the regulation and promotion of audio-visual services in Thailand.



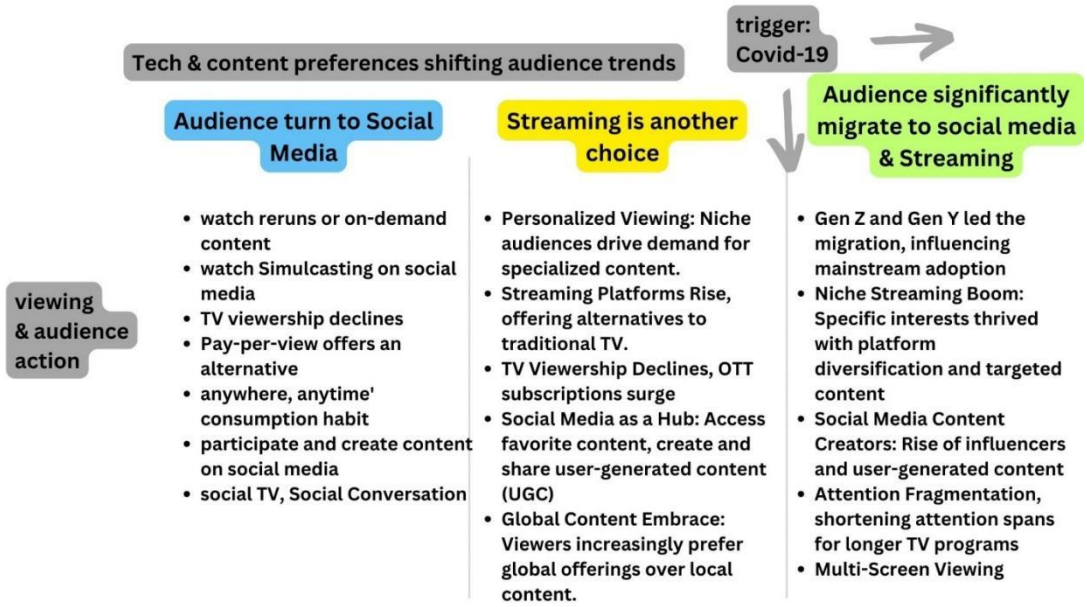
1.4 Market segmentation (local consumer trends, future directions in consumption and business model)

Here in Chapter 1.4, the market segmentation will be presented through the analysis of the local consumer trends, future directions in consumption and potential business models.

1.4.1 Local audio-visual consumption trend

There is a significant shifting in Thai audience consumption patterns during 2019-2023 which is following a three-step trend as revealed in Figure 1-18.

Figure 1-18 The three steps of shifting trends in audio-visual consumption



Thai audience consumption patterns witnessed a dramatic shift, driven by three key factors:

- Evolving technology,
- Changing content preferences, and
- Transformative impact of the COVID-19 pandemic.

Thailand has stood out as the leading SVOD (Subscription Streaming Video On Demand) market in Southeast Asia, boasting a dynamic and diverse offerings prospect. While global giant Netflix holds the top spot, local telecom players like TrueID and AIS Play are making their mark by leveraging their existing dominance in broadband and TV payments to generate strong average revenue per user (ARPU SVOD). Western Platforms like Netflix, Prime, Disney+, and Chinese platforms like WeTV and iQIYI are bringing their high-level productions to the regional stage, offering viewers a wider selection of content. Meanwhile, Viu stands out with its unique appeal, catering to

diverse tastes with local content, Korean dramas, Japanese anime, and even premium sports like the Premier Football League. **This exciting competition reflects the rapid growth of the SVOD market in Thailand. Viewers are increasingly turning to streaming platforms for their entertainment needs, driven by factors like affordability, convenience, and a wider range of content compared to traditional television.**

Key forces from streaming and OTT are:

- The arrival of streaming platforms, really since 2017, has presented exciting alternatives to traditional TV.
- Niche audiences, empowered by these platforms, have championed personalized viewing experiences with specialized content catering to their unique interests.
- This has led to a decline in traditional TV viewership with the surge in OTT subscriptions

A survey of Thai TV **viewing behavior and trends in 2019 found that the technology and age range of television viewers had influenced viewing popularity**[81]. Broadcasters' major target audience for watching live television is people aged 42 and over. Television stations need to increase the proportion of reruns and on-demand services to meet the needs of other age groups.

Meanwhile, social media further solidified its role as a content hub, allowing users to access favorites, create and share user-generated content (UGC), and engage in online conversations, viewers increasingly embraced global content over local offerings, seeking diverse perspectives and stories. **The rise of content creators and influencers has reshaped the content ecosystem by offering niche content that caters to personalized viewing preferences**. Audience behavior is divided into many segments and becomes more personalized, social media is still the number one media genre that dominates content consumption. Thai audiences are living and consuming content via social media, so they have become the largest audience category today. These creators can delve deeper and craft more relatable stories, fostering a stronger connection with their audience. This shift has led viewers away from traditional television programming, often criticized for its unengaging content and lack of variety. As a result, **advertisers and brands are increasingly investing in online content creators**, recognizing their superior ability to engage viewers and drive conversions compared to traditional television advertising.

[81] สำรวจพฤติกรรมและแนวโน้มการรับชม TV ของคนไทย ปี 2562 - TV Digital Watch. (2019, November 19). TV Digital Watch - เกาะติดข่าวทีวีและข่าวออนไลน์. https://www.tvdigitalwatch.com/news-nbct-19-11-62/

This multi-screen environment fostered shorter attention spans, impacting traditional TV programs. Further evidence of change comes from YouTube Thailand's survey, revealing widespread engagement across different age groups (18-40+) spending more time on YouTube and other social media than traditional TV. Most notably, 2 out of 3 people believe YouTube has already replaced TV, regardless of the viewing device.

This seemingly contradictory trend suggests a shift in how viewers watch TV:

- **Content fragmentation:** Traditional primetime has vanished, replaced by a personalized viewing experience for audiences who consume content according to their lifestyles and how they watch. Viewers spread their content consumption across various platforms and mediums, reducing concentration on specific TV slots.
- **On-demand preferences:** Increased viewing time could indicate people are watching for longer stretches within their preferred schedules, thanks to on-demand options and flexible platforms.
- **Niche programming success:** Niche programs outside prime time might be attracting smaller but dedicated audiences, contributing to the overall viewing hours while not impacting primetime ratings.
- **News, sports, and dramas remain the dominant program choices**. An analysis of audience statistics, ratings, and television trends from 2021-2023 paints a clear picture of viewer preferences in Thailand that audience trends and behavior still shape Thailand's TV Content Landscape, News, Sports, and Dramas are the most popular genres.

Nielsen Survey Highlights[82] for 2022/2023 are:

- VOD growth continues with rising Sports Marketing Opportunities in Thailand during 2022-2023.
- Online viewing of traditional TV schedules with ads (Free Ad-Supported TV, FAST) has surged by 36% in a year, presenting a growing opportunity for marketers.
- Targeting with VOD or live streaming can reach wider audiences.
- Sports-related programs attract high viewership, aligning with growing interest in sports marketing: football, volleyball, badminton, and Muay Thai are most popular.

[82] Team, T. (2023, January 31). Nielsen เผย 10 เทรนด์สื่อที่น่าจับตามองปี 2023. Techsauce. https://techsauce.co/news/nielsen-reveals-10-media-trends

- Streaming habits in Thailand resemble traditional TV viewing, in time of day and duration, with the majority (57%) opting for streaming platforms.

Key Video on Demand (VOD) formats and their implications include:

- VOD: Watch content at your convenience, whether for the first time or a rewatch. This typically includes ads (AVOD).
- Advertising-Based Video on Demand (AVOD) for viewing content with inserted advertisements is favoured by 74.2% of Thai viewers.
- Subscription Video on Demand (SVOD): Pay a monthly fee for ad-free access to content, chosen by 25.8% of Thais.
- Top 5 Video on Demand platforms with the highest number of viewers are 1. YouTube 2. Facebook 3. Netflix 4. TrueID 5. Viu
- The willingness of Thai audiences to watch ads in exchange for content unlocks a significant opportunity for brands. Marketers can leverage this behavior by reaching consumers through these popular channels
- TV Shopping is the segment with the highest advertising spend in 2022
- Online TV platforms are increasingly integrating product sales with drama content, offering a convenient shopping experience for viewers interested in the showcased products. Product placement tactics are expanding.

Over the past three years, Thais have significantly increased their usage of smart[83] devices: smartphones by 19%, tablets by a staggering 586%, and smart TVs by 73%. This reflects not only growing device ownership but also increased daily screen time. On average, in 2023 Thais spent, by device (which may overlap):

- 2.5 hours per day watching traditional TV or 2 hours on online TV[84]
- 3.40 hours on smartphones, and
- 4 hours on computers and laptops.
- Additionally, online gaming on smart devices is growing.

[83] สรุป 10 เทรนด์สื่อ ที่ต้องจับตา ในปี 2023 จากมุมมอง 'นีลเส็น' - Brand Buffet. (2023, February 8). Brand Buffet. https://www.brandbuffet.in.th/2023/01/key-media-trends-to-watch-out-for-2023-by-nielsen/

[84] Nielsen Thailand 2023 , Reported Bangkok Post quoting Aaron Rigby, MD, Thailand, 03 Feb 2023

1.4.2 Future consumption direction and business models

The significant challenges impacting the media value chain in an era of digital media dominance are highlighted[85]. As audience behavior shifts, with consumption increasingly migrating online while traditional media usage declines, media organizations face four key hurdles:

1) **Consumer Interaction**: Fostering meaningful interaction with audiences is crucial. By encouraging participation, professional media can gain unique insights into social issues through the perspectives of citizens themselves. This empowers public voices and allows individuals to participate in agenda-setting, expressing their ideas and advocating for important issues. Media organizations must understand the dynamics of "Active Audiences" and leverage their participation to generate impactful engagement with content and services.
2) **Content Creation:** Understanding the specific needs of diverse audience segments is paramount. This requires catering to the preferences of "Segmented Audiences" by creating content that resonates with their unique interests. Utilizing User-generated Content can contribute to this process, offering a wider range of topics and perspectives that reflect the evolving expectations of society.
3) **Content Delivery Process:** Optimizing content distribution strategies across various channels is essential. Embracing media convergence allows news organizations to capitalize on all available distribution platforms. Developing innovative formats for reaching audiences and establishing a distinct brand identity are key considerations. Additionally, creating cross-media content formats can further enhance reach and engagement.
4) **Revenues and Business Model**: Developing a sustainable income-generating model is critical. News organizations must explore ways to increase the value of their content through service innovations while considering their position and social responsibility goals.

To account for this shift and predict future audience behaviour, producers should consider:

- **Participants or Interactive audience – interact with producers, content, and with other audiences.** Viewers motivated by "keeping updated with events" and "following

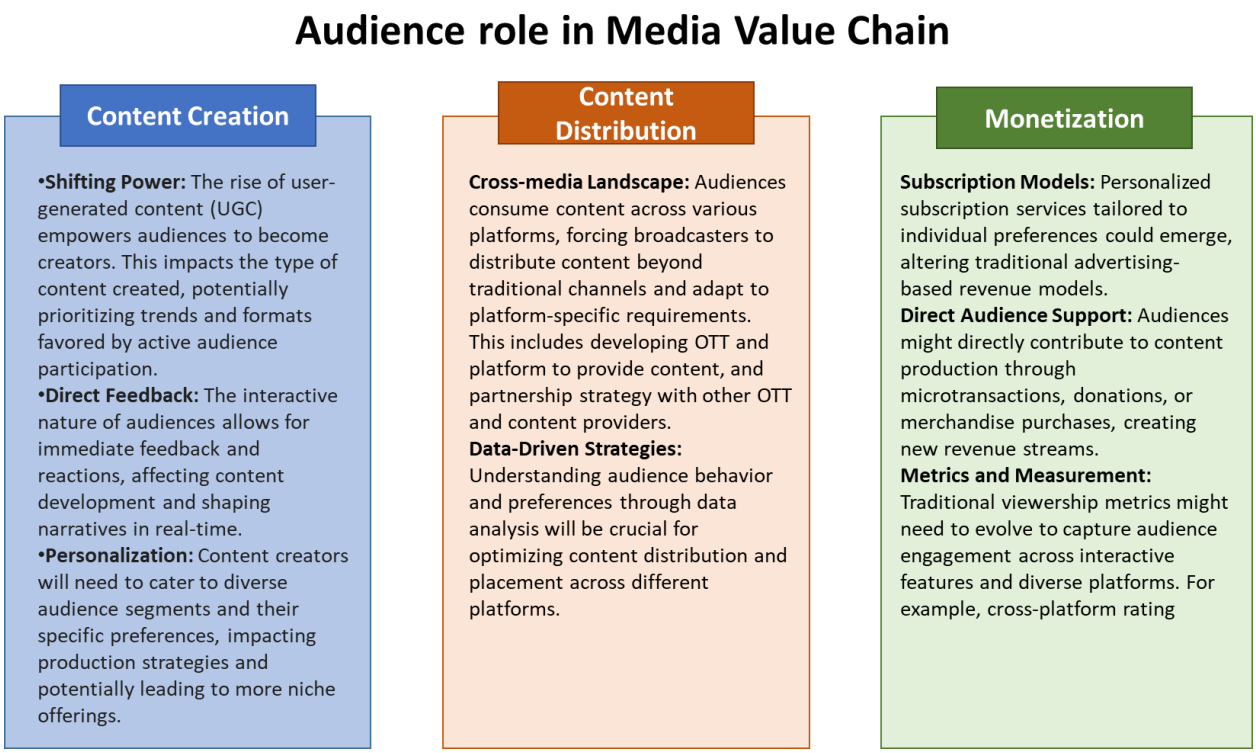
[85] Srisaracam, S. (2022). "Adaptation of News Organizations for Business Survival and Societal Role"

issues of interest" actively engage through social media platforms like Twitter. This "Social TV behaviour" manifests in various ways, including hashtag discussions, commenting on news stories, and live interactions during events. By facilitating viewer-to-viewer conversations and fostering communities around shared interests, producers aim to create dedicated "fan clubs" for both shows and artists. This strategy leverages audience response to gauge viewer sentiment and influence program development. This feedback, including both positive and critical responses, ultimately plays a crucial role in shaping content direction.

- **Audience as content creators.** With the rise of user-generated content and citizen journalism, some audience members will actively participate in content creation, adding value through unique perspectives and diverse voices. Today's audiences are increasingly creating their content, sharing opinions, and engaging in discussions, blurring the lines between consumer and producer. Broadcasters and producers should pursue participation and co-creation strategies.
- **Community builders** by engaging in discussions and interacting with other viewers, audiences foster a sense of community around specific content, increasing its value and loyalty.
- **Demand drivers and Agenda setters** audiences can influence the direction of content, platforms, and even entire industries.

The following diagram summarizes the development of a new audience role in the evolving media value chain that mixes online and traditional media.

Figure 1-19 The evolution of the audience role in the new media value chain



*Note: A microtransaction is a small payment made within a digital product, typically a video game or app. These payments are usually used to buy virtual goods or in-game currency.

There are also new concerns

While OTT TV (Over-the-Top TV) or streaming media presents a significant growth opportunity in Thailand, they bring several concerns that need to be addressed. Consumer behavior in Thailand still grapples with a significant content piracy problem, which could hinder potential subscription growth for legitimate OTT platforms. Netflix's dominance in the Thai market might create challenges for smaller players. This could even deter potential international entrants like Amazon Prime, considering the market size, which is limited compared to many in ASEAN and neighbouring countries.

Chinese (WeTV & iQiyi) and Hong Kong (Viu) service providers are actively entering the Thai market. This raises the possibility of Thai TV programmers losing access to popular Chinese and South Korean content for free TV broadcasts due to the exclusive streaming rights acquired by these platforms.

Further evidence of change comes from YouTube Thailand's survey, revealing widespread engagement across different age groups (18-40+) spending more time on YouTube and other social

media than traditional TV. Most notably, 2 out of 3 people believe YouTube has already replaced TV, regardless of the viewing device.

Looking at the younger generation in the student body, "Songsue website"[86] conducted a survey of 100 students from more than 18 universities nationwide between 14-24 March 2023, and the survey results indicated that the media channel that the new generation consumes the most is online media with 91.1% accessing web channels , while conventional TV is second, with 32.7% viewing it. The media brands that youth in Thailand follow and watch in broadcast companies includes One31, Channel3, and Thairath TV. Nielsen's "Unlocking Insights with Cross-Media Measurement"[87] reports that 89% of Thais consume online media of some form and 85% also consume some form of TV. If divided by generation, it is found that almost every generation of media users spends more time online than they do watching TV. Only baby boomers watch more TV than online media. In more detail, Kantar's October 2023 survey found that Thai people aged 18-24, 25-29, 30-39, and 40 and above watch clips on YouTube more than on other social media channels and TV. Additionally, two-thirds of Thai people believe YouTube has replaced TV, regardless of their preferred viewing device.

According to the Nielsen Cross-Platform Ratings Report[88], the average number of viewers per minute in Thailand throughout 2023 was 10.5% of the population aged 4 and above. Of these viewers, 63% watched on traditional TV sets, while 37% watched through streaming platforms such as YouTube, TikTok, AIS Play, True ID, and others. Current demographic of viewers shows a preference for AVOD (Advertising-Based Video on Demand) or free viewing platforms like television station websites/apps. This suggests the viewers are primarily from the older generations, like Gen X and above. In contrast, younger viewers, like Gen Z and Gen Y, are more likely to subscribe to SVOD (Subscription Video on Demand) services, reflecting a new generation of Thais willing to pay for ad-free content.

In summary, the overall audience market still comprises various forms. Despite the decline in live TV viewership, on-demand streaming has significantly increased, making TV still a primary

[86]กฤตนัน ดิษฐบรรจง. (2023, April 5). 7 แบรนด์สื่อที่คนรุ่นใหม่เสพกันมากที่สุด พบช่องวัน – ช่อง 3 นำเป็นสองอันดับแรก! ส่องสื่อ. https://songsue.co/18373/

[87] ปลดล็อกอินไซต์คนไทยเสพสื่อ 'นีลเส็น' ปลุกแบรนด์อย่าหยุดใช้งบโฆษณา. (2023, July 8). Bangkokbiznews. https://www.bangkokbiznews.com/business/business/1077557

[88]Wp. (2024, February 2). "Nielsen" เผยพฤติกรรมการรับชมคอนเทนต์ "Gen Y - Gen Z" ยินดีเสียเงิน subscription เพื่อเลี่ยงโฆษณา. Marketing Oops! https://www.marketingoops.com/reports/nielsen-media-trend/

medium. Radio media remains, while online usage has also risen, largely due to digital platforms producing live TV content, similar to traditional TV channels.

Thus, DTT operators are moving beyond simply producing content for local broadcasts, leveraging the platform as a **springboard for wider reach and revenue generation**.

- **Content with an international appeal:** Instead of solely focusing on Thailand, TV media is creating high-quality content with global potential. This **elevates the standard** for domestic content enjoyed by Thai viewers.
- **Multi-screen monetization:** TV channels act as the "first screen," attracting advertising revenue. Additionally, content is distributed on **OTT platforms and exported abroad**, creating **second-screen income streams.** Broadcasters leverage their own OTT applications to deliver live, on-demand, and exclusive content to their audiences. They also forge partnerships with established OTT platforms to deliver content to younger viewers and global audiences. This multi-platform approach allows television stations to leverage the changing landscape and stay relevant in the age of streaming dominance.
- **Diversified revenue sources:** This multi-platform approach ensures **broader reach and multiple revenue sources**, making the TV industry less reliant on traditional advertising alone.

1.4.2.1 OTT & Personalization: shifting viewing consumption and production strategy

The "Digital Stat 2021"[89] report by We Are Social paints a clear picture of Thailand's digital landscape, revealing a population heavily engaged with online activities. With 99% of Thais enjoying online videos and 69% actively using the internet. The evolving media landscape in Thailand sees established TV channels like Channel 7 and Channel 3 adapting to cater to changing viewer preferences and embrace digital platforms. Here follows a breakdown of their strategies.

1) The rise of streaming has fundamentally changed viewing habits, leading to a proliferation of platforms vying for audiences. This, in turn, has become an opportunity for some television stations. Recognizing the expanded reach offered by streaming services, they now actively collect subscription fees through their online platforms.
2) Additionally, social media plays a crucial role in their strategies, serving as a gateway to showcase content and cultivate fan bases.

[89] กฤษณ์ กำจาย. OTT กับการ disrupt TV ไทย. depa. https://www.depa.or.th/th/article-view/ott-disrupt-tv

3) They also forge partnerships with established OTT platforms to deliver content to younger viewers and global audiences. This multi-platform approach allows television stations to leverage the changing landscape and stay relevant in the age of streaming dominance.
4) Channel 3HD's CH3PLUS platform occupies a central role in their digital strategy[90], prioritizing exclusive content and early access to attract and retain subscribers. Dramas are available within a day or two of broadcast, alongside unique offerings unavailable elsewhere.
5) Recognizing the potential of international audiences, CH3PLUS has partnered with platforms like Netflix and WeTV, expanding distribution and accessibility beyond Thailand. This commitment to global reach is further exemplified by the addition of English subtitles in 2023, removing language barriers for international fans.
6) Social media engagement plays a crucial role in attracting viewers back to the app. Compelling highlights shared on Facebook serve as a captivating hook, effectively drawing users in for the full episode experience.
7) Overall, CH3PLUS employs a multi-platform approach, combining exclusive content, early access, international reach, and social media engagement to solidify its position as a key player in the Thai media landscape.
8) Channel 7HD's strategy hinges on their dedicated streaming platform, BUGABOO TV. While teasers and highlighted scenes might be shared on other platforms, the full viewing experience is exclusively available on BUGABOO TV. This marks a deliberate shift from their previous free service model towards a subscription-based approach. However, they cater to both new and dedicated viewers:
    - Free Content Teasers: Sharing scenes on other platforms generates interest and drives viewers towards the full experience on BUGABOO TV.
    - Rerun Options for Rewatchers: BUGABOO INTER offers paid subscriptions for dedicated fans who want to revisit past favorites or access exclusive content.
    - The success of Channel 7HD strategy will depend on their ability to offer compelling exclusive content and maintain a balance between free teasers and premium offerings.

[90] กฤตนัน ดิษฐบรรจง. (2022, October 24). ส่องละครไทย 3 ช่องดังอยู่ในสตรีมมิ่งเจ้าไหนบ้าง? ส่องสื่อ. https://songsue.co/15805/

9) Unlike its competitors, OneD takes a distinct approach by leveraging the strength of ONEE, its parent company. This allows them to aggregate content from various affiliated channels, resulting in a vast and diverse library at your fingertips. But what truly sets OneD apart is its commitment to accessibility. By offering free live TV streaming and shows from associated channels like GMM25 and ONE31, they cater to a large audience segment who might not be ready to dive into paid subscriptions. This focus on free content doesn't mean sacrificing choice, however. OneD is exploring partnerships with OTT platforms to potentially offer both live and on-demand viewing experiences in the future, ensuring they stay adaptable in the evolving media landscape.
10) In contrast, Channel 8 expands its reach by collaborating with Viu, a popular Chinese streaming platform.[91] This partnership enables the distribution of their dramas with "new and exclusive storytelling content" not available on TV broadcasts. Additionally, viewers can enjoy "great scenes and extended scenes" tailored specifically for the platform, offering glimpses beyond the original live episodes. This strategy caters to fans who crave deeper engagement with their favorite shows and highlights the growing trend of platforms offering exclusive content to attract viewers. By offering its content on Viu, Channel 8 taps into a wider audience that primarily consumes entertainment via digital platforms. Simultaneously, Viu is sending Korean content to air on Channel 8. This collaboration is good timing and fits with Viu's localization strategy, potentially helping to expand the overall audience base for both their shows.

According to the latest "THE FUTURE OF TV 2022" study[92] by The Trade Desk and KANTAR, a significant shift towards OTT platforms is occurring in Thailand. Some 26 million Thais, roughly 37% of the population, have already chosen to use these platforms, dedicating a notable 1.4 billion hours per month to watching content on them. This highlights the rapid adoption and extensive use of OTT services across the whole country.

Furthermore, a survey conducted by the same organizations in November 2022 revealed that some 92% of Thais utilise more than one OTT platform, signifying a multi-platform viewing trend. This aligns with the increasingly intense competition among OTT service providers in Thailand, each vying for viewers' attention and subscription dollars.

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[91] ช่อง 8 จับมือ VIU ครั้งแรก ขยายกลุ่มเป้าหมาย เสิร์ฟคอนเทนต์ดังข้ามแพลตฟอร์ม มอบความสนุกส่งท้ายปี. (n.d.). ryt9.com. https://www.ryt9.com/s/prg/3366359

[92] Thailand Media Landscape. (2023, November 1). Thailand Media Landscape : กลยุทธ์การแข่งขันธุรกิจ OTT TV ในไทย. https://www.dataxet.co/media-landscape/2023-th/ott-tv

The high adoption rate and multi-platform usage point towards a dynamic and evolving media landscape in Thailand, where traditional TV consumption might be seeing a decline while OTT platforms are experiencing explosive growth. Understanding these trends and user preferences is crucial for content creators, distributors, and advertisers to navigate this changing landscape effectively.

While the core audience of Thailand's OTT market currently skews younger, between 18 and 40, and primarily uses smartphones, Dr. Vikanda Pornsakulvanich from Thammasat University suggests a wider trend. Streaming platforms are reaching audiences of all genders and ages, leading to fierce price competition. As viewers face an ever-expanding menu of options, they're increasingly selective, prioritizing value and content that meets their needs.

In this competitive landscape, WeTV from China stands out for its focus on high quality original content. This strategy has helped them gradually grow their user base within the 40-50 age range, previously less active on the platform. Recognizing the importance of accessibility, WeTV dubs various series in Thai, catering to viewers who prefer their entertainment in their native language. This approach has proven successful, resulting in a 20% increase in monthly active users, a 40% jump in subscription revenue, and 62% of total income in Thailand coming from subscriptions. Additionally, WeTV anticipates a 30% increase in viewership through home entertainment devices, compared to 2022.

Viu [93], another major player from Hong Kong, targets diverse audiences by offering Thai-dubbed content not only in the standard Central Thai but also in regional dialects like Isaan and Northern Thai. This expands their reach beyond the core demographic. Viu further invests in originality by producing their own content and developing talent under their label. The market statistics for 2023 show that Viu maintains its dominance in the region, boasting a massive 13% increase in monthly active users (MAU) to reach 66.4 million. Furthermore, Viu ranks second in Southeast Asia in both the number of paid users and overall viewing minutes, demonstrating its strong performance across key metrics.

Their user demographics reveal interesting insights: an overwhelming majority of users (77%) are women, with the largest age groups being 25-34 (29%), followed closely by 18-24 (26%) and 35-44 (23%). This suggests a strong appeal among young adults and women, highlighting potential

[93] VIU (วิว) ตอกย้ำผู้นำ OTT จัดงาน “VIU UPFRONT 2023” เปิดตัวไลน์อัพซีรีส์ออริจินัล ที่เตรียมบุกหน้าจอคอซีรีส์ตลอดปี 2023 - Marketeer Online. (2023, March 24). Marketeer Online. https://marketeeronline.co/archives/302483

areas for further engagement. Social media plays a crucial role in their strategy, with a combined following of 10.7 million across Facebook, Twitter, Instagram, YouTube, and TikTok. Notably, YouTube and TikTok have experienced significant growth of 24.5% and 73.8% in viewing use respectively, indicating their effectiveness in reaching younger audiences on preferred platforms.

Thailand's leading television stations, One31 and GMM25[94] achieved impressive successes in 2023, solidifying their position as content powerhouses catering to diverse audiences. As leaders in "complete content," they offer programming that resonates with each viewer segment, propelling them into the top 3 most popular stations in the country. Their market share is substantial: during January-October 2023, these two stations captured a remarkable 91% of the national audience. Note that market dominance extends beyond traditional TV. They operate significantly in the social media market, holding the first position across all online platforms with an outstanding 9.6 billion total views. Their combined social media following surpasses 154 million users, solidifying their connection with viewers online.

The OneD application[95], One31's digital hub, further underscores their success. Viewership surged by 40%, with advertising views experiencing an impressive 200% growth. Its active user base exceeds 18 million, and plans are underway to create original content in 2024, offering premium services. This "OneD Original" content will seamlessly bridge the gap between platforms, airing on both One31 TV in a TV-friendly format and on the OneD app in a more immersive way. Their focus on high-quality productions that are distinctly Thai and push the boundaries of storytelling promises to further captivate audiences.

1.4.2.2 Adapting to Changing Consumer Behaviour: Diversifying Revenue Streams for DTT Operators

In response to evolving consumer behavior and the dynamics of the value chain, DTT operators are expanding their revenue streams beyond traditional broadcast channels. Key strategies include:

- **Leveraging Social Media Platforms**: DTT operators are actively engaging with audiences across multiple social media platforms to create monetized content. While some have

[94] "เดอะ วัน เอ็นเตอร์ไพรส์" ปักหมุดกลยุทธ์ ปี2024 ต่อยอดความสำเร็จด้วยContent Creator และ Lifestyle Entertainment ส่งคอนเทนต์คุณภาพ อัดแน่นคับจอ "ช่องONE31 – GMM25" ครองความเป็นอันดับ 1 ของประเทศ ด้านโซเชียลมีเดียแพลตฟอร์ม. (2023, November 29). มิติหุ้น | ชี้ชัดทุกการลงทุน. https://www.mitihoon.com/2023/11/29/421741/

[95] เดอะ วัน เอ็นเตอร์ไพรส์ เปิดตัว OneD ORIGINAL ส่งซีรีส์ฉีกกรอบละครไทย 5 เรื่องลงแอป OneD การปรับตัวครั้งใหญ่ของสื่อทีวีสู่ Content Creator. (2024, February 8). Marketing Oops! https://www.marketingoops.com/media-ads/onne-oned-original-new-era/

achieved success in generating revenue directly from these platforms, others are utilizing social media to supplement traditional revenue streams. This includes both direct platform-based revenue and advertising opportunities embedded within content.

- **Home Shopping and Product Integration**: DTT operators are incorporating home shopping segments and product tie-ins into their programming. Talk shows, in particular, offer a natural platform for product integration, where hosts and guests can seamlessly introduce and promote products to viewers.
- **Event and Influencer Marketing**: DTT operators are capitalizing on the influence of their on-air talents by expanding into event and influencer marketing. This includes organizing concerts, fan meets, and producing merchandise, generating revenue streams beyond traditional broadcasting.
- **Content Licensing**: DTT operators are exploring the potential of content licensing, monetizing their programming by granting rights to other platforms or broadcasters. This can provide additional revenue streams and expand the reach of their content.
- **Expanding Reach and Revenue through OTT**: 1) DTT operators are licensing their content to OTT platforms, making their programming available to a wider audience beyond traditional broadcast channels. This expands the visibility of their content and attracts new viewers. 2) DTT operators are partnering with OTT platforms to co-produce original content, leveraging the strengths and resources of both parties. and 3) DTT operators are developing freemium applications that offer a combination of free and premium content. This allows viewers to sample the content for free, enticing them to subscribe for exclusive content and on-demand access.

1.4.2.3 A major issue for the Thai production sector is appearing.

Against this more aware position of Thai viewers is the reality of the Thai production sector in terms of its originality and quality. Criticism is mounting regarding the perceived decline in quality and repetitiveness of Thai dramas, prompting viewers to seek out foreign alternatives[96]. Thitiphon Jutimanon, a senior entertainment reporter noted that Thai TV is in crisis. Dramas are rerun constantly to cut costs, and a major channel even reduced drama programming for the first time ever. This reflects the current state of the Thai TV industry, which witnessed a significant reduction

[96] วีรวัฒน์ อัจจุตมานัส. (2023, December 12). ไม่ปรับตัวก็รอวันตาย เส้นทางใหม่ๆ ของวงการทีวีไทยปี 2566. TheStandard. https://thestandard.co/thai-tv-industry-2566/

in programming over the past year. Many channels are adapting by creating series or dramas specifically for online platforms, either prior to, or instead of, conventional television distribution.

Moreover a chorus of criticism is directed towards Thai dramas[97] particularly regarding excessive bullying and violence, as evidenced by the #rapeonscreen hashtag, which also means their export is less likely and are likely to be banned in major markets overseas. Viewers express dissatisfaction with these tropes, leading them to abandon TV dramas altogether. Also, the website Clubhouse hosts discussions that critique the recycled plots derived from outdated scripts, highlighting their disconnection from modern society's evolving social context.

However, navigating the changing landscape presents challenges for Thai drama creators. While viewers demand modern elements, social commentary, and professional representation, attempts to break out of traditional melodramatic frames and address relevant issues can elicit opposition from certain groups, further complicating the creative process.

In contrast, Boy's love series or Y Series dramas attract viewers with their freshness and originality. These series often feature scripts penned by new-generation writers with adaptations of online novels, resonating with younger audiences. While criticisms regarding quality compared to older works exist, they also represent a departure from conventional writing styles, paving the way for new forms of storytelling. Thai Y Series are taking off in popularity[98] .

1.4.2.4 Opportunity to expand other retail content sales and source of revenue

Here are some other possible retail content sale opportunities for broadcasters beyond traditional TV content.

1) Podcast

The podcast industry in Thailand is growing rapidly and there is a lot of potential for new podcasters to enter the market. Podcasts are a great way to reach a large audience and share your knowledge and experience with others.

Thailand has a growing podcast listenership: According to Digital Stat & Insights 2024 Thailand by We Are Social[99], Thailand has the second-highest podcast listenership in the world.

[97] Chanchana Homsap. (2021, March 13). รีเมกวนไป ใส่ฉากข่มขืน อาชีพตัวละครไม่หลากหลาย : ปัญหาละครไทย จะเดินทางไหนต่อจากนี้?. The Matter. https://thematter.co/thinkers/what-will-thai-dramas-go/137871

[98] สันติชัย อาภรณ์ศรี. (2022, March 23). หรือ 'ซีรีส์วาย' นี่แหละคือซอฟต์พาวเวอร์ของไทย. GQ Thailand. https://www.gqthailand.com/culture/movie/article/series-y-soft-power

[99] วิทย์ บุญ. (2022, May 22). 'พอดแคสต์' สื่อใหม่ที่ดูจะฮิต แต่ผู้ผลิตรายการในไทยส่วนใหญ่ ยังไม่สามารถ 'สร้างรายได้'. Thairath Plus. https://plus.thairath.co.th/topic/politics&society/101541

In 2018, there were over 300 podcast channels in Thailand with 400,000 listeners, and this number is expected to continue to grow. In 2020, 44% of internet users in Thailand listened to podcasts. The primary source of podcast revenue in Thailand is spot advertising, accounting for 80%. Other sources of revenue include tie-in advertising and direct advertising (60%), donations and product recommendations and subscriptions (40%) and paid content (20%).

The most popular podcast categories in Thailand are self-improvement, mental health, business, management, and books. A study of 413 podcast users in Thailand in 2021 found that podcasts are becoming increasingly popular in the country. This is supported by statistics from We Are Social and Hootsuite from January 2020, which showed that 44% of internet users in Thailand used the internet to listen to podcasts. The growing popularity of podcasts can be attributed to the increasing number of Thai-language podcasts and the wide variety of content available, covering categories such as business, finance and economics, education, politics, and more[100].

A survey of 470 podcast listeners in 2021[101] found that 42% had been listening for 1-2 years. On average, listeners consume 20.64 podcasts per month, with each episode lasting an average of 35.45 minutes. YouTube and smartphones are the primary listening platforms: 46.6% of listeners consume podcasts on YouTube, while 90.9% listen on smartphones. The top three most popular podcast categories are self-improvement and mental health (77.2%), business/management (68.5%), and books (65.3%).

Another study on the Thai podcast industry from the perspective of podcasters [102]in 2021 shows that most podcasters in the country are not full-time professionals, indicating that there is an opportunity for new podcasters to enter the market. Independent podcasters have an average of 29,845 subscribers and 633 plays or downloads per day, compared to 27,894 subscribers and 30,024 plays or downloads per day for organizational podcasters. Independent podcast episodes average 28.82 minutes in length, while organizational podcast episodes average 19.60 minutes in length. Podcasters can attract a loyal following by creating high-quality content that resonates with

[100] กมลรัตน์ กิจถาวรรัตน์. (2564). A STUDY OF FACTORS AFFECTING THE QUANTITY OF PODCAST CONSUMPTIONS IN THAILAND. สารนิพนธ์ปริญญาการจัดการมหาบัณฑิต วิทยาลัยการจัดการ มหาวิทยาลัยมหิดล https://archive.cm.mahidol.ac.th/bitstream/123456789/4112/1/TP%20BM.026%202564.pdf

[101]นภดล ร่มโพธิ์, ศากุน บุญอิต บุญอิต และนิธิรุจน์ ภูวรัฐเมธาวัชร์. (2022). PODCASTSING IN THAILAND: FACTORS OF USERS' SATISFACTION AND BEHAVIORS. วารสารปัญญาภิวัฒน์. 14, 1 (เม.ย. 2022), 280–292.

[102]นภดล ร่มโพธิ์, ศากุน บุญอิต (2022). การศึกษาธุรกิจ Podcast ในประเทศไทยในมุมมองของผู้จัด Podcast. วารสารบริหารธุรกิจ ปีที่ 45 ฉบับที่ 173 มกราคม-มีนาคม 2565. หน้า 1-22 http://www.jba.tbs.tu.ac.th/files/Jba173/Article/JBA173NopSa.pdf

their target audience. Podcasters create content to share their experiences, knowledge, and perspectives with listeners.

2) E-content

E-content, or electronic content, refers to digital content that can be accessed through the internet. Examples of high-traffic E-content providers in Thailand: Ookbee: Thailand's largest E-book and audiobook platform, Wongnai: A popular online food review and lifestyle platform, Pantip.com: A forum-style website where users can exchange information, share opinions, and create threads on various topics[103].

A study revealed that 42% of Thais have transitioned from reading physical books to E-books[104]. The primary factors driving this shift towards E-content among Thais are convenience, price, and the availability of diverse options. From example, BookWalker: A Japanese E-book platform offering a wide selection of Japanese-language E-books. It features exclusive content (Exclusive content) available only on the BookWalker platform.

Meb, Thailand's largest e-book platform, is expanding its online library services by offering e-books as an alternative to physical books. In 2022, approximately 400 organizations in Thailand utilized Meb's online library services, demonstrating a significant leap in adoption. While the current e-book to physical book reading ratio in Thailand remains below 20%, indicating substantial room for growth, the trend towards e-book adoption is expected to continue gaining momentum[105].

Amarin TV[106], for example, navigating a changing media landscape. Amarin maintained its revenue stream in 2022, despite a decline in profit by approximately 184 million baht. The company witnessed a significant surge in sales of E-books and serial novels, with revenue growth reaching 45%. This growth contributed to a 256 million baht increase in the print production and book sales segment, representing a 12% rise. Amarin's media and event business, encompassing advertising services across print and online media, as well as the organization of various exhibitions and events, experienced a 39.44 million baht increase in revenue. In contrast, revenue from the digital TV business declined by 263.91 million baht or 20.5%. By embracing these opportunities, Amarin TV

[103] Taned-Mahattanalai (2022). แนวโน้มธุรกิจ/อุตสาหกรรม ปี 2564-2566: ธุรกิจบริการดิจิทัลและซอฟต์แวร์. ศูนย์วิจัยกรุงศรี https://shorturl.at/XvO8K

[104] e-book แรงต่อเนื่อง นักอ่านชาวไทย 42% ย้ายสู่ดิจิทัล. (2023, April 1). Prachachat. https://www.prachachat.net/marketing/news-1250974

[105] คุยกับสองผู้ก่อตั้ง MEB คนเทคที่ปั้นธุรกิจ จากสำนักพิมพ์เล็กๆ สู่ E-Book ระดับมหาชน. (n.d.). THAIRATH Money. https://www.thairath.co.th/money/business_marketing/executive_interviews/2642843

[106] อมรินทร์ทีวีออนไลน. (2023, May 25). เปิดพอร์ตธุรกิจ บริษัท อมรินทร์ คอร์เปอเรชั่นส์ จำกัด (มหาชน). อมรินทร์ทีวี เอชดี ช่อง 34 - AMARIN TV HD. https://www.amarintv.com/spotlight/corporate/detail/46234

can mitigate the impact of declining revenue from traditional TV broadcasting and establish itself as a diversified media company with a strong presence in the digital realm.

3) Event, Concert, Music, and Artist Management: Diversifying Broadcasters' Product Landscape

The One Enterprise Public Company Limited (ONEE), or Channel One 31, generated a total revenue of 6,515 million baht in 2023. Advertising revenue accounted for 2,834 million baht, representing a 3.5% decrease from 2022. Artist Management and Consultancy Fees contributed 1,021 million baht in revenue, reflecting a 48% growth compared to 2022. Revenue from concert and event organization reached 636.5 million baht, demonstrating a remarkable 111% growth. Licensing rights revenue stood at 988.5 million baht, indicating a 26.5% increase from 2022. In 2024, ONEE has outlined strategic plans to further enhance its financial performance and expand its reach by forge partnerships with prominent international companies to create opportunities for its artists, diversify its content offerings to cater to a wider range of audience demographics and lifestyle preferences.[107]

In response to a decline in advertising revenue and evolving customer demands, Workpoint has been actively expanding its business horizons over the past 2-3 years[108]. These ventures into new territories include: establishing "T-Pop," a platform to cultivate and manage Thai singers, idols, and artists, event management to organizing Thai and Korean concerts, catering to diverse audience preferences, Investing in "khotkool," a digital media company, to strengthen its online presence. These diversification efforts aim to generate revenue from sources beyond traditional television broadcasting. Workpoint's music label and artist management business, for instance, have proven successful in producing income through concerts, festivals, and brand endorsements.The company envisions achieving a 50:50 balance between non-TV and TV revenue within the next 2-3 years, compared to the current 25% share from non-TV sources.

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[107] Orawan Marketeer. (2024, February 28). 10 ปีทีวีดิจิทัล ไม่โต ไม่ตาย แต่จะอยู่อย่างไรให้มั่นคงในทศวรรษต่อไป. Marketeer. https://marketeeronline.co/archives/343433

[108] สาวิตรี รินวงษ์. (2024, March 12). 'เวิร์คพอยท์' ปั๊มรายได้นอน-ทีวี ปั้นที-ป๊อป อีเวนต์ ออนไลน์ สร้างหนัง. bangkokbiznews. https://www.bangkokbiznews.com/business/business/1117244

Channel 3 Expands Entertainment Realm with BEC MUSIC: Unveiling T-POP Artists[109]. This move aligns with the growing popularity of T-POP, a vibrant Thai music genre that has captured the hearts of audiences both domestically and internationally.

The expansion into retail products and other entertainment services is a core principle of a transmedia content strategy. This approach aims to:

1) Reach Diverse Audiences: By diversifying content across multiple platforms and formats, transmedia strategies cater to a wider range of audience preferences and consumption habits.
2) Leverage Existing Resources: transmedia strategies effectively utilize a company's existing resources, such as characters, storylines, and intellectual property, to create a cohesive and engaging brand experience across various channels.
3) Foster Collaborations: Transmedia strategies often involve collaborations with external partners, such as brands, influencers, and content creators, to expand reach and gain access to new audiences.
4) Diversify Revenue Streams: Transmedia strategies generate revenue from multiple sources, including retail product sales, merchandise, subscriptions, licensing fees, and event attendance, reducing reliance on traditional advertising models.
5) Enhance Survival Opportunities: By diversifying content and revenue streams, transmedia strategies increase a company's resilience and adaptability in the face of evolving market trends and consumer demands

In summary, there are key questions which NBTC and policy makers need to take into account as follows: how can broadcasters position themselves in the face of this changing trend? What unique value proposition does free-to-air television offer? And how can broadcasters adapt their content strategy to win back viewers? Additionally, should the NBTC consider supporting the expansion of broadcasters into cross-media content provision?

[109] BECi Corporation Ltd. Thailand. (n.d.). ช่อง 3 จัดใหญ่ เปิดค่ายเพลง BEC MUSIC สุดอลังการ ศิลปินดารา ยกขบวนร่วมเดิน RED Carpet. CH3Plus.com. https://ch3plus.com/special/pr/4124

1.5 Licensing

Chapter 1.5 discusses issues of licensing, impacts of political intervention to the licensees and changing of licensee's ownership structure after 10 years of DTT's auction. Details are as follows.

Thailand has just succeeded in organizing an independent regulator – National Broadcasting and Telecommunications Commission (NBTC) by October 2011 after a decade of regulatory vacuum. While mandate for broadcast reform initiated by civil society in the early 1990s did not borne fruits since two selection processes for the so-called National Broadcast Commission (NBC) were nullified by the Supreme Administrative Court, following accusations of conflict of interest. Despite the regulatory vacuum, new spheres of broadcast services have emerged and rapidly expanded. New small and medium-sized entrepreneurs have become potent players in the broadcast scene, which used to be dominated by the state and the military[110].

After the NBTC, the convergent regulator for broadcasting and telecommunications, was appointed in 2011, distribution of television is handled pursuant to the Broadcasting Act B.E. 2551 (2008), with the NBTC as the primary regulator. Other forms of media are regulated under different laws. The Broadcasting Act B.E. 2551 (2008) regulates the content of television programmes. Content requirements (including advertising) vary between frequency broadcasting (free-to-air) and non-frequency broadcasting (cable, satellite and IPTV), as well as between different categories of channels.

1.5.1 Licensing and cost of market entry

The NBTC Act, the Broadcasting Act and regulations promulgated Thailand thereunder established a framework for: (i) broadcasting network licences; (ii) broadcasting service licences; (iii) broadcasting facilities licences; and (iv) broadcasting application service licences. Broadcasting service licences are issued for broadcasts using frequencies (free-to-air) and not using frequencies (cable, satellite and IPTV). For broadcasts using frequencies, there are multiple categories of licences for public and community broadcasting. Public license are available to government entities and certain associations, foundations, charities and educational institutions. With respect to commercial services, these can be licensed at the national, regional or local levels. Non-frequency

[110]Ayutthaya, Chanansara Oranopna, A Content Regulatory Framework of Thai Pay-TV Under Convergence (December 23, 2011). Available at SSRN: https://ssrn.com/abstract=1976134 or http://dx.doi.org/10.2139/ssrn.1976134

broadcasting services are licensed separately. With respect to frequency and non-frequency commercial broadcasting licences, foreign shareholding in the licensee is limited to 25%. Other regulatory requirements deal with the directorship of companies holding the licences, i.e., that at least 75% of the directors be Thai nationals. Analogous ownership and control restrictions apply to licensees that exist as partnerships. Broadcasting licensees are subject to several other regulatory requirements, some of which exist in law and regulations, and others that are imposed through licence conditions.

Pursuant to the Broadcasting Business Act, a permit to operate radio and television broadcasting business is the exclusive right of the permit holder and is not transferable. The holder of such a permit must operate the business itself. The permit holder may, however, allocate time slots for the programming of others, subject to further requirements of the NBTC. In case of a change in control, licensees must notify the NBTC of such changes.

Having a DTT licence through the auction is the first investment **cost of market entry**. Other relevant costs of broadcasting provider consist of 1) **the production costs** or their reliance on content producers or agencies to purchase content licenses, especially from international content. The increase in the number of providers forces the providers to develop strategies for securing important and interesting content, such as sports and live concerts. In addition, there is evidence of digital piracy, in particular online video piracy is getting worse in Southeast Asia. Situation for Thailand is better than other countries since the pirate rate decreases 6% during the first half year of 2022[111].However, it need to monitor closely to ensure the better ecosystem. Additonally, 2) **the operation cost**, which a deep pocket investment, is required.

Considering cost of entry for other AV segments, particularly the **OTT providers**, one of challenges for OTT providers is their reliance on content producers or agencies to purchase content license, especially for international content. The increase in number of providers force the provider to develop strategies to securing important and interesting contents such as concerts, sport as well as more foreign and local movie.

For example, TrueVisions reinforced its leading position in 2022 as the king of sports by acquiring the exclusive broadcasting rights of the English Premier League or “EPL” for another 3

[111] https://avia.org/wp-content/uploads/2022/11/Asia-Video-Industry-Report-2023_AVS.pdf

consecutive seasons including live broadcasts, reruns, and highlights of all matches on all platforms covering traditional TV, online and digital. This responds to consumers' lifestyles and preferences particularly soccer fans while widening True Group's revenue growth potential from content subscription and advertising through traditional TV and digital media platforms including TrueID users.

Moreover, True expanded its footprint to other markets including sublicensing series from TrueVisions Original to China. At the same time, True CJ Creations, a joint venture between the Group and CJ ENM (CJ ENM CO., Ltd.) from South Korea, was formed to create international-standard quality content to supply both domestic and overseas markets. These high-quality contents can be viewed on a wide variety of channels, creating a revenue upside potential and fulfilling consumers' lifestyles.[112]

International OTT providers need to collaborate with the local industry players i.e. content producers, device producers and telecom service provider to gain market share and diversify. For example, WeTV has made deals with major movie production GDH to create adaption in Chinese from Thai film "Bad genius". Doonee built business alliance with Smart TV and set top box manufacturers that will install Doonee application as a basic application in the device. Viu and Disney+ collaborate with AIS offer attractive campaign to gain new OTT subscribers.[113] OTT bundling and partnerships remain crucial for streamers to tap into regional markets[114]

Fierce competition among OTT providers makes some of them leave Thai market. For example, Singtel-backed HOOQ was active in Thailand before it closed in April 2020 after sustaining heavy financial losses[115]. In the beginning of January 2024, Amazon-owned Prime Video is to change its content strategy in Southeast Asia from a model based on original productions to one focused instead on licensing. As a result, it has cut some jobs in the region. This will also affect Thai market unavoidably[116]. Some small streaming players in this region survive through an acquisition of the big firm. For example, Tencent acquired the content, technology, and resources of iflix (which it now shares with its own WeTV platform) in June 2020 after the Malaysian-

[112] https://investor.truecorp.co.th/misc/AR/20230327-true-ar2022-en.pdf

[113] https://www.itsworld.org/wp-content/uploads/2021/12/Pirongrong-Ramasoota.pdf

[114] Omdia (2023). 2024 Trends to watch: TV and Online VDO in Asia & Oceania.

[115] https://mgronline.com/entertainment/detail/9630000047279

[116] https://variety.com/2024/global/news/prime-video-southeast-asia-singapore-staff-cut-1235871006/

headquartered video streaming platform teetered on the brink of insolvency[117]. This reflects another cost that OTT providers, in particular small streaming players that are operating without a library of content or a niche target audience, need to face and struggle in the stiff competition.

Content licensing agreement is another barrier for market entry. Another cost for licensees of television services is compliance with the scope and conditions of the license, especially those related to content under No. 14 (content licensing agreement) of the NBTC Notification regarding criteria and procedures for granting broadcasting service licenses, B.E. 2555, as amended. This includes selecting, acquiring, and supervising programs, ensuring that the content of any program, announcements, or advertisements complies with professional and ethical standards of the media. It also involves selecting or recruiting program presenters who speak and articulate language appropriately. If a licensee violates or fails to comply with these conditions, the NBTC has the authority to warn, suspend, correct, or order explanations, and submit evidence for consideration.

1.5.2 Impacts of political intervention to the licensees: Head of National Council for Peace and Order (NCPO)'s order

Initially, after the digital TV auction in December 2013, there were 28 digital TV channels broadcast - 24 commercials and 4 public services. However, the digital TV path did not start smoothly. The sudden technology disruption affected consumer behavior, shifting from waiting to watch scheduled TV to watching programs on-demand through online platforms. Subsequently, Loca15 and ThaiTV17 channels discontinued broadcasting as they could not pay the 2nd auction instalment. Therefore, only 26 channels remained operational.

The situation for digital TV did not improve - many operators were still losing money. On December 20, 2016, the NCPO head issued Order 76/2559 extending the payment period for digital TV as follows

1) for the remaining amount not exceeding the minimum price (equal to 10%): extending to 2 installments.
2) for the amount exceeding the minimum price (60%): extending to 6 installments.

[117] https://mgronline.com/entertainment/detail/9630000047279

Additionally, the NBTC was instructed to pay for 3 years of satellite transponder rental fees that digital TV operators used for broadcasting per the "Must Carry" rule (satellite transmission of free tv) to allow digital TV viewing across all platforms.

Then on May 23, 2018, the NCPO head issued Order 9/2561 to aid the digital TV industry in 2 main areas: postponing payment for spectrum license fees not over 3 years after which regular payments would resume; requiring the NBTC to pay half the network fees (MUX) for digital TV operators for 2 years, while operators paid the other half as usual.

On May 10, 2019, the NBTC announced that digital TV operators wishing to return their licenses could submit a letter of intent per the NCPO head Order 4/2562 on solving TV business problems. Following this, 7 licenses were returned, leaving 15 commercial digital terrestrial TV operators along with 6 public service broadcasting licensees.

The struggles of the digital terrestrial TV industry highlight the disruptive impact of technological advancements and changing consumer preferences on traditional media business models. Despite interventions by the National Broadcasting and Telecommunications Commission (NBTC) and the National Council for Peace and Order (NCPO) to provide relief measures such as extending license fee payment periods and subsidizing network costs, several operators were unable to sustain their businesses. Consequently, the number of commercial digital TV channels dropped from the original 24 to just 15 by 2019, with 7 operators voluntarily relinquishing their licenses due to mounting losses.

However, critics argued that the relief measures were temporary band-aids that did not address the underlying challenges faced by the industry. There were also concerns about the government's involvement in providing financial assistance to private companies, which could be seen as market interference. Additionally, it was estimated that this distribution of benefits to media and telecommunications conglomerates would cost the state losses. Critics argued that if the state wanted to assist the media, it should focus on supporting the development of quality content and creative program production instead[118].

Notably, some of the following NCPO’s orders remain active till presents as summary in below table.

[118] https://www.the101.world/how-section-44-supported-digital-tv/

Table 1-6 NCPO's order on supporting the digital terrestrial television

Order of the Head of the NCPO	Supporting details
Order of the Head of the NCPO No. 76/2559 regarding measures to promote the operation of radio broadcasting, television broadcasting, and telecommunication for public interest.	(1) Extending the payment period for the remaining portion of the minimum price (10%) into 2 installments, and dividing the excess portion beyond the minimum price (60%), payable in 6 installments over a period of 6 years (previously 3 installments over a period of 3 years), with interest charged at the rate determined by the Monetary Policy Committee of the Bank of Thailand. (2) Supporting expenses for satellite transmission of free tv as per the NBTC Notification on the Criteria for Broadcasting Free Television (Must Carry) for a period of 3 years (from December 20, 2016 to December 19, 2019).
Order of the Head of the NCPO No. 9/2561 regarding measures to mitigate the impact on operators of radio broadcasting, television broadcasting, and sound broadcasting businesses, as well as television broadcasting businesses	(1) Deferring the payment of spectrum license fees. In 2018, the NBTC approved the deferral of spectrum license fees for 16 companies, totaling 19 licenses, allowing them to defer payment of spectrum license fees for the remaining installments starting from the payment installment in 2018 onwards, for a period of 3 years from May 23, 2018. (2) Supporting fees for using the digital terrestrial television network (MUX) by subsidizing the network usage fees for licensees operating digital terrestrial television for a period of 2 years from June 1, 2018, to May 31, 2020, at a rate of 50% of the aforementioned network usage fees.
Order of the Head of the NCPO No. 4/2562 regarding measures to solve problems in the operation of	(1) Compensation, indemnification, or payment to those affected by the recall of the 700 MHz band, with details as follows: (1.1) Exemption from spectrum license fees for digital television broadcasting services as specified in the order of the Head of the NCPO.

Order of the Head of the NCPO	Supporting details
television and telecommunication	(1.2) Support fees for using digital terrestrial television network (MUX) for the remaining licensed period starting from June 2020. (1.3) Compensation, indemnification, or payment to licensees of network and facility licensees for digital television services, resulting from the direct impact from the recall of spectrum. (2) Providing opportunities for licensees to return licenses for digital terrestrial television services, with the NBTC office considering compensation for the licensees who apply for license returns. Seven licensees have applied for license returns. (3) Supporting funds for TV ratings survey.

1.6 Role of the national regulatory agency in the future Thai market

The future of the audiovisual sector and its TV broadcast segment depends on suitable regulation. The role of the national regulatory agency is also discussed as follows.

The role of the national regulatory agency in the future Thai market

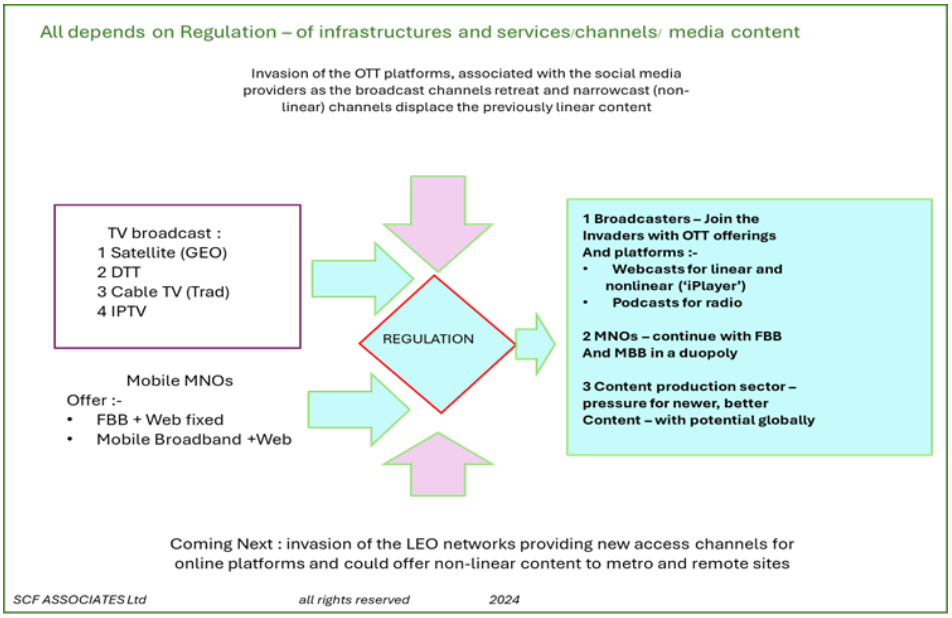
In summary, the future of the audiovisual sector and its TV broadcast segment depends on suitable regulation.

Over the past 30 years, the global audio-visual sector has been undergoing fundamental transformation. Initial advances took the form of multiplying channel capacity using new technologies for media delivery – to digital broadcast switchover, while cable moved from copper coax and twisted pair to fibre optics; soon geosats will be supplemented by low earth orbit (LEO) constellations. The scale of change is accelerating as digital delivery at broadband speeds makes new services available globally as much as nationally. TV media is turning away from the national market mix towards wider, global offerings.

To match this, how the public views TV in terms of locations, both static and mobile and thus devices has also evolved quickly over the last few years. Smart TVs, PCs, laptops, and smart phones in every household mean multiple simultaneous programmes – and viewers. The catalyst for growth is now viewer choice. On-demand watching via the interactive infrastructure,

progressively replaces linear viewing by non-linear. A very simplified outline of the future major forces for change is shown below.

Figure 1-20 The role of the national regulatory agency in the future Thai market



Source: SCF Associates

Consequently, the intensity of media competition is being transformed with the entrance of global streamers over the top (OTT), web platforms which avoid the traditional TV market controls of market entry by awards of spectrum regulated by licences – Web access brings an open stream for connection, with many payment models. The race for revenues, be they from subscriptions, pay per view, and/or advertising, is accelerating.

The challenge for regulators such as NBTC is to maximise the positive effects and minimise the negative effects of this migration to digital platforms. For balance in this new market, innovative regulation will be needed. That will require evolution of the regulator's scope of action and range of powers. Underpinning that a fundamental update in the supervisory resources is critical, to match the expanded legal authority:

- For the consumer – the need is to combat the online safety problems currently and for the future, when they are likely to multiply - to protect privacy as well as supervision of age verification processes for content limits across all platforms, to prevent identity theft and destabilisation by fake news.
- For the Thai media markets - ensure a highly competitive market with cost-based pricing, to address the impacts of these new entrants on the existing players and on the whole market.

- For Thai media sector - stimulate the creative market with directives that implement a new industrial strategy for a future Thai audiovisual media sector, including incentives for growth and particularly for local production for exports, to contribute to economic growth.
- For balance in society - continue the social role of supporting public service media delivery and supporting society where poverty exists.
- To manage the national infrastructure - spectrum planning, new civil works regulation, fibre network strategies, data centre build supervision and subsea network organisation are necessary.
- Educate existing and new market entrants on this next generation of online regulation
- Integrate the responsibilities and powers of parallel institutions - for the digital economy, cultural responsibilities, social responsibilities including for media sector stimulation, to a seamless operation among regulator and related agency.
- Deal in competition terms with the largest global platforms -- the major platforms may acquire dominant positions in the new ecosystem through monopolisation or vertical integration, which may adversely affect competition. That requires appropriate powers.

To provide that new balance, at a larger scale, various novel directions may be necessary, so the NBTC could anticipate the expected pressures with various new directions:

- The national regulatory agency (NRA) that the future NBTC might become is one that has a much larger scale of operations in the media markets – both in volume due to the enormous volume and range of content and data it must review but also in terms of the global size of the digital platforms it must gain compliance from.
- Due to the leverage that comes with such scale, dealing effectively with the global players now entering the Thai markets, a different approach may be needed for employing international cooperation among its regional sister NRAs. A permanent internal unit for coordinating the rules and actions for online regulation may be needed, for operation at regional level.

Chapter 2 External Forces on the Thai Audiovisual markets

2.1 Technology advances behind the digital disruption in the TV broadcast and audiovisual sector

2.1.1 Structure of the chapter on technologies

Following the NBTC request notice, this first section has a structure as follows:

1) Innovative digital technologies for the audiovisual sector that are entering Thailand from the global AV market can be roughly divided into two major subject areas. These are firstly
2) Infrastructure technologies for content delivery infrastructure/transmission, including at least DVB-I, 5G broadcast, LEO technology and secondly

A summary table for the Technology dimension, is given as follows

2.1.2 Technology catalysts for change
2.1.3 The move to a global infrastructure for video and audio media sales
2.1.4 The technology of streaming
2.1.5 Consumer interface technology using digital display technology in the home
2.1.6 Changes in location and modes of viewing, with duration of viewing, as smartphone, tablet and smart TV become the device of choice
2.1.7 Gaming brings a specific sub-sector of the human interface evolution
2.1.8 The Metaverse – Virtual Reality, Augmented Reality and Immersion with avatars
2.1.9 Impacts of stochastic processing technology, often termed ‘AI’, for advances in the audiovisual sector and its business models
2.1.10 New invaders from space – the LEO option enters Thailand
2.1.11 Impacts of LEOs on spectrum demand in a Thai situation

2.1.12 5G Broadcast – mobile broadcast for 5G

2.1.13 In conclusion – the global impacts of new technology on the Thai TV industry and the regulatory regime

We thus summarise the requirements that the technologies must have in order to be able to be able to be used the each technology in practice, including lessons learned from such use.

2.1.2 Technology catalysts for change

We first examine the key catalyst for change – the evolving technology that has been driving major disruptions in the media sector – both for broadcast television and by creating new dimensions in the online segment of the market with the advent of the video Web. The Terms of reference detail this:

[ToR 4.4 (1) Explore technological changes due to digital disruption that will affect television/audio-visual service market, such as streaming video on demand (SVOD), with FBB (for fixed media devices and for mobile with Wi-Fi), augmented reality/virtual reality, AR/VR (sometimes termed the Metaverse) for application of the technology to entertainment and for specific business cases. This area is being transformed by the appearance of Over the Top (OTT) web platforms and their services, and also the Internet of Things (IoT).]

In the media world over the past 10 years, one primary catalyst for disruption of the broadcast TV and the overall media sector has dominated industry change globally, at first quite slowly and largely in the USA, with Europe following. But this was accelerated by the global effects of the Covid 19 pandemic lockdown, hastening the migration to broadband delivery via i**nteractive** channels of digitised entertainment (and ecommerce media) and away from the dominant linear TV programming.

This trend followed the expansion of broadband network capacity in terms of coverage with speeds of up to 100 Mbps. It has progressed from much earlier technologies that supported national ISDN (Integrated Services Digital Network) at 2Mbps (and far lower data speeds, in kbps) leading into wideband protocols such as the digital subscriber line (xDSL) series, originally for copper wireline, both twisted pair and coax. Interestingly that has been going on slowly since the early 1970's. Then, the first videotext developments were trialled via the existing lower speed phone lines and first fibre optics cabling, for X25 packet networks and ISDN communications. They connected the new digital spaces founded on large databases for independent service providers, originally with national initiatives, such as the Minitel in France. Consequently, we begin this technical analysis of the

audiovisual sector evolution with an investigation of the disruptive digital technologies, initiated really since the early 1990s by the take-off of the World Wide Web (WWW), the human interface to the Internet, bringing its browser client to web server architecture, a predecessor of a modern streaming system.

Recent migration to a much higher speed IP packet-based video distribution system is now having enormous impacts, for both the global media providers and for consumers (be they viewers or listeners or games players) ever since television images, as IPTV, were first taken up in the 1990's for transmission over the far slower speeds then, of the early digital infrastructure supporting the Internet for its IP packets transmission to content consumers.

Today, extension of telecommunications with broadband network technology, at a national level in many countries, for both fixed and mobile, forms the major driver for change in the converging areas of digital technologies and television media. This merging is sometimes referred to as 'TMT' (Technology, Media and Telecommunications) in the OECD and elsewhere as a distinct convergence sector to denote an amalgam of specialised fields into a new single media market. There are several key areas to explore in this recent technology development. Progressively, the national media sectors, especially broadcast television, both commercial and public service broadcasting are feeling the effects of a series of major global technology developments:

Technology development is moving to a global infrastructure for media sales with data hubs and international broadband networks. These can be seen as series of technology advances:

1. The move to a global infrastructure – with the rollout of fibre optic broadband across the seas as well as many countries, to challenge terrestrial broadcasting (DTT) and the existing geo-satellite TV services. A gradual move to fibre optic networks for interactive broadband for everyone.
2. The growth of content hubs for streaming in ever larger data centres, over subsea cables if they come from other countries, or, other continents, with their sustainability impacts of power consumption
3. Consumer interface technology - Digital Display technology in the home 1) changes location of viewing, duration of viewing, with 2) smartphone, tablet, smart TV, 3) display technology

in the home high resolution displays- 4k and media centres[119] and Wi-Fi ; 4) AR/VR and the Metaverse ; 5) the rise and future of the gaming console in a smartphone and AR/VR sub-market.

4. Increasing sophistication in production technology with VFX, - using 'AI' pattern recognition for translation and lip-synch for localisation, changes a) production costs b) exportability of content ; the search for higher technology standards- Production techniques based on pattern recognition (so called 'AI') –Production techniques for CGI
5. New invaders from space – the LEO option, which may be entering Thailand.

2.1.3 The move to a global infrastructure for video and audio media sales

Over last decade the move to a global infrastructure for media sales has challenged the traditional national video distribution networks, by use of streaming data hubs feeding national and international broadband networks, now extended worldwide over subsea data highways.

Globally, we are currently expanding the fifth generation of what can be called television, or TV, but now based on the online transmission of video and differing mainly in the forms of networking distribution and the interactivity permitted at a technical level.

Starting from the late 1930's broadcast TV over the air has become a basic entertainment technology, in the home. It was supplemented from the early 1980's by a second form of TV distribution, over locality-based cable access TV (CATV) via copper coaxial and later fibre optic cables, with viewer subscriptions and advertising fed from a central head-end, with USA penetration reaching some 60% of households at its peak. The more advanced cablevision versions offered interactive services for programme selection and even non-entertainment services [120], for communications, ecommerce and facilities such as education, sometimes generically termed videotext.

In parallel with this was the expansion of a third variation in TV delivery, satellite broadcasting over a downlink beam to a receiving antenna on the consumer's premises. These later systems for cable and satellite distribution introduced the need to move from analogue TV signals to digitised

[119] Home Media centres are becoming increasingly installed in the advanced home with IP servers for TV systems and multiple devices with W-Fi and Bluetooth, large 4K and 8K displays plus Tablets, smartphones and other screens

[120] Forge, S., (1984) Cablevision- the other services, Futures, pp520-532, Vol 16, 01 Oct

frames with coding and compression of signals for reasons of received image quality, spectrum savings for greater numbers of channels and display processing.

By the 1990's, digital TV signals were also being commonly sent as packets over the Internet in formats still used today, as technology that enabled coaxial cable bandwidth - and even twisted pair - to deliver 2 MHz bandwidth TV signals, as IPTV – Internet Protocol Television - a fourth generation of TV, still in use today over some CATV networks. That meant computer networks could transport television images – as well as – to encode, encrypt, manipulate, manage and store them on instantly retrievable large databases. Such digitisation also heralded the move away from analogue signals over the air for TV broadcasting to digital terrestrial television (DTT) with switchovers in the early 2000's in Europe and the USA and around 2020 in Thailand. Digitisation of TV signals enabled major savings in the spectrum required. A DTT 'multiplex' could offer at least6 channels for one analogue channel[121]. That released bandwidth in the 700-900 MHz range to mobile communications[122].

Moving to broadband interactive connectivity for content distribution (over fixed line and mobile carriers) brings the sector into a fifth generation of TV technology, based on networking technology with consumer data rates of up to 100Mbps each but more commonly 25MHz and under. That drives the need for large digital repositories for the content catalogues – rapid databases used as file and record servers feeding substantial front end servers interfacing with the fibre cable networks, globally. This Service Delivery Platform (SDP) provides the controlling interface for the millions of simultaneous interactive dialogues with the consumers.

The video content owners and streamers currently subcontract this storage and retrieval operation to the major cloud services providers such as Amazon AWS and Microsoft Azure but may have their own SDPs and/or run all or part of on their own cloud-based processing centre. Other network operators such as Akamai may also offer their global Content Delivery Networks (CDNs), while independent streamers such as Netflix invest in their own network assets and may also offer these to other content providers as streaming is so expensive in capital for infrastructure with global

[121] Starks, Michael (2007) Switching to Digital Television, UK Public Policy and The Market, Intellect Books, UK

[122] SCF Associates Ltd (2007) The Potential Contribution of the Digital Dividend to the European Economy - an examination of alternative scenarios for use of the spectrum to be released as a guide to long-term policy for spectrum re-allocation in view of its implications for potential economic benefits– a report for Deutsche Telekom and T-Mobile - as contribution to the European Commission impact assessment and review of digital TV

reach and billion customer traffic capacity. Thus the streaming arm of Disney, Disney+, prefers to subcontract delivery to the Netflix global network system under a wholesale agreement.

The rollout of fibre optics networks over the last 15 years in many countries has gradually upgraded their fixed line networks from copper twisted pair with digital subscriber line (DSL) protocols to early forms of wideband communications perhaps with coaxial cable, especially for cable access TV (CATV). Many are now converting to faster data rate technology based on fibre optics, with multiple wavelengths for efficient multiplexing. This broadband data rate enables full motion large display, high resolution (screens of 4K by 2.8k pixel elements screens and higher).

This has been driven since the CATV ventures of the 1980s by the cost of fibre optics to pass residences. Two factors dominate finances required – firstly the cost of civil works, especially to bury fibre in ducts. The alternative is to string fibre optic cables on poles which has been the much lower cost approach. But this is only acceptable in situations where exposed cabling is considered tolerable visually and in terms of environmental hazards – weather etc - and so where long term reliability is reasonable. Until the early 2000's the cost of fibre optic deployment on a large scale in the pioneering countries – largely the USA and Europe - were of the order of over US$ 1,000 per home passed and US$ 20,000 to $70,000 cost per mile average for new ducting[123]. Naturally in other economies, the costs of civil works may be far lower. In parallel with the extended laying of fibre cabling have come major advances in the technologies of optical cable capacity with dense wave division multiplexing (DWDM) leading to multiplication of the broadband channels in a single fibre, as well as the shrinking of cable diameters to microcables, of 8mm diameter for 144 fibres[124].

These advances in fibre optic cable connectivity have given the streaming media industry its entry to the mass market in that the availability of sufficient funds from the streaming revenues balances the high costs of fibre optic rollout and coverage densification over the 5 to10 year payback period of capital investment for network deployment.

Note that the extension of global reach for streaming of large catalogues of content and expand the network effects shown in its economics. That reach depends on the technical advances in subsea cable technology[125]. So globalisation of streaming media in some ways creates the "killer

[123] Dgtl Infra, Kim , J., (2024) 15 Jan 2024, Fiber Optic Network Construction /: Process and Build Costs, https://dgtlinfra.Com/ fiber-optic-network-construction-process-costs/

[124] The Fibre Optic Association (2024), https://www.thefoa.org>tech>ref>1pstandards>OSP Civil WorksGuide- FOA.pdf

[125] SCF Associates Ltd, 2019, International Subsea Connectivity and Broadband Policy: the Implications for Thailand, for the NBTC, 22 September 2019

app" and so the catalyst for justifying broadband coverage that has eluded many advanced economies in the past.

The video streaming market has also driven the high definition screen market towards 4K screens (4096 horizontal x 2048 vertical pixels) which benefits from high resolution screens to give the 'cinema experience' that Netflix, Disney +, Paramount + etc, claim to bring.

That demands high speed data that fibre broadband (FBB) or possibly LEO satellite - and possibly even geosats can bring. High definition Netflix requires 7GB/hour for UltraHD and 3GB/ hour for HD [Netflix, https://www.makuseof.com] and 1GB/hour for standard definition, SD) Amazon, HULU, Sling TV, Spotify demand similar streaming capacity for feature films. This implies data rates for web connection at 20- 50 Mbps over an H-264 video standard. The technology of streaming and the growth of content hubs, for stored and live video, drives the streaming invasion of the TV Broadcast market

2.1.4 The technology of streaming

Migrating TV consumption from the national broadcast model to the wider streaming model has been driven not just by the established content providers from Hollywood such as Disney and WBD/HBO but also by the global web platforms of the GAFAM group (Google, Amazon, Facebook/Meta/,Apple, Microsoft, plus some Chinese online leaders and various national platforms) over the last two decades. The major commercial content streamer Netflix, together with the Hollywood and other content producers, such as music streamers such as Spotify and the even earlier Apple's iTunes has driven a global surge in very large streaming server installations held in numerous data centres sited and across every market. Today, such streaming hubs may be sited next to power stations, for reliably serving a customer base of national, or possibly global proportions.

The first moves into the platform's services of search, ecommerce, social media, etc twenty years ago has led to an apparently inevitable rise in capability for video content sales, challenging national TV broadcast channels with global video distribution over the top (OTT) of the Web from the video streaming platforms. This is more than hosting content servers for the traditional Hollywood AV content producers such as Warner, Disney, Sony and Paramount.

However, the most aggressive exploiters of the streaming model are increasingly the GAFAM platform owners, such as Amazon Prime, as they are often able to leverage their cloud business. For Amazon that is AWS, while Google has comparable hyperscalar data centre assets, as does

Meta/Facebook. That strategy is driven by their conglomerate model, to enter new business opportunities in media distribution, firstly for existing material, but increasingly for their own television and feature film properties.

Thus, the streamers such as Amazon Prime video, Microsoft with its MSN TV services, Apple TV, Google with YouTube and ByteDance with TikTok, all use advertising with their range of web entertainment services. But just what is entertainment? Today it includes gaming and more importantly, social media, all video based. Interestingly the number of successful global video-only new entrants is quite restricted – really on a worldwide access scale to Netflix, although the traditional Hollywood studios have been investing in streaming ventures over the last five years – Disney+, Warner's HBO, Hulu, Peacock, so today, the USA leads in streaming take-up. The global streaming market is predicted to be a US$ 139 BN by 2027[126]. Moreover new models of assets sharing are appearing - for instance Disney is now sharing a common streaming channel for its sports events with its competitors is a deal that integrates its ESPN sports channels in a new format of a streamed offering combined with its competitors' sports events.

Expansion in web based video access has been triggered by social media, over the last two decades, driven partly by mobile viewing over smartphones using web content as IP data packets for Web server programming and protocols. The latter trend has accelerated the rise of the video streaming for media on demand. A more recent major trend has been a variation of this with video sharing platforms (YouTube (YT), then Instagram, and WhatsApp, with TikTok). That challenges the commercial content streaming with self-produced content aimed for short form video, and for an attention span of 15 seconds to 5 minutes. That is a challenge to the major content streamers and their vast catalogues of programming. Importantly, it spells major changes in the way content will be consumed in the future, especially as today's Generation Alpha (pre-school and in-school), the next generation for digital media consumption, which is highly capable in digital literacy terms, far more so than their parents.

- The move to the currency being in customer data not in monetary payments[127]

[126] Nielsen, global streaming market, 2023, from Nielsen report *TV and streaming in the US*, 2022.

[127] The major payment made by consumers in using an OTT service such as search is with their personal details which are given, perhaps without consent, and then collected and sold by the search engine company to companies who sell goods and services and especially to advertisers and third party data brokers who deal in consumer data and profiling

- The move away from single sided markets to 2-sided markets[128] that depend on the customer data model of the currency.

The underlying technology of the data centres used for broadband OTT services is aimed at acting as hubs for streaming content with interactive interfaces for the consumers' choices, as well as the security functions of user authentication. Often such data centres may be considered part of an independent 'cloud' provider's commercial offerings, such as that of AWS or Azure or wholly owned by the OTT platform operator. Globally the architecture is based on virtualisation of the operational environments, to emulate any operating system and version, for any application. Consequently, global data centres can be linked into grid processing networks under a hypervisor, globally or regionally, using large numbers of servers based on parallel processing[129].

This enables any application to be run anywhere across the world where there is the available capacity, the data, and/or fast data access and round trip response delay required. Specific common applications, such as video data storage, retrieval and interfacing to streaming systems are taken into account in design of the data centre architecture and especially choice of processor and storage systems. This is major market for the largest processor manufacturers such as Nvidia, Intel and AMD with new entrants such as Apple, while all use derivations of the latest of ARM designs for high power parallel processing. In sustainability terms, fast dense server systems carry the penalties of high power consumption and thus heat generation, for which water cooling is often mandatory. Thus current cooling systems still have large water demands. Therefore the ideal location of data centres is next to a large a power station and to sources of fresh or sea water.

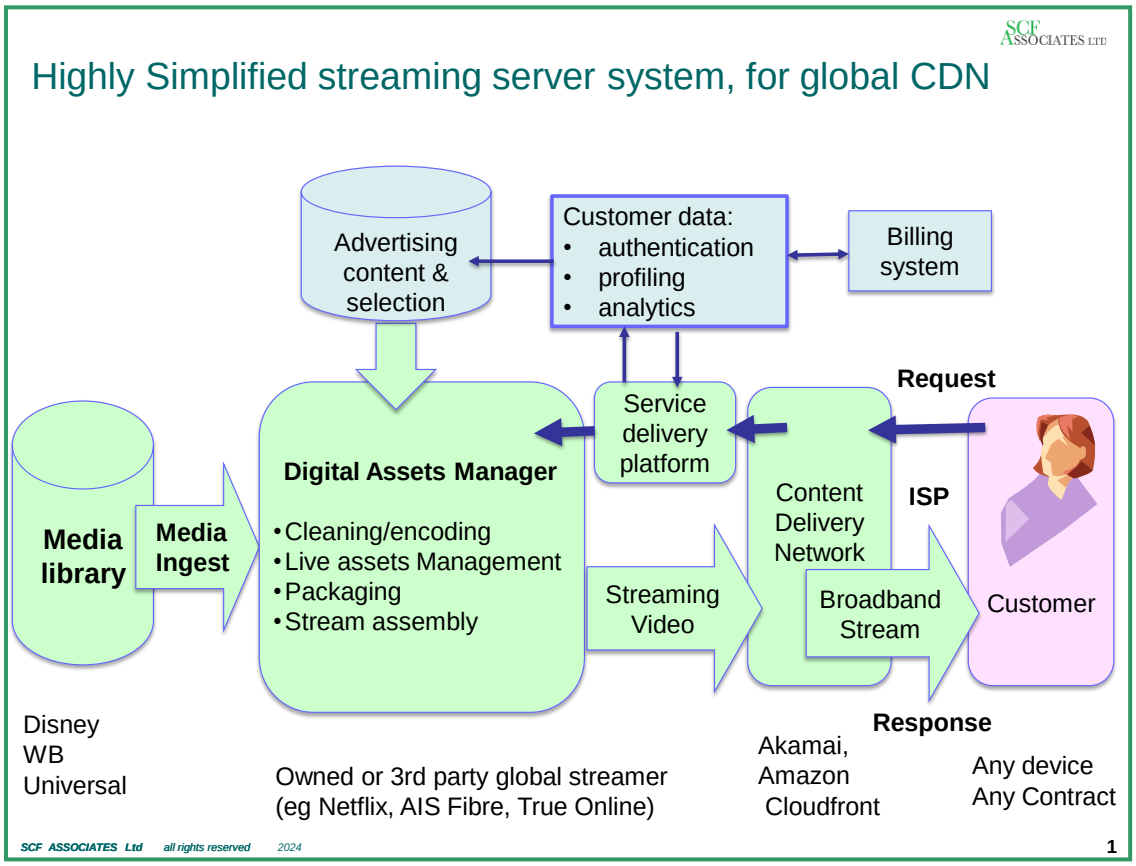
The streaming process chain is shown in outline below as a highly simplified schematic which does not give the details of the software packages used or the management of multiple data centres over a global broadband network for a grid structure of processing, with a hypervisor, often referred to as a cloud- based system:-

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[128] A two-sided market is a platform based market with at least two separate user groups that provide each other with mutual network benefits, usually over a multi-sided platform, such as those from the GAFAM group (Google etc)

[129] SCF Associates Ltd, (2006) Commercial Exploitation of Grid Technologies and Services, Drivers and Barriers, Business Models and Impacts of Using Free and Open Source Licensing Schemes, European Commission, DG CNCT

Figure 2-1 Overview of streaming platform operational processes and components



Source: SCF Associates Ltd

Streaming software architecture began with a series of large data manipulation open source software suites which have been integrated, such as Spark/Hadoop, in new frameworks, to provide a layered processing architecture for end-to-end streaming and scalable to global dimensions. That is based on using cloud linked data centres in a grid processing infrastructure with virtualisation under a hypervisor, as the main providers such as AWS can offer with various utilities of their own design. As may be expected its data architecture for real time operations shown above must ingest, analyse, recognise, then process, the media and advertising data streams. Thus, streaming is a real time, not a batch processing operation for large volumes, often in petabytes. That implies **scalability** of processing with the growing data volumes – and event volumes - by rapid mobilisation of extra resources. Thus, the streaming architecture must adapt to capacity expansion, on demand, without requiring a basic upgrade in the architecture. That is the reason for a dynamic cloud- based configuration of redundant servers, for a processing infrastructure that is hyperscalable. In consequence, surges in data volumes can be handled without any recourse to changes in the basic architecture by upgrades.

Because there are at least three streamed media categories for consumers markets the data may be structured or taken as unstructured and appropriately processed. First is video entertainment (on demand and linear) plus audio-streamed music as well as audio voice for podcasts, for stored radio programmes and e-books. Education content in remote learning and training sessions is also a possible data stream. Video entertainment would include the important gaming segment in Thailand with the rapidly exchanged interactive dialogues of online games for console players (Sony, Nintendo and Microsoft) and increasingly for smartphone/ smartTV users who may be a rapidly expanding source of traffic. The growth of content hubs for streaming in ever larger data centres, over subsea cables if the content comes from other countries, or, other continents, is thus a feature of the sector. Content hubs are growing in Malaysia and Singapore but for volume and lower latency (better response times) local Thai data hubs are being built by AIS (with Microsoft) and others.

The business models for steaming are also strongly linked to advertising and its three main forms in modern streaming business models:

- AVOD – Advertising supported video on demand, sometimes termed FAST as linear TV broadcasters switch to simultaneous broadcast and streaming (or simulcast) – Free Advertising based Television
- SVOD – Subscription based video on demand, implying no adverts and therefore a premium price, perhaps and one basis of Netflix early success
- TVOD – Transaction based video on demand – also termed PPV – pay per view, especially used for high value events such as major sporting fixtures at random times.

2.1.5 Consumer interface technology using digital display technology in the home

This section reviews consumer interface technology, principally:

- display technology in the home - high resolution display (4k) for media centres with Wi-Fi
- changes in location of viewing, duration of viewing, with smartphone, tablet, smart TV
- virtual and augmented reality VR/AR and the Metaverse
- gaming and consoles with smartphone and AR/VR sub-markets

Display technology in the home - high resolution displays- 4K, 8K and media centres

Digital technology at the human interface for the television set in the home advanced in the 1990s from the various standards, by geography - in the USA NTSC (National Television Standards

Committee specification) and PAL (Phase Alternate Lines) in the UK and Germany with SECAM in France, largely using analogue systems with raster scan line density advancing – from 405 to 625 lines, for example, in the UK. The USA's national and local broadcasters were loath to relinquish their generous radio spectrum in the 700-900MHz band to the growing mobile industry, as was being pursued globally. Instead, the USA's broadcasters pushed for high definition TV (HDTV) to justify spectrum retention. The Japanese consumer electronics manufacturers had formed a joint HDTV standard in 1986 with broadcaster NHK, termed Hi-Vision. This was an analogue system that would have given them TV industry dominance globally. However, in 1990 General Instruments in the USA then replied with a digital HDTV system, the Advanced Television System Committee Digital Television Standard (ATSC-DTS) with FCC support. So the first widespread digitisation of TV signals was driven by display technology, used for terrestrial broadcast and some cable TV networks[130].

Two quite different systems of TV display were originally considered in the 1990s and the USA's FCC originally mandated domestic TVs should operate on both the TV industry's interlaced lines and on the computer industry's digital video picture protocols, for a wide screen display. Two formats were considered - standard definition (SD) for medium resolution and high definition (HD). Today, the HD display format is increasingly focussed on a range of higher end resolutions '4k' and '8k' displays implying a screen width of some 4000 or 8000 pixels with various variations, and a height of some 50% of that ie 4096 x 2160 pixels for HD and ultra high definition (UHD) of 7680 x 4320 pixels (or '8k'). However, these definitions can be misleading as manufacturers' classifications vary.

The entry of high-definition displays is important today for streaming video, which benefits from the 4K video screen resolution to fully present its higher pixel density and colour range enabled by delivery over the fibre optic data rates, typically up to 100Mbps. The data rates for SD are recommended to be at least 2 to 3 Mbps, while HDTV may need up to 25 Mbps, with 5Mbps minimum. Note that globally conventional linear programming TV channels are for 4k HD resolution but some countries have not yet aligned and so many countries are now slowly being aligned. Thus providers of content streamed in those countries have to compensate for the streaming data rates and screen definition expected. Speeds required for viewing may vary by media content provider as shown:

[130] Starks, Michael (2007) ibid.

Table 2-1 Data rates for streaming in Mbps

Content Provider	Rate for SD format	Minimum Rate for HD	Full HD data rate
Netflix	3Mbps	5 Mbps	25 Mbps
YouTube	2.5	5	20
AppleTV+	8	N/A	25
Amazon Prime video	0.9	5	25
BBC iPlayer	1.5	2.8	N/A
Spotify music streaming	0.9		

Source TechRadar accessed March 2024

Note that multiple devices streaming different channels in parallel from the same network connection will each require their own bandwidth, so a home with three screens or devices on different channels would need the appropriate Web connection bandwidth. Moreover, the earlier networks based on copper connections with xDSL (digital subscriber line protocols) may not be fast enough for multiple simultaneous Web accesses and FBB connectivity would be needed.

2.1.6 Changes in location and modes of viewing, with duration of viewing, as smartphone, tablet and smart TV become the device of choice

So the mobile use of connection evoles, for viewing content or social pursuits. The type of viewing, the location of viewing, its duration and quite likely, the content viewed, also evolves. That online connection may be either directly to the nearest mobile base station, or more likely, if in the home, by Wi-Fi, with a mobile connection whose traffic is offloaded to the fixed broadband connection to the home. That may also apply to some public spaces and public transport. Thus we may see the future home a set of multiple interconnected media devices, some using Wi-Fi connectivity to a media centre, perhaps based in a smartTV such as the Apple TV or the major competitors from Korea and Japan.

Much of the online time may be social media in a mobile session, perhaps more than linear or non-linear TV. However television of some form may be also be a subject of mobile handset viewing, especially if the handset is replaced by a larger screen tablet, probably with the same mobile contract for access. This also implies that a change in TV viewing to dynamic access via a mobile device over a broadband network is a transition from the ‘push’ TV distribution system of

the last seven decades when TV Broadcasters pushed out their linear programming (if major TV distribution impacts are taken from the early 1950s in the USA and Europe) with its schedule that is defined, firmly limited and planned, and fixed. In contrast the mobile smartphone viewer has an interactive 'pull' capacity to select streaming video on demand (SVOD).

The overall result is a system of multiple viewing behaviours for various parallel types of what is becoming more loosely termed 'TV', moving to non-linear viewing, on demand, from linear. Viewing content on the Web involves smartTVs with more PC-like interfaces for both software applications and for those viewing, just as mobile devices have. That also implies an ecosystem migration from the traditional television technology towards a components sourcing and assembly process similar to computing displays, storage devices and processors for devices such as laptops, gaming consoles and tablets, mobile devices of all kinds. All have downloadable software apps that can run on the smartTV, such as TV schedule guides, games or storable video content.

Thus changes in viewing, to become personal and individual, by enabling a far more interactive and participatory use of the TV environment for social media as much as for broadcast media and selected downloads viewing. The result is a mix of non-linear with some linear content in high resolution, so it might be more immersive. Its interactivity opens a more participatory social and global experience, which explains the trend to international content from Korea and Japan, as well as from the USA.

However, such changes are strongly marked by age-group and reflect the degree of intervention in choice, depending on the depth of learned behaviour in accepting rather than choosing content from a relatively small finite set of channels. And behaviour trends now appearing are quite different across the age-groups – with over 50's being more linear, while under three years old to mid-twenties moving towards becoming completely non-linear. This is important – the future belongs to those under twenty five years, especially in Thailand. It will probably be a mix of programming, perhaps social media[131] and a growing segment of self-generated content for upload to YT and TikTok. So could TV media use evolve, becoming an activity for creation of personal experiences, through the interactive channels, and so largely reject inactive passive watching of a pre-programmed schedule? One the questions this raises is how will advertising revenues – tied

[131] Pew Research as early as late 2022 identified a trend on social media in some countries of rejection, as it is suspected of manipulative tendencies, especially in the USA, with spread of false information online, Wilke, R., et al, (2022) Pew Research, Views of social media and its impacts on society, https://www.pewresearch.org/global/2022/12/06/views-of-social-media-and-its-impacts-on-society-in-advanced-economies-2022/

closely to linear TV and to on-demand content catalogues be affected? Could everything become catalogued - including the linear content?

That also affects three further viewing parameters that are strongly linked – concentration times, viewing/ participating choice and duration of viewing sessions. Attention spans for younger age groups may be low – even of the order of seconds. Thus duration of viewing sessions may be obsessional as wide choice allows obsessions. For instance cat videos have a high repetitive view rate. Increasingly, major content is made in series. All streaming providers know that obsessional binge-watching is a strong revenue generating, and growing, trend – one of the most popular series being the seven episodes of Harry Potter that can be watched over several days. A favorite in Japan now.

2.1.7 Gaming brings a specific sub-sector of the human interface evolution

Gaming is an important but specialised segment of the video media sector and is especially important for the streaming market as further video content driver with high value returns. It is already a significant contributor to Thai consumption of streamed content

There are changes in the market structure as the traditional console remains but newer players may turn to smart phones as interfaces. There is consolidation in the consoles market – as Microsoft may leave it, abandoning its 20 years of Xbox losses to Nintendo Switch and Sony PlayStation so the Japanese Consoles will be the only consumer console interface for streamed game playing. Microsoft and the major independents such as Epic Games will continue to offer software for networked gaming for single and multiple players, especially as Microsoft paid US$75 BN for Activision and needs to recoup on its investments.

Thus the remaining two major console makers are clearly well established and feel it is safe to cut staff and save on expenditure. Sony cut 900 staff in March 2024[132]. This implies a leading global market for the two Japanese dominators in consoles leaves open the question of software defined games players, with the web streaming advantages of using the smartphone as the gaming interface - and the smartTV as the display device when in the home.

[132] Lewis L., and Keohane,D.,(2024) Microsoft prepares to bow out of console wars, Financial Times, 06 March 2024

Hence the future of the gaming console may also lie in a move towards the smartphone, possibly also with a virtual reality sub-market, accessed through a headset with radio link to the smartphone (via Bluetooth today).

2.1.8 The Metaverse – Virtual Reality, Augmented Reality and Immersion with avatars

The promise of complete digital environments in three dimensions, using computer generated imaging, to move from the two dimensional world of LED display screens for PCs and smartphones has a long history, going back 40 years. The first stereoscopic virtual reality immersive headsets from suppliers such as W-Industries were seen in the 1980's to show new worlds in various early video games and specialist entertainment arcades. They also promoted VR amusement parks, such as an early attempt by Sega. VR was first aimed at the computer gaming industry and that is largely where is it has stayed today as a niche trend, with largest application being gaming (Statista 2024[133])

A variation on this is augmented reality in which a current scene is augmented with new digital image projections – for instance viewing of a beach through some form of AR headset or display device such as a smartphone, with a sudden appearance of a large sailing ship from centuries ago, or the sight of a major building in front of the viewer suddenly having dragons and fire appearing from the windows. This may be used in promotions and sales – for instance a shopper can try out different clothes in a virtual mirror or a new colour scheme, taps and fittings can be projected in a kitchen for showing what refitting will bring. Note that combining VR with AR is sometimes termed XR – eXtended Reality.

The aim of the VR suppliers such as Apple, with its new Apple Vision Pro 2024, is to produce a headset that can project any environment, often with sound effects, and perhaps with animated avatars- characters that the wearer can interact with. A VR application is a complex development challenge. Up to several million lines of code may be developed and tested to manage including the human interfaces with specialist hardware for wireless interfaces, the headsets' systems that include position and head tracking tools, with scene colours, textures, sounds and lighting, for multiple scenes and environments with characters and mobile objects, to produce 3-D realism via techniques such as ray-tracing for geometry, for multiple surfaces.

[133] Statista, , 2023, VR gaming content revenue 2019-2015

Facebook/Meta has invested considerable sums in this notion of the alternative imaginary universe, which its marketing has termed a 'Metaverse', even changing its company group name to 'Meta' in anticipation of a completely new consumer experience. The aim is to move to a 3D presence. That could be attractive for social media, with 3-dimensional video chats, also for a viewing immersion in a VR video feature and also for VR gaming. Meta has even invested in buying the Ray-Ban brand and corporation for some form of augmented vision device for general use, that adapts to light and distance of objects viewed.

Gaming headsets are based on very high resolution image display in wrap round format with motion sensors. This enables the viewer to move through a custom world with events, scenes, soundtracks and characters, projected on to the viewer's eyes over the short distance between the user's retina and the headset projectors.

Facebook/Meta has invested major research efforts at its Reality Labs over several years for this technical challenge, specifically for the Facebook Horizon VR platform for social media user interaction. But it has little real business to show for this and despite acquisitions such as the wireless headset leader, Oculus in 2014, with all the subsequent investments in content made for it at Oculus Studios for virtual worlds, and also its Ray-Ban AR collaboration. In 2021 Meta spent at least US$10 BN on its VR and AR and by Nov 2022 had spent over US$36BN between 2019 and 2022[134] but no major product or newly trending content has yet appeared, as it now switches major investment into its data centre infrastructure.

Most importantly, apart from the gaming segment, the audiovisual sector has not taken it up as a new content viewing trend with large investments in a completely different form of digital content as would be expected from the likes of Disney, Warner, Paramount, Universal, etc. Nor does Netflix seem interested as it appears to see VR as a precarious venture and prefers that others take that risk, although its participation in feature films, not just gaming has been broached several times.

Just why is this?

There are some subtle but major problems with AR/VR - the reality of what this technology brings means the presence of negative effects bring barriers to widespread take-up across the age-groups. Research by the UK Department for Business, Energy and Industrial Strategy in 2020

[134] Screenrant, Nov 2022, https://screenrant.com/meta-36 billion-metaverse-investment-metaverse-worth-it-is/

examined the existing research into the use of consumer VR systems. It noted that cybersickness appeared as an adverse effect of usage[135]. Recognised as a form of motion sickness, it was considered to perhaps induce physiological effects - disorientation with loss of spatial awareness, nausea and dizziness. Research also highlighted loss of balance with impaired hand-eye coordination, plus trouble focusing, with problems in depth perception, weakening reaction times and eye soreness were some short-term effects.

As VR and AR can be either a passive viewing or active reaction – and so require involvement with experiencing the situation, or else, in many games, the user may drive a vehicle, or wield arms for an active participation. However, the immersion in such worlds has had unforeseen side effects. As well as physiological impacts above, there have been cognitive, behavioural and social effects with implications for health and safety issues[136]. These may thus be a need to make use of various appropriate regulations and legal issues concerning health and safety.

However, regulators may have difficulties in understanding the risks of all such new technologies and need to quickly identify the dangers and so produce regulatory safety norms. VR/AR effects may be age-dependent so that children may require special measures[137]. VR environments may affect children more at a mental health level, as they are quite susceptible to suggestion, and so believe that characters such as avatars, really exist, and not just software animations, because children are often less able to distinguish between reality and fictional imitations and such images have far greater impact than 2D television. Moreover the users of VR headsets, have experienced headaches, eye strain, dizziness, and nausea after these immersive experiences.

Thus, due to these impacts on physical and mental safety, prolonged exposure to VR needs to be examined for these symptoms. They may be prompted by a physiological phenomenon in which the viewer's VR impression makes the eyes focus on objects, which in the scene, appear to be distant while they are projections from a display positioned just millimetres away from the viewer's eyes.

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[135] UK Government, Dept BEIS The safety of domestic virtual reality systems." 2020. GOV.UK. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/923616/safety-domestic-vr-systems.pdf.

[136] Kenwright, B (2019), IEEE Xplore, Virtual Reality: Ethical Challenges and Dangers, 14 January 2019

https://technologyandsociety.org/virtual-reality-ethical-challenges-and-dangers/

[137] J.O. Bailey and J.N. Bailenson , " Immersive virtual reality and the developing child ," in Cognitive Development in Digital Contexts. Elsevier , 2018 , pp. 181 –200

The French agency for Environmental and Occupational Health and Safety, ANSES issued a note on the effects of VR systems on human health in 2021 finding major negative impacts[138].

Are there any applications of AR/VR apart from games?

The main future applications for VR/AR could be in professional sectors although this is unclear - possible real applications could be in industrial applications including maintenance, especially for hazardous areas, training, promotions show casing, architecture, and industrial design for complex structures such as construction largest aircraft ships and submarines. The biggest market for VR/AR is gaming with a form of gaming, estimated at 17.6 BNUS$ globally while applications such as training seen as 4.1 BNUS$, industrial maintenance is 4.1BNUS$ and retail showcases is 2.7 BNUS$ for 2024[139].

Although sometimes forgotten in the bigger picture, the games culture is likely to expand with AR/VR for some specific segments of the population. So the future gaming console could become an even more important segment of the AR/VR market.

The possible next direction may be a simple expansion of use of smartphones as the processor for interfacing to a streaming platform for multi-player games, with a Bluetooth headset. This is just moving the smartphone further into the current games console market and expanding it, a classic move for suppliers such as Apple and Samsung with the Chinese frontrunners in smartphones.

Thus AR/VR is also being used in the audiovisual pre-production for TV and film process, as a tool for visualisation:-

- Pre- production for concepts on video and film
- Planning for sets, scenes, costumes and characters
- Gaming development that involves VR gaming headsets

[138] Impacts found from research include cybersickness, with nausea and vomiting, headaches and vision effects, also mental health impacts of detachment from surroundings, emotional risks, violence for some content-related disorders, neurological effects, impaired motor coordination and various other health effects.

ANSE, 2021, Opinion of the French agency for food environmental and occupational health & safety on the health effects associated with exposure to VR/AR technologies

https://www.anses.fr>en>system>files>AP2017SA0076EN.pdf

[139] Statista (2024) Investment in VR/AR globally , https://www.statista.com/statistics/1098345/worldwide-ar-vr-investment-use-case/

For its applications globally – the most widely used application is for gaming but it may be used in specialist applications, however with care over problems of immersive experiences:

- Architecture and interior design
- Industrial assembly
- Training for manufacturing
- Training for vehicle guidance – ground, air, sea, sub-sea
- Possibly in some medical procedures (limited)
- Museums for immersive exhibits

2.1.9 Impacts for AV of stochastic processing technology, often termed 'AI', for advances in the audiovisual sector and its business models

One novel step forward for production and post production is use of so-called 'AI' (artificial intelligence) technology. In the AV sector, this is largely based on pattern recognition using processing structures from the large language models (LLMs) that exploit generative pre-trained tensor (GPT) manipulation structures[140] for training, usually on some selection of real world data. This form of pattern recognition can be used for VFX (visual effects), also speech generation, sound and music editing and creation. Generally it is applied for two modes of operation – correction and creation. In the correction mode any parameter, be it lighting the whole scene, or in modifying the movement of a key character, or introducing further characters, with shadows, speech, background sounds can all form part of the VFX tools offered up by this form of pattern recognition technology.

Translation using pattern recognition processing for colloquial language expression

In the video production sector, 'AI' is a term most usually referring to a sophisticated pattern recognition processor, trained with large datasets for imagery, and/or for speech and other - sound effects. These datasets can introduce their own bias so the new specialist 'AI'-VFX studios (for instance Flawless in Los Angeles and London) now have to give guarantees on the data used for machine learning (also termed 'training') for recognition of a specific pattern. There are also rights issues on the creation of new material from existing material, concerning the ownership of images and of total visual and audio personalities. This is an area for major legal disputes over ownership of rights, as the Hollywood strike of creative writers and actors in 2023 shows, which froze new productions for almost a year in the USA.

[140] Bender, E. M. (2022) Stochastic Parrots and Large Language Models, ACM special issue

Many of the specialist tools are either built independently, by specialists in stochastic processing software, or are based on the framworks given by the generic large language models (LLMs) such as Chat GPT4. Both may use concentrated training cycles of machine learning (ML) with large databases of media content for such detailed areas of facial movements and expressions for databases for training the various configurations of neural networks for the GPT processors. These learning steps use reinforcement processes with selective algorithms to select the best match in many cycles of processing, requiring high power parallel processing, usually hosted in specialist data centres, in a linked grouping, loosely termed the cloud. The technology is based on advances over the last three decades in five main areas:-

- Voice recognition and reproduction, for new utterances
- Facial expression and lip movement formation in the chosen laguage
- The AI and lipsynch modelling drive
- Multiple language translation models
- Grid computing technology with virtualisation

The main impacts long term may tend to be on the business models in the post-production phase which may be strongly affected as the cost of producing convincing multiple language versions can be enormously reduced. The key is the combination of using voice recognition technology, with translation models of colloquial language's sentence structures, in the target production for whatever country the translated version is destined for.

Business model impacts for the AV sector will be based on the major savings possible because films can now be produced far more widely and then exported in different languages. Local production costs may be far lower outside the traditional studios. However that depends on whether the production and post-production quality is at international standards, for everything from script to actors down to details of lighting. Note that just over the last two years the USA majors have found that France now has uprated its production and post-production techniques so much of that it is at the level of the USA but much cheaper. Consequently, Hollywood major titles may be in final production and post-production in French studios.

2.1.10 New invaders from space – the LEO option enters Thailand

Arrival of constellations of communications satellites in low earth orbits (LEOs, at 250- 3000 km) are already challenging the existing geostationary television satellites placed in orbit since the early 1960s, such as Telstar (with orbits of 36,000 km and above) for fixed satellite services (FSS).

LEO systems offer major advantages over their Geosat predecessors. Principally, the advantages of LEO are:-

- The low orbit means higher data speeds with a focus on each customer by a dedicated beam
- LEO systems can offer global coverage that is interactive for TV audiences rather than the normal downlink only of geosatellites – the basis of SVOD
- LEOs offer far less communications delay, or latency, for the interactive dialogues to provide mobile broadband coverage globally
- Costs are comparable to Geosatellite per consumer for ground equipment and may be less in the future.

The orbital position is essential for reliable and safe communications of multiple passing small satellites. The leading constellation, Starlink has launched 5000 microsatellites and aims for 7000 in 2024 and over 12,000 perhaps in 2025. Satellites are ranged in three tiers of orbital shells[141].

LEO systems are being proposed from several providers with the Starlink system from SpaceX leading in deployments since 2019 – some 5 years of operation. It eventually expects a constellation of possibly 12000 microsatellites. Looking at the LEO market today, only Starlink is active and is available in around 70 countries with mobile broadband service to the customer ground antenna and transceiver. For a passing duration per satellite aimed to be 5- to 15 minutes with repeated appearance 6 to 8 times per day. That implies that the system management software must be capable of session handover to maintain a streaming continuity that may last many hours, be it for a Netflix film or for a social media conversation with shred content, or an interactive multiplayer gaming session. The capacity of the LEO network varies with the number of micro-satellites and their individual capacity to build a collective throughput globally of 10-50 Tbps. Other competing LEO providers today are Kuiper, from Amazon founder Jeff Bezos which is also in the running, as is One Web, yet to deploy and others yet to finalise their plans such as a Canadian consortium.

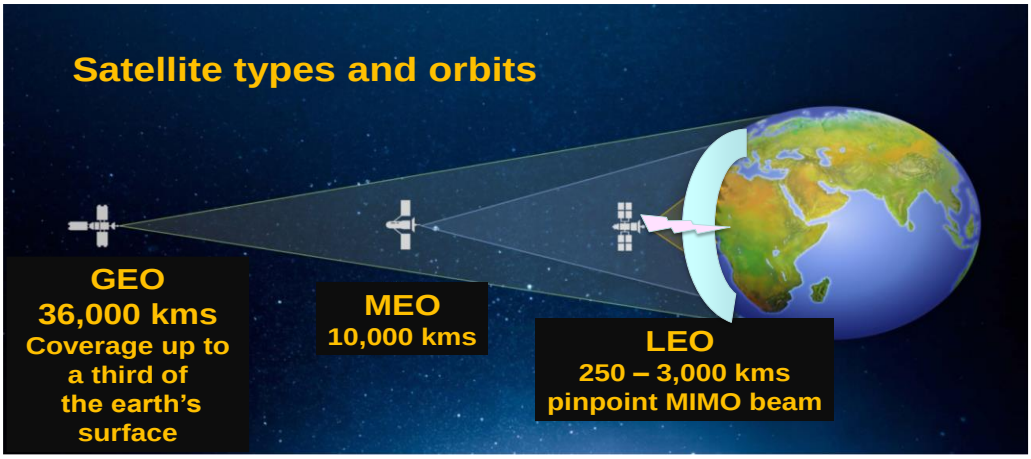
Data beaming for TV over a wide area of the earth's surface forms a major segment of the FSS market, so that geosats until recently were foremost in distribution of broadcast content.

[141] Shkkelzen Cakai, 2023, The paramters comparison of the Starlink LEO satellites constellation for different orbital shells. https://www.academia.edu/74812964/The_Parameters_Comparison_of_the_Starlink_Leo_Satellites_Constellation_for_Different_Orbital_Shells

However to advance to interactivity for selecting on-demand content, video distribution goes online, over the Web. So cost justifications for geosatellites are more difficult to defend, at over US$ 200 MN per unit for a new satellite, (and up to US$ 2BN) and thus extension of the existing units' lifespan is more likely. Geostationary satellite frequencies have major limits in frequency choices for satisfactory signal quality in areas with high rainfall, as in ASEAN countries.

The LEOs use beamforming antenna (multiple Input/ multiple output arrays, or MIMO) for interactive broadband links to users' ground transceivers, carrying multiple web channels for the many OTT services, which include SVOD as the LEO model provides interactive broadband. The orbital difference between the LEO satellites and the current generation of Geostationary satellites is shown with their orbits and coverage below.

Figure 2-2 Geosats cover the earth's surface but LEOs use pinpoint beams



Source: del Portillo, Cameron, Crawley , 2019, with additions

But LEO constellations of thousands of microsatellites also present an industry conflict in use of satellite spectrum bands. The quadrennial ITU World Radiocommunications Conference (WRC) in Dubai in November 2023 showed the rivalry over spectrum for satellites from the geosatellite community (specifically the Ka and Ku bands, (12-18 GHz and 26.5-40 GHz, respectively) that both types of satellites wish to use.

LEO constellation operators need to use concentrated higher power levels than the traditional geostationary broadcast satellites for each beam, but with a narrow coverage area as the receiving aerial on the home has a surface area of 100Cm2. Various countries at the Dubai meeting objected to LEO entrants, citing their investments in geo-orbit TV satellites – specifically Indonesia, Japan, Brazil, as well as the USA geosats operators such as Viasat, Hughes, of the USA

and Intelsat The WRC vote decided research studies on higher power would be permitted although proposals to make ITU rules changes for LEOs in the 2027 WRC meeting were defeated[142].

Thus current ITU rules, some of which date from around 2000 and earlier, may need updating but the discussion is between the richest investors (Space-X/Starlink) with Amazon's Project Kuiper, against the established operators of Geosats, now aiming for higher data rates – for instance 1 Tbps from Viasat[143]. The tests should reveal the interference impacts of concentrated directional beams in large volume and power against a more diffused TV broadcast spread over a coverage area that may be the size of India, Africa, the EU or the USA.

Just the potential introduction of LEO systems has also affected the geostationary orbit satellite market that has been negatively affected in terms of new ventures and investments since 2022 [ibid, Harebuttle, Adrienne, (2022)]. However the geostationary satellite suppliers have demonstrated interworking between GEO and LEO satellites. Moreover these LEO constellations still face problems of obtaining rights to use the Ka and Ku bands, launch costs, and perfection of the technology for global coverage as well fixing the price point to be low enough for mass take-up in lower income countries which already have low cost alternatives for linear DTT and Geosat broadcast services.

The real impacts of LEOs in large constellations of many thousands for global scale use are yet to be realised in practical robust, reliable technology. Note that they could offer an alternative broadband path at much lower cost to the home than fibre optics., That could undermine the distribution business models of the major streamers if they are tied to fibre CDNs and then local network operators with fibre networks and their costs. The LEO operators are quite aware that they can build and operate global and long distance networks entirely across space and perhaps use several GEOSATs as in-space hubs for global distribution to lower orbit LEOs within their coverage areas. That would provide a new set of physical streaming channels. For a country such as Thailand it presents a possible future scenario and would require careful consideration for a country where currently over 60% of broadcast TV is over GEOSAT downlinks[144]. Naturally the LEO systems could carry the free-to air satellite services and linear TV programming just as well as the current Geosat and DTT networks.

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[142] Hollinger, Peggy, 2024, *New Star Wars over satellite space*, Financial Times 04 Jan 2024

[143] Harebuttle, Adrienne, (2022) , GEO 2.0: The future of geostationary orbits, Interactive Satellite Today, 27June 2022

[144] Statista 2023

In examining the future impacts globally it is well to note that the key parameter for the LEO satellite business model is the cost per kilogram to place and position a microsatellite in orbit. The current LEO costs are based on using traditional technology using single and multistage rockets without reliable probabilities of reuse. Other launch technologies such as HOTOL (Horizontal operation for take-off and landing) use bifunctional motors, capable of switching forms of aspiration for the lower atmosphere and then for upper atmosphere and space. This technology has been estimated to cut the cost of launch substantially and the risk of overall failure considerably, by means of runway landings for re-useable vehicles. That could reduce LEO capital costs and thus the premium tariffs for consumers. New competitors may move to this kind of systems for lower costs, important for global take-up.

2.1.11 Impacts of LEOs on spectrum demand in a Thai situation

The introduction of LEO constellations will have a further side-effect on TV broadcast competition in that it may impact the Thai audiovisual market, through the demand for spectrum. Over 60% of current Thai TV viewers have satellite TV from Geostationary satellites, due to the large proportion of the population in rural and remote areas only recently covered by some forms of FBB or broadband mobile[145].

LEO satellites can use various bands and commonly are using Ku and Ka bands for Geosats by simply taking the initiative. The sharing issue is by no means resolved as it continues in the ITU for a number of cycles of the WRCs (World Radio Conferences, every four years) with some intermediate discussions. In principal, LEO use highly focussed beams with a small (less than 3 metre footprint) and a weak power uplink to the tracked passing satellite so interference is less likely although tests still need to be completed. However, LEOs could also move into the C-band currently being positioned, at its low end for 5G around 3.6GHz, which could perhaps have also have some impact on other existing satellite services.

2.1.12 5G Broadcast – mobile broadcast for 5G

What is 5G Broadcast?

This novel technology is based on 5G smartphones and tablets being able to receive TV broadcast video signals specifically designed for them at the same time as the broadcaster is

[145] Nielson, 2024

transmitting its normal TV signals to its home TV audience[146]. It may use a TDM (time division) protocol for this. The technology has been really only available since 2022 when the extension to the 5G 3GPP standard (Release 17, ETSI TS103 720 technical) and most recently accepted by ITU-R where it is defined as a worldwide standard within the ultra-high frequency (UHF) band. But today it is difficult to see if it will really take-off. It is endorsed by the ITU and the EBU in Europe. It could be used in Thailand if the major two MNOs decide to support it as it requires an upgraded handset with appropriate chipset.

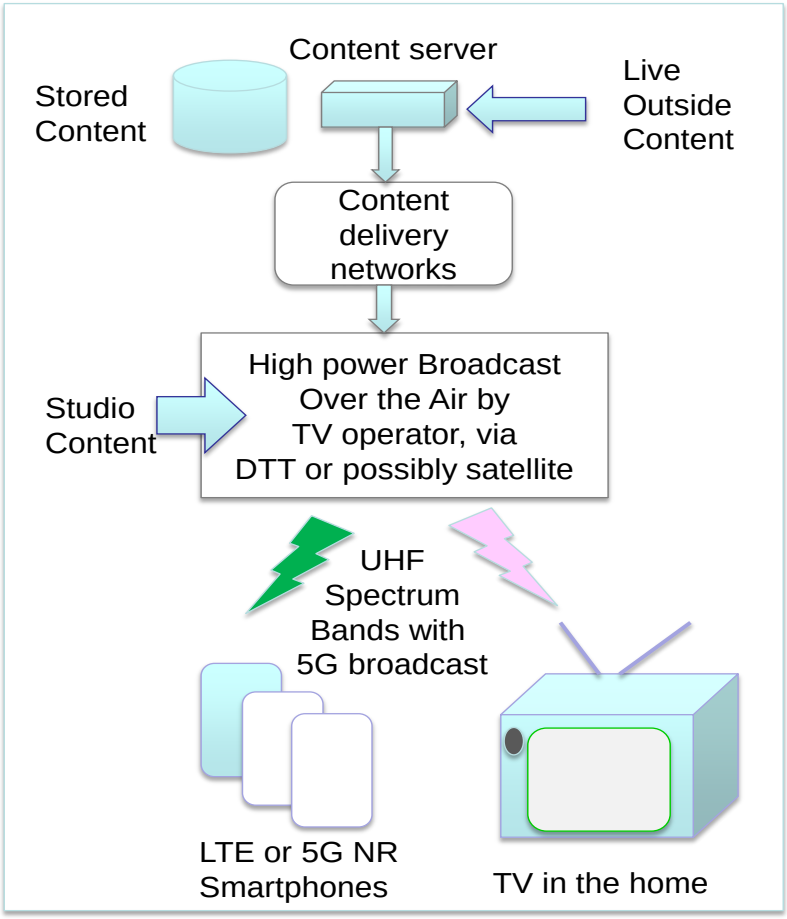
Who is 5G Broadcast aimed at?

It is really for TV broadcasters, to offer them a digital broadcast channel for 5G devices, on the move. The technology is designed to target the traditional broadcasters specifically with a broadcast network infrastructure and UHF broadcast spectrum assets. In September 2023, 3GPP updated the specifications to add support for the broadcast bands in the USA of 612- 652MHz and also 470-698MHz for the downlink only mode it uses.

Note that a key lesson for success, from the past attempts at a mobile broadcast system is that all depends on the level of support for the new technology in terms of integration into smartphone devices, to form a critical mass of users. That is why it may be aimed at LTE as much as 5G - as take-up is far more important than technology, as 5G MNOs have learned. Thus it may be attractive as a broadcast technology for consumers, as much as for broadcasters and the wider ecosystem. It is already attractive to the smartphone manufacturers, the OEMs, as it could churn the market for them and/or sell add-on software apps and hardware. It is also ideal for the mobile operators (the MNOs) as it provides an alternative to sending a video programme to each user (unicast mode) which saturates the mobile network and costs consumers dearly on their GBytes consumption plan, especially for live events. The dynamic offload of video to 5G Broadcast may offer higher quality images. The GEO and MEO satellite industry is also interested in the broadcast 5G possibilities.

[146] Overview on the evolution of 5G Broadcast within 3GPP, see Broadcast, multicast technologies, Dongwook Kim, 3GPP MCC, https://www.3gpp.org/technologies/broadcast-multicast1

Figure 2-3 5G broadcast chain for the Multimedia Broadcast Multicast Services (MBMS)



In 2023, there were over 17 demonstration trials globally of broadcast 5G including in China, USA, Germany, France, Spain, Italy, Austria, Estonia and Czech Republic. Note that the broadcast to mobile smartphone channel can also be used for emergency alerts for public safety emergencies and disasters – such as earthquakes, flooding, etc. However as noted above, the 5G smartphone must be equipped with the chipset for the TDM 5G handset broadcast channel and that upgrade may not be in today's typically available smartphone. That allows direct FTA transmissions from DTT transmitter fitted with the TDM signal processor to emit signal for TV and mobile handsets, so that the cellular mobile network is bypassed and no data streaming charges are paid by the mobile user.

2.1.13 In conclusion – global technology impacts on Thai industry and regulation

These technology trends brings challenges but also opportunities for many – not just competition for the linear programming of the TV broadcasters - but an expansion of the Thai media sector as a whole as such developments introduce both intense competition and opportunities for new media business by Thai audiovisual creatives at a global level.

This is a major turning point as the new broadband streaming technologies offer interactivity – the key added value of the broadband technologies which is to bring a potentially much wider range of choice of content to all consumers and so enable viewers to see just what they wish to watch.

Many technologies are still nascent and we can expect they may not have full effects for at least 2 to 5 years – especially for LEOs but others may have near-term impacts, for instance applications of pattern recognition or 'AI' in film production at low cost, possibly 5G Broadcast.

The challenges mean the NBTC must have the capability to understand the trends in technology in the audiovisual market and especially for the TV broadcasters with the new challenges they bring. One specific interesting but difficult technology is the appearance of production techniques using applied pattern recognition ('AI') tools which enable false images, characters and dialogue to be created far more easily, fuelling the trade in illegal and faked content. It implies the extension from copies of existing media properties to creation of new items with the imprint of a known movie or TV star, or production house, with possibilities ranging from extra cartoon episodes to the extreme of complete new films featuring an apparently international star cast.

For the NBTC, these developments open the door to new technology areas, and to understanding of their impacts on media business models. But that also requires expansion of the NBTC coverage of the sector, levels of understanding and sector involvement for enhanced audiovisual market supervision. That requires training in the technologies with the new problems they bring, demanding additional recruitment, equipment, databases and research.

Note that Ofcom in the UK has just had to recruit over 300 new staff for streaming mediator roles, checking on harmful content, especially in the case of minors, and assuring prompth, suitable and adequate responses with following monitoring by the major inline platforms. These moderators have been recruited from those in the same roles in the major platforms who see the NRA as offering a far more useful and worthwhile position.

2.1.14 Final Summary on selected key points from this chapter

The requirements for a recap of key points is given here – with preparation of a summary table for the technology dimension, divided into:

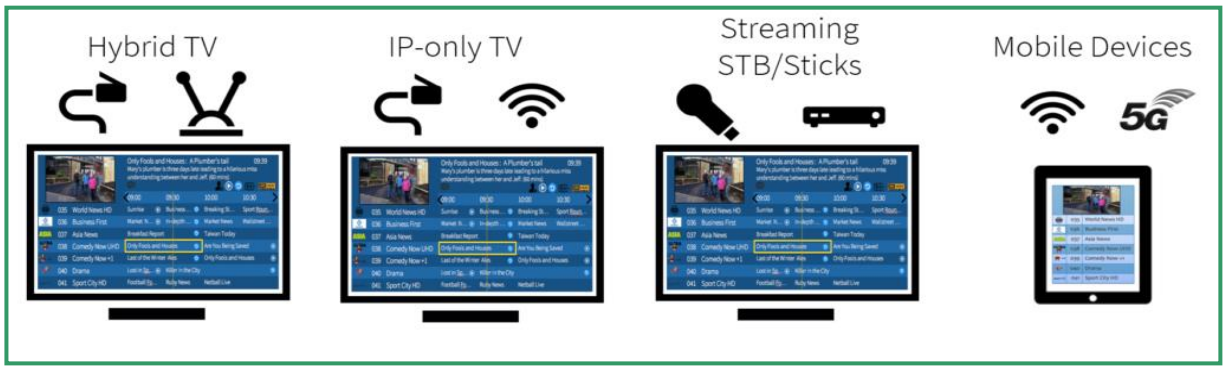
A Infrastructure/transmission, including at least DVB-I, 5G broadcast, LEO technology
B Technologies for content Production

Following the detail of the new technologies entering the audiovisual industry over the next five years we offer a brief tour of some of the main participants.

1) Digital Video Broadcasting – Internet DVB-I

Turning televisions into Internet devices with a TV operating system is an expanding market, most often using a standard and set of protocols termed DVB-I or Digital Video Broadcasting – Internet. With several possible configurations, it has been designed to ensure that linear television delivered over the Internet is comparable or better than, a traditional broadcast:-

Figure 2-4 Forms of DVB-I combine an IP connection with a TV display to view broadcast over IP



Source: ETSI DVB-I, 2022 and DVB-I, Geneva, 2024

DVB-I enables linear television services to be delivered to any device with a suitable internet connection, thus for media players such as ‘smart’ TV sets, 5G smartphones, 5G tablets and any other media streaming device.

The Internet based display for linear television services is aimed at viewers who may only have access to the internet, to watch TV broadcast services available on the standard broadcast platforms – DTT, CATV or geosatellite. In the EU, the DVB-I norm is published as an open standard by ETSI, the telecommunications standards organisation, with the specification Service Discovery and Programme Metadata for DVB-I. It provides an Internet-centric environment to find and display TV channels, whether over IP networks or traditional broadcast networks, presented on a common display.

The TV interface to the Internet needs an operating system (OS) to manage the protocols and their display. Currently there are many OS available either embedded in the TV (eg Apple, Samsung, Hi Sense, LG) or in an external set top box (STB) such as Roku, or even just on a memory stick plugged into the TV. Some OS use public standards, some are proprietary.

2) 5G Broadcast – mobile broadcast for 5G

Just what is 5G Broadcast? This novel technology is based on 5G smartphones and tablets being able to receive TV broadcast video signals specifically designed for them at the same time as the broadcaster is transmitting its normal TV signals to its home TV audience[147]. It may use a TDM (time division) protocol for this with one slot for each target audience (standard TV and 5G). The technology has been really only available since 2023 when the extension to the 5G 3GPP standard (Release 17, ETSI TS103 720 technical)[148] and most recently accepted by ITU-R where it is defined as a worldwide standard within the ultra-high frequency (UHF) band[149]. But today it is difficult to see if it will really take-off. It is endorsed by the ITU and the EBU in Europe. It requires coexistence at the RF Level – with TDM (Time Division Multiplexing) with interworking at the Service Layer – DVB-I over 5G[150].

Who is 5G Broadcast aimed at? For the TV broadcasters, it offers a digital broadcast channel for 5G devices, on the move. The technology is designed to target the traditional broadcasters specifically with a broadcast network infrastructure and UHF broadcast spectrum assets. In September 2023, 3GPP updated the specifications to add support for the broadcast bands in the USA of 612- 652MHz and also 470-698MHz for the downlink only mode it uses.

Note that a key lesson for success, from the past attempts at a mobile broadcast system is that all depends on the level of support for the new technology in terms of integration into smartphone devices, to form a critical mass of users.

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[147] Overview on the evolution of 5G Broadcast within 3GPP, see Broadcast, multicast technologies, Dongwook Kim, 3GPP MCC, https://www.3gpp.org/technologies/broadcast-multicast1

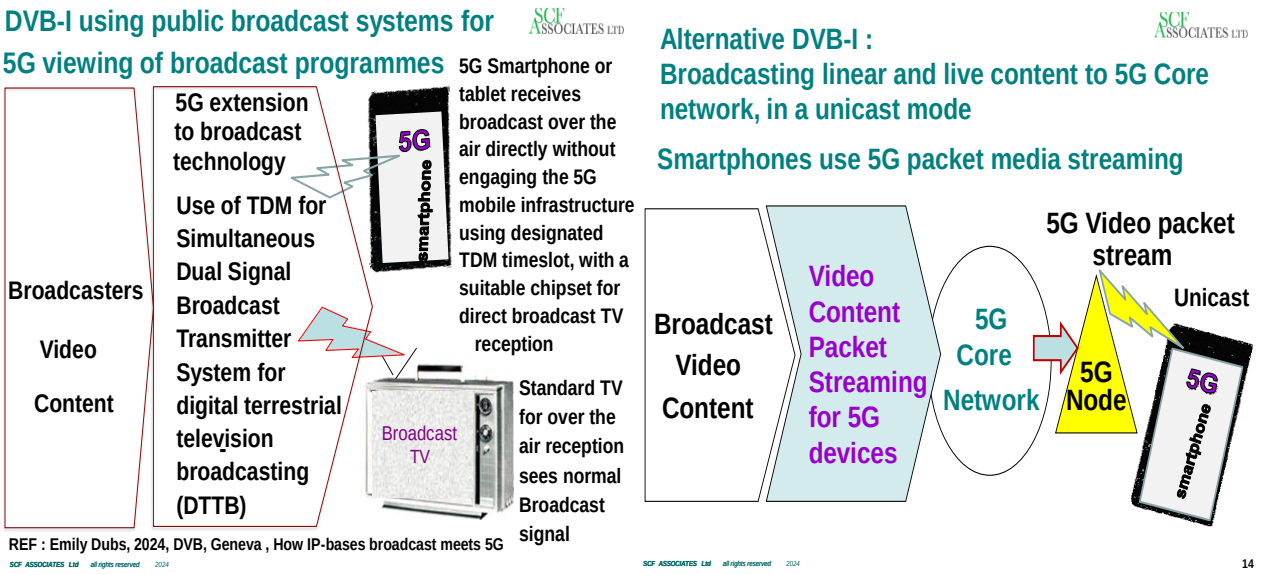
[148] ETSI, 2023, https://cdn.standards.iteh.ai/samples/64260/5c1cdbb8447144b1818adb1c2005c9fb/ETSI-TS-103-720-V1-2-1-2023-06-.pdf

[149] ITU- R international standards,

https://www.itu.int/dms_ties/itu-r/md/19/wp6a/c/R19-WP6A-C-0417!H1-N3!MSW-E.docx

[150] Dubs, Emily,(2024), How IP-bases broadcast meets 5G, DVB, Geneva

Figure 2-5 5G broadcast chains for the Multimedia Broadcast Multicast Services (MBMS)



The 5G standards from 3GPP now include a capability for video broadcast transmission that can be mixed with the other sessions. In the latest releases of the 5G standards, from 2021 onwards, this has been exploited in supplying broadcast content as 5G packets for transmission to individual 5G devices for viewing broadcast content – programmed linear content or live events especially sports such as tennis, which can commanded premium fees.

In 2023, there were over 17 demonstration trials globally of broadcast 5G including in China, USA, Germany, France, Spain, Italy, Austria, Estonia and Czech Republic. Note that the broadcast to mobile smartphone channel can also be used for emergency alerts for public safety emergencies and disasters – such as earthquakes, flooding, etc.

3) LEO – the future possible broadband connection for IP video traffic

Arrival of constellations of communications satellites in low earth orbits (LEOs, at 250 - 3000 km) are already challenging the existing geostationary television satellites (with orbits of 36,000 km and above) for fixed satellite services (FSS). In 10 years time there may be at least 10 LEO satellite operators, each having from 4,000 to well over 20,000 satellites in their constellations, so some 200,000 to 300,000 LEO satellites may be in orbits, most below 300Km. The most relevant for the audiovisual industry will be those offering capillary networks for a 2-way link to each user be that a fixed ground transceiver or a mobile smartphone, probably over a K-band spectrum link.

LEO systems offer major advantages over their Geosat predecessors. Principally, the low orbit means higher data speeds by a focus on each customer, and also LEOs offer far less communications delay, or latency, for interactive dialogues to provide mobile broadband coverage

globally. That orbit position is essential for reliable and safe communications of multiple passing small satellites. The leading constellation, Starlink has launched 5000 microsatellites and aims for 7000 in 2024 and eventually over 12,000. Starlink satellites are organised in three tiers of orbital shells[151].

Using their own uplink centres for LEOs offering video content connectivity to viewers, today's Geosatellites and DTT TV broadcasters could use the LEO networks

A second class of LEO constellations will offer in-space long distance trunk networks, with very high bandwidth, usually with optical beams, not with radio technology. The latter will interlink with the radio networks offering broadband communications for metropolitan and rural video audiences. In total, can form a global long distance network, in which radio spectrum issues would be absent and transmission costs could be very low, perhaps near-zero, and without distance dependence.

4) Geosatellite – and the next satellite world

Geosatellites are due to be challenged by new satellite offers such as LEOs. However it may be that they will interwork with LEO constellations in the future through in-space communications for both setting up links and transferring video content. Negotiations between the geosatellite operators with the manufacturers and the LEO satellite operators have been under way and some early test projects – for instance for earth conditions monitoring have been performed. The spectrum battle is centred on the power to be used (Equivalent Power Flux Density, EPFD) set by the ITU in the last World Radio Conference, (2023) to be agreed but not before 2027.

For the move by 5G operators into the C-band (usually between 3.6 and 4.4 GHz but limits may differ) new geosatellites may be necessary, as SES in the USA has already ordered and placed in orbit in 2023, for the USA. The LEO entry has stalled the geosatellites market this year, with just three new geosatellites. Probably agreements for co-existence and co-working on spectrum and power levels will be reached but perhaps not before WRC-2027 or WRC-2031, which leaves time for TV broadcasters to evaluate the satellite options. The appendices also consider this question for specific NBTC questions, at the end of the document.

[151] Shkkelzen Cakai, 2023, The parameters comparison of the Starlink LEO satellites constellation for different orbital shells. https://www.academia.edu/74812964/The_Parameters_Comparison_of_the_Starlink_Leo_Satellites_Constellation_for_Different_Orbital_Shells

5) Impacts For DTT – what happens next

The DTT Digital terrestrial television broadcasters may continue with suitable additional delivery systems for the major PBS sources of free to air content such as BVOD. DTT multiplexes will depend for frequencies on NBTC licences. Generally the technology for DTT multiplexes is moving globally to better spectrum efficiencies. At a certain point greater spectrum efficiencies could appealing enough to install new frequencies, releasing extra capacity to MNOs to generate another 'digital dividend'. However the consumer segment would have to be compensated for new DTT spectrum packages that require a new TV interface – perhaps in a Set-Top Box (STB) and perhaps also a new antenna.

The basic problem of the streaming challenge, as always, is the same – the quality of the broadcast content compared to new platforms for OTT streaming and the advertising attracted, in volume of ads and price/second, as DTT may have a price advantage over some OTT platforms.

. However both the FTA broadcasts (satellite and DTT) with the BVOD streaming of the simulcast content, could increase demand and advertising revenues. However, the on demand feature of streaming increases the pressures for content with two attributes perhaps not seen often enough before in the broadcast domain – high quality with originality and newness. The appendices also consider this in terms of future DTT auctions and specific NBTC questions

6) Content production, with techniques that apply VFX AI, AR, VR

Here we summarise the requirements that the technologies must have in order to be able to be able to be use the said technology in practice, including lessons learned from such use.

The content industry is using what it terms as artificial intelligence in post-production areas, as an extension of what it already does, based on pattern recognition techniques, often taken from the machine learning processes used for large language models.

Major areas of post-production that AI is already being applied to include localisation and visual effects (VFX):-

- Changing languages, with accents for region, class etc as required
- Adding crowd simulations, actions and events creation
- Facial animation and speech appearance - lip synching, with facial expressions in different languages for localisation
- Localisation of typical dialogue for the scene circumstances
- Character creation and animation

- Special visual, sound and lighting, effects- rendering, rotoscoping, lighting, textures
- Specific cultural framing and detection of anomalies, for each export country
- Also pre–production - pre-visualisation, story boarding – to test concepts
- Optimising workflows and mundane task automation

Note that the AI techniques used may be on relatively small internal servers using gaming and graphics chips (from Nvidia and others) but are also reliant for some tasks on large cloud-based AI systems (especially for general AI systems of the form of Chat-GPT). But specialised postproduction suites are most often considered proprietary and internal only. These AI production tools are unlikely to be available for hire. In this situation, the major players have built their own suites.

In this situation, a start-up Thai AI pre- and post-production VFX provider needing AI tools would have to recruit a development team or subcontract a development programme to a specialist software and systems developer. Note that competition in each centre of pre- and post-production with AI is intense, partly the reason for the Hollywood strikes in 2023.

The large data centres for hosting large AI applications are likely to be available in Thailand and AIS (with Microsoft) is building more. Certainly adjacent countries such as Malaysia with Singapore can also offer such cloud services. The competition is fairly intense. Many specialist AI VFX companies are appearing – MARZ in Hollywood, Weta in New Zealand, ILM (Lucas) USA, MPC, Method Studios, Cinesite and Framestore with more advanced techniques from various players such as Flawless. . However, specialist AI effects companies may have very high valuations. For example, with special effects for films and games, the advanced visual AI effects company DNEG in London is valued at US$2BN, following its work on “Dune Part Two”. Such companies are expanding globally (for DNEG, offices are now in UK, India, USA, Canada) and it also has an AI technology business, Brahma.

it necessary to understand that the more generalised major AI suites have very high power demands – over the last few years with its AI investments, Google’s power demands (and emissions) in expanding its data centres[152], have doubled. This neeeds to be considered for local Thai data centres as demand from the AV industry mounts.

AR uses – are still unclear in that it mixes a persistent reality with an augmented set.

[152] Hodgson, C. ,Google carbon emissions rise, Financial Times 03 July 2024

Augmented reality has some applications in mixing a real scene – such as a new house that is empty and then - visualising a specific decoration and furnished environment that is projected on the living space, or in fairs and games halls, adding a live scene – such as dragons emerging through the windows from a building, to amuse a play area.

VR uses – really gaming – a very large market

Over some thirty years, every year since 1988, projections of the VR market have been optimistic. VR (and AR) has not taken off more generally, as expected, except in gaming where VR is often seen as the next standard feature. There are several physical problems – nausea, disorientation and rejection by many users who find the AR/VR experience too disconcerting with longer term physical side effects of motion sickness and loss of balance.

The key market seems still to be only gaming.

Moreover, the relatively - enormous costs of the headsets – Apple' s new headset (vision Pro) starts at around US$ 3500 – are a major barrier.

However, regulators may have difficulties in understanding the risks of all such new technologies and need to quickly identify the dangers and so produce regulatory safety norms. VR/AR effects may be age-dependent so that children may require special measures[153].

Also VR environments may affect children more, as they are quite susceptible to suggestion, and so believe that characters such as avatars are rea as they are less able to distinguish between reality and fictional imitations and such images have far greater impact than 2D television.

[153] J.O. Bailey and J.N. Bailenson , " Immersive virtual reality and the developing child ," in Cognitive Development in Digital Contexts. Elsevier , 2018 , pp. 181 –200

2.2 Business Model Analysis for the streaming industry and the platform economy in the audiovisual industry

2.2.1 A brief overview of the situation

As the television industry seizes the Web and adopts streaming for online video, it is effectively becoming a key element in the digital economy. The change in the TV industry globally towards streaming for video on demand (VOD) over the Internet/WWW (World Wide Web) and away from over-the-air broadcasting by DTT, geosatellites and CATV is occurring everywhere, due to new business models based on recent broadband technologies. This is the key advance - two-way, interactive modes for non-linear viewing. Thus the majors such as Netflix and the GAFAM platforms are acting as a global disruptive force for the national broadcast television industry. Their invasion almost demands whether the TV broadcasters just step aside or embrace the inflow of global content over the Web and its digital infrastructure.

In the EU and USA, Cable and satellite pay-TV services first offered premium content via interactive channels for VOD , with pay per view (PPV) or TVOD in countries such as France, with CANAL+ before broadband streaming which was developed, as the broadband public networks are still being rolled out in may countries.

In the cable TV case, by using switched star architectures over coaxial or fibre optic bearers as early as the 1980s[154]. Moving away from the subscription model came with this, especially pay per view (PPV) for premium content such as sports events, which the streaming platforms have followed as normal practice. But the streamers have instituted simpler contracts than previous pay-TV for satellite and CATV TV by subscription. The ideal for Netflix and most others is that the broadband connectivity is unbundled from the streaming service, so it can be sold alone. This is a normal broadband contract, although the broadband provider will often bundle SVOD with the connection fee but with some form of discount. This is the case of AIS Fibre as an operator offering content, from Netflix, for instance, in Thailand.

Similarly, streaming has followed commercial over-the-air TV with moves into advertising support, for video on demand (AVOD). While the pay-TV operators in cable and satellite (such as

[154] Forge. S., (1984) Cablevision- the Other Services, Futures pp520-532, Vol 16, 01 Oct., also Tydeman J and Kelm EJ (1986) New Media in Europe: Satellites, Cable, VCRs and Videotext. London: McGraw-Hill.,

Sky in Europe) operators traditionally use subscriptions, for access via set top box, the streamers have an alternative and highly persuasive model.

This is the concept of offering a catalogue of many thousands of titles for a fixed fee so that the cost per item is far lower than the pay-TV price. The business model that enables this is a content library and delivery channel in which the marginal cost of each extra viewing is minimised by the write-off of many of the costs over a larger national, or preferably, global audience. The search for size of audiences is dramatically changed by having an international base, meaning the largest streamers have an advantage of non-linear increase over smaller operators in cost savings and new sales. Following the Dupuit curve effect[155] this drives demand into new Size is also obviously important for advertising, with the AVOD model. Additionally note that the PPV model from cable and satellite operators is the forerunner of the streamers' transactional model (TVOD, transaction video on demand). Within AVOD and SVOD contracts, TVOD may be as option, used for major live events such as Olympics.

A second business model element is cross-subsidisation. By using the global broadband network as delivery mechanism with CDNs, the network effects of the more the viewers the higher the value of the streaming network come into play in two effects. The first is simple, straightforward promotion – the reputation for being always present and all-selling – a powerful advantage. The Netflix case is an example that benefits from this. The second is cross subsidisation, of the more expensive deliverables being subsidised by cheaper transactions due to scale, which requires volume production to be effective. Here the largest global platforms profit most – streaming has a scale driven profitability.

These new television business models of distribution are based in the web technology of streaming platforms – and although the basic streaming and distribution technology may be similar, at a business model level there are four main differences among the streaming business models:

- How platforms generate profit from their content – there are several core approaches such use of advertising (AVOD), or higher subscription with no advertising (SVOD), or transactional models (TVOD), as a form of pay per view.
- Such revenue models are augmented by the 'currencies' used by the major platforms for instance free services (such as search) may be financed by collection of customer

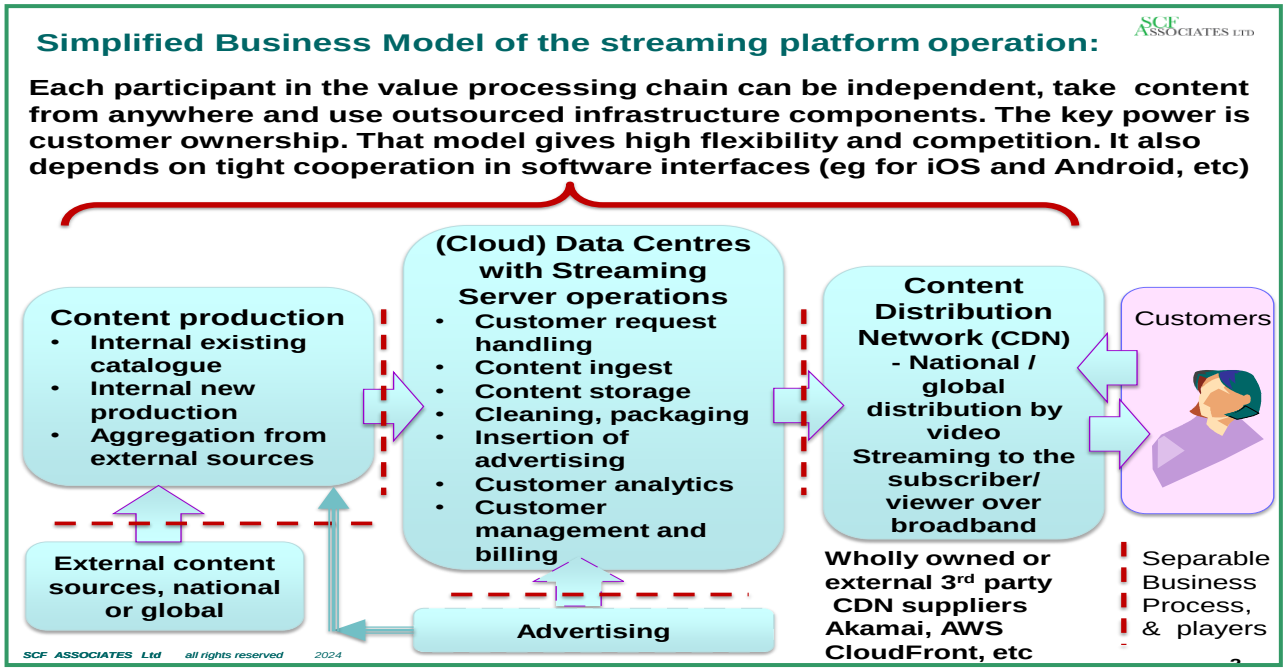
[155] Dupuit.,J (1840), Demand curves for the pricing of public services, wth early theory of marginal cost pricing

data for profiling and push advertising, sometimes surreptitiously. That feeds customer-data broking in a 2-sided market using competitive auctions, as Google does.

- Scales of streaming operations - which dictate how much is internalised and how much outsourced in processing and distribution. Few streamers own hyperscalar data centres, globally (but Amazon does with AWS) – a simple make of buy decision governs this
- The supply-chain structure for content gathering, with its linkages, and again what is owned and what is outsourced in an increasingly global market, bringing major opportunities for content exports from any country. These options are extended by the current focus on end user generated content.

A generic business model outline, with elements across all classes of streamer is shown below:-

Figure 2-6 Streaming business model with the major business processes and infrastructure



Source: SCF Associates Ltd

2.2.2 The streaming business model considers streamers as platforms

Streaming platforms depend on infrastructures which combine data centres, usually in a 'cloud' formation, and video streams over content distribution networks (CDNs) into a broadband delivery infrastructure, to gather content and deliver it. That introduces funding questions and therefore market power questions of - scaling the infrastructure to meet demand. As the diagram above emphasises, the streaming business model can be flexible in offloading scaling problems to

outsourced network providers. This provides a market structure dictated by size of streaming operator.

The largest platforms (those in the GAFAM group) are now global Web conglomerates, in many business sectors, giants that leverage their cloud infrastructure across multiple services and platforms which, together, to form an end to end digital ecosystem. So the streaming platforms are just one business system in their conglomerate's set of businesses. These all profit from reuse of the main platform's fundamental business systems – customer interaction systems, customer databases with analytics and profiling, billing systems, payments systems, app stores, etc. Streaming is a content processing flow sitting on top of the major business support systems (BSS) and the physical assets infrastructure linked into an operational support system (OSS) – the datacentres for distributed grid ('cloud') operation and global broadband networks that host content distribution networks with support such as cybersecurity. This strong focus on profits from a new and successful genre has led to extremes of competition in what in the USA has been called the "streaming wars".

In understanding the business models further, the impacts of scale are key factor. The streaming sector is divided by scale into at least two main groups.

The most successful new entrants are the largest players, members of the GAFAM group. A mix of the five main Hollywood studios with some streamers from China, such as TikTok, Viu and WeTV, plus the Japanese players such as Sony combining films and gaming, form the lesser streaming players group. But there is one major outlier globally, Netflix, seemingly struggling two years ago but now, with changes in its business model, enjoys worldwide growth.

2.2.3 Business models of the global platforms in the GAFAM group – a pattern of operations exploiting competition at a global scale

The size of the five dominant worldwide Web platform operators, (sometimes called the 'tech giants' or more accurately the GAFAM group) – Google/Alphabet, Apple, Facebook/Meta, Amazon, Microsoft. All are involved in the streaming business to a degree that exceeds that of any other streaming player, apart, perhaps than Netflix but Microsoft has smaller coverage and offering, with just gaming (a growing market) and its MSN and Start services. That includes the television production studios or other streamers such as Netflix. Their leverage is dominant across the whole entertainment and media (E&M) sector due to their conglomerate business model, which re-uses their 'hyperscalar' computing assets, combined with their global reach, at massive scale for high profits and rapid cashflow.

Google/Alphabet, Amazon, Apple with Microsoft had a combined capitalisation of US$9.53 Trillion, mid-March 2024. With Meta/Facebook and its social media streams, which can be classed as a part of that, the sum is US$10.83TN. That forms the largest group of corporates globally by capitalisation, far beyond the oil majors, the principal banks or any manufacturing corporation such as car makers or mining and metals producers, forming a global oligopoly.

Hence, the GAFAM members' global assets dwarf those of other streaming players. For instance, YouTube ('YT') was bought by Google in 2006 for US$1.65 BN. It now operates within the parent Alphabet's 21 hyperscalar data centres globally, spread over 22 cloud regions, for 140 points of presence in international markets worldwide. Its subsea cable network connects some 200 countries and country regions (together termed 'territories'). As a video sharing website, this technology infrastructure enables 'any to every' connectivity[156]. It contributes 11% to Alphabet's revenues, largely from its advertising stream, now offering tens of billions of videos, and has subscription revenues.

In consequence these large platforms depend on a software infrastructure to link their data centres into an interdependent network and processing infrastructure to construct global streaming platforms. For instance, Alphabet, the owner of Google, has eleven main global services, each typically with a billion to 2 billion users: principally Google Search, Gmail, and YouTube, plus a utilities package for customer data tracking and profiling (for auction sales of customer data) as well as coordinating bundled operating systems, specifically Android for mobile and the ChromeOS and Chrome browser, which connect to various consumer commercial utilities such as Google Pay as its payments and banking app. It also has the Google Play Store, for its apps store, charging 15% to 30% to software developers that sell on its websites, plus consumer utilities presented as apps, specifically Google Shopping, Google Flights, Google Drive for storage, Google Maps and Google Photos. All these apps run on the same global infrastructure, not only concurrently but often in a close-linked process for serving a customer without ever leaving the platform. This ecosystem enables Alphabet to generate both economies of scale (adding new users to existing services) and scope (adding new services to the existing infrastructure).

Evidently these players combine a global network presence and volume of operations that dwarf the largest E&M companies such as Universal, Warner, Disney, Sony or Paramount. Effectively,

[156] Kyncl R with Peyvan M (2017) Streampunks: How YouTube and the New Creators are Transforming Our Lives. London: Virgin.

there is an overwhelming imbalance in business and market power between these global platforms and the leading players in E&M, both global and national.

2.2.4 Capabilities for major new investments

The GAFAM group has combined cash reserves and access to capital, based on their share price and prospects, that give them unrivalled influence over investment in novel ventures, specifically in creation of new content as well as in marketing and infrastructure build for high capex projects such as new data centres, plus expansion of the subsea networks. No longer do the national telecommunications incumbents such as AT&T, KDD and Telecom Italia dominate the sub-seas for Internet connectivity – instead it is Apple, Meta, Google/Alphabet, Microsoft and AWS[157] that invest.

Their content spend is already at levels beyond the major Hollywood, Japanese and Bollywood studios. Apple in 2023 had a budget of some US$7 billion while Amazon Prime Video spend was estimated at US$10 billion[158]. Thus the GAFAM members may consider long term investments in content, perhaps over years, with a very high rate of spend. This is an example of using the scale strategy in the business model. So far, apart from Amazon Prime, the revenues in the national markets are small but building and become more substantial only when aggregated globally.

A single feature movie or show may receive a budget rarely matched in conventional Hollywood measures. For the property titled Lord of the Rings: Rings of Power, with rights acquired by Amazon Studios from the Tolkien estate for an estimated US$250 million in 2017, production costs for the first season were US$465 million[159]. Amazon Prime spent US$300 million for just six episodes of a thriller released in 2023 (Citadel). As early as 2021, Amazon was spending US$13 Billion on new content which rose to near US$19 Billion in 2023[160].

The large investment budgets of the GAFAM corporate media divisions also go into buying whole studios, not so much for content production, as their content catalogues and the rights IP (Intellectual Property) for their exploitation in streaming sales directly as well as for deals with other

[157] SCF Associates Ltd (2019) International Subsea Connectivity and Broadband Policy: the Implications for Thailand, NBTC, Final Report, updated 22 Sept. 2019, and presentation

[158] Maglio, 2023, Maglio T (2023) From Netflix to Disney: How much the top 7 streamers will spend on content in 2023. IndieWire, 24 March.

[159] Gizmodo. Com, 2024, Who owns What; Hibberd, 2021

[160] Amazon Annual Report 05 Feb 2024

streamers. Thus in March 2022 Amazon acquired MGM, a Hollywood major, for US$ 8.45 billion, with its Bond series and also the Legally Blond series. While US-based E&M conglomerates might match these sums for a limited range of projects, they are generally well out of reach of any ASEAN or European streamer, film company or broadcaster.

2.2.5 New business models of promotion by the streamers

Note that the majors in the GAFAM group and Netflix tend to have a business model that allows more freedom and independence to the content creative team, than the Hollywood studios. The GAFAM platforms and Netflix invest far more than the Hollywood studios with an eye to the global market on their content, so a far wider selection of genres, cultures, story lines is normal for these global players. Hollywood sees the USA market first. Moreover the global markets – and streamers – prefer series, for 'binge-watching' phases that may last over days.

But being designed for streaming, new productions by the streamers may have a narrower public promotion, as that function is performed by viewer profiling of subscribers matched to the content library, with some major exceptions that have heavy promotion budgets (eg Netflix for Games of Thrones). That is a significantly different business process to the downstream activities of the Hollywood E&M studios who are interested in a public market of cinemas and DVD sales, as much as a TV streaming market. The GAFAM's media studios may offer cinema material - but it is less of a core aim.

2.2.6 The business model of Amazon

Amazon is a particular streaming case, as the largest cloud infrastructure today belongs to Amazon with its Amazon Web Services division, AWS. It provides the streaming processing power and storage for Amazon Prime Video, but also for other streamers when they choose AWS, including Netflix. Thus the Amazon/AWS operation both supports its own content streaming operation in a vertically integrated mode but also to resell that infrastructure capacity to any streaming provider with its own content library, as a hosting agent, also offering data centre space if necessary for specialist streamer content databases or interfaces.

This demonstrates the classic GAFAM re-use of the existing global scale platform, with its assets developed from the original core business (ecommerce). That provides the network operational technology with its cloud management customised for Amazon Prime Video. To support this role, AWS, as a wholesale cloud operator, has its software utilities sold as services to

cloud customers. There are over 200 software packages sold as services that AWS offers to streamers, notably–

- Ingest, capture, encrypt and record video streams securely with Amazon Kinesis
- A service to monitor the quality of video services and collect streaming data in real time, using its analytics (Amazon Elasticsearch)
- The AWS CDN – Amazon CloudFront - transports input video files, including live events, and distributes video streams
- Customer data gathering and management
- Customer profiling analytics
- Insertion of personalised ads - Elemental MediaTailor
- A highly scalable video database, for large content volumes, Amazon DynamoDB
- Customer billing services

Many of these utilities have open source software origins and use open source tools and intermediate interfaces. With the above, Amazon offers a global streaming system in 245 markets in 2024, including subdivisions its distributed operations cloud into 26 cloud regions, with 84 availability zones, and 410 points of presence across the world.

Its business model exploits use of this ecosystem with two objectives:-

- Serving its own content streaming company, Amazon Prime Video,
- To spread the cost of such a massive cloud support network across other streaming providers that use AWS because it offers its customers a global scale of operation – notably to Netflix and perhaps surprisingly Disney streaming services, Disney+, as the CEO, Iger, found its streaming service was losing too much margin in its attempts to keep up with its own global infrastructure[161]. Outsourcing some processes became mandatory for profits[162].

This evidently demands taking on new customers so scalability (ability to scale up capacity across the world, on instant demand) is an essential operational function. This is necessary in real time, especially for live events with possibly tens of millions of viewers, suddenly. That requires

[161] Reuters, 10 Aug 2023, Disney hikes streaming prices on cost as Iger moves to reassure investors – Iger presented US$1Bn in operating income improvement by outsourcing streaming

[162] Chalaby JK , Plunkett S (2021), Standing on the shoulders of tech giants: Media delivery, streaming television and the rise of global suppliers. New Media & Society 23(11): 3206–3228.

additional capacity at low cost – the basic principle of data centre capacity in these markets of low marginal cost for extra streams, a core business model feature, expressed in AWS engineering.

So far there is evident competition in the Entertainment and Media (E&M) streaming content providers, despite Netflix's success over the last few years. However in the data centre side there is more possibility of a duopoly forming, between Amazon AWS and Microsoft Azure.

2.2.7 The Business models of the E&M streamers (Disney+ and the Hollywood set)

The streaming trends began with the infrastructure rollout - broadband networks in the USA, with the Telecommunications operators such as AT&T and Verizon. Over the last three years, all the Hollywood studios, led by the five largest have moved quickly into streaming despite some early financial disappointments. A key business model question for them has been whether to build, buy or outsource the streaming platform required, or to own and share the streaming infrastructure operation for profit. This shows the weakness of the streamers outside the GAFAM group. Only the GAFAM group, plus Netflix, have the infrastructure and /or the finance to successfully build a **global** streaming service. The barriers are not just the investment necessary but also the infrastructure engineering knowledge and understanding down to the software level and beyond – into the powering of data centres as their electricity consumption rockets.

The business model is based providing a wide on demand range of content but also content that is of higher quality than the broadcasters'' products. That is the key reason for the rapid uptake of streaming, especially in countries such as Australia where streaming has been taken up quickly due to the lower quality of broadcast content. However this implies long term and generous funding for new attractive content – a challenge for the streamer's business model, which is an opportunity for high quality, low cost content producers

Now there are some 50 streaming video operators in the USA and Canada. Some are fairly localised, others national with 5 largest including Disney, Warner Brothers Discovery with MAX, Discovery+ and HBO, also Universal/USB Paramount and Peacock. Globally there are over 300 streaming services, with 200 streaming services within Western Europe (European Audiovisual Observatory, 2017: 19). Major global players include Canal Plus (in 17 countries) much in the EU, Shahid (16 Arab countries), and also Showmax (15 countries, largely Africa) using NBC Universal Peacock technology. ASEAN with Korea, Japan and China has a far more diverse range of streaming players, with many streamers being for games players. Leading Chinese streamers are Huya and DouYu being important among many others. In Thailand, the market is highly competitive, and

diverse with leaders including Jackeyy, Heartrocker, RebirthzTV, Gssspotted and Edwinlive, depending on parameters measured[163].

Such streamers tend to use the infrastructure of third party cloud and CDN providers such as AWS, Akamai, Comcast, IBM Cloud, Brightcove, Wowza, and Dacast from China, etc.

Table 2-2 Subscriber numbers for some major video streaming providers in 2023 from the USA group – most are quite recent market entrants apart from Netflix and have grown fast

	Apple TV+	Disney+	Paramount+	Netflix
Subscriber numbers	25 million	158 million	60 million	260 million
Coverage globally	Worldwide	117 territories (all continents)	Worldwide 32 territories Asia /Pacific, Europe, N. America, Latin America, Caribbean	Worldwide 78 countries
Founded	2019	2019	2021	1998

Source: data, with additions, from Chalaby, J.K.(2023),The streaming industry and the platform economy, Media, Culture & Society, SAGE, with additions

The GAFAM group strongly compete with 'the pure streamers and Hollywood descendants or media 'traditionals'. For example, Amazon Prime Video has 200 million subscribers, which highlights that GAFAM conglomerates in the streaming media industry may often have more than one streaming operation, eg as Meta and Amazon have. The largest USA Hollywood studio streamers are increasingly challenged by the expansion of the GAFAM players (plus Netflix) with their global footprint in infrastructure. The business models are compared below:-

[163] StreamCharts, 2024 , https://streamcharts.co./news/January-2024-top-streamers-regional and Twtchtracker

Table 2-3 Largest global streamers – the GAFAM, Hollywood studios and Netflix (2023)

Platform	Business model	Monthly users/ Subscribers, Mns	Parent owner/ country	Type of Owner
YouTube	Video sharing	2700 (2024)	Alphabet/Google USA	GAFAM major
Facebook	AVOD	3000 (Statista, 2024)	Meta USA	GAFAM major
TikTok	Video sharing	1500 (2023)	ByteDance China	Major, not GAFAM
Netflix	SVOD and now some AVOD	260 (2024, Statista)	Netflix USA	Dedicated streamer, not GAFAM
Amazon Prime Video	SVOD	200	Amazon USA	GAFAM major
Disney+	SVOD	158	Disney M&E USA	Hollywood Studio
Twitch	Video sharing	140 (2024)	Amazon USA	GAFAM major
Pluto TV	AVOD	80	Paramount Global USA	Dedicated streamer, Hollywood Studio
Tubi	AVOD	64	Fox Corp USA	Dedicated streamer, Hollywood Studio
Paramount+	SVOD	60	Paramount Global USA	Dedicated streamer, Hollywood Studio
Viki	AVOD	40	Rakuten, Japan	Ecommerce & Media
Apple TV+	SVOD	25	Apple USA	GAFAM major

Sources: various - Statista, Chalaby, J.K. (2023),other, 2023, 2024

2.2.8 The second tier platforms have insights for traditional TV broadcasters: ownership is instructive

To understand impacts of the streaming sector's business models, the ownership of streaming platforms in the group outside the GAFAM set may give useful insights. It indicates whether streaming TV platforms are just a new direction at the level of technology (to which the TV broadcasters can adapt) or whether the scope of the media sector has fundamentally changed beyond technology in the business case for switching to a purely digital (or OTT) business[164]. These are examined below.

Table 2-4 Examples of Owners, genres and types of owner in the international streaming segment

Streamer	Type/ Genre	Parent company, country	Owner type
Acorn	British-style content	TV AMC Networks (USA)	Media / entertainment
Bloomberg TV+	Business news	Bloomberg L.P. (USA)	Newscasts /financials
Britbox	British TV shows	BBC and ITV (UK)	Media / entertainment
Crunchyroll	Anime and manga	Sony (Japan)	Genre - Ghibli studios type of media/ entertainment
Discovery+	Real-life shows	Discovery+, Discovery (USA)	Media /entertainment
ESPN+	Sports	Disney with Fox (USA)	Sports events channel
Irokotv	African content	Iroko Partners (UK) Online media	Genre[165] / Online media
Mitele Plus	Spanish content	Mediaset (Spain)	Media /entertainment

[164] Oliver JJ and Picard RG (2020) Shaping the corporate perimeter in a changing media industry.

International Journal on Media Management 22(2): 67–82.

Noam, E., (2021) Overcoming Market Power in Online Video Platforms, chapter, book, https://academic.oup.com,

[165] Genre is a term commonly used in the audiovisual industry to denote a type of content with its culture, storylines, actors, scenes, settings and is used in classifying the work, thus Wavve offers the genre of Korean Drama

Streamer	Type/ Genre	Parent company, country	Owner type
Wavve	Korean drama	SK Telecom, KBS,SBS (Korea)	Genre / media /entertainment

Source: various

From the ownership types above in this second tier of smaller streaming platforms, five traditional Hollywood studios stand out, competing on their traditional major stocks of content, going back to the 1930's in some cases. Note that MGM has disappeared from this group, being bought by Amazon for its content catalogue. These Hollywood studios, form a specific category with their focus on a single business model of largely subscription-based streaming. These Hollywood traditional media and entertainment production studios dominate the lower capitalised group of pure streamers, with their film and TV libraries selling to cable TV, satellite and pay-TV services and the DTT broadcasters, both commercial and public service. Walt Disney leads with Disney+ with its completely owned Hulu now, with Paramount, Universal, NBC-Universal's Peacock in the USA, and Viacom.

However they are dwarfed in assets and capital by the GAFAM group. In contrast, the five major global platforms of the GAFAM Group see the streaming video market as only one business into which they can easily switch by reusing the platforms' digital assets. At a global level their dominance is evident – and their content, global infrastructure and management of a complete digital ecosystem from customer profiling to data broking through to device operating systems, smart devices, cloud data centres, CDNs, subsea networks, payments systems, app stores and e-commerce is absolute. Moreover, they see this audiovisual as a key growth opportunity.

But there is one player with different business model to the GAFAM group and to the Hollywood studios, which grew out if selling cassettes and DVDs from any source – Netflix, with its global CDN and customer profiling analytics that defeats all others as part of its own business model.

2.2.9 The Netflix business model

Netflix, founded in 1998 to sell DVDs, began streaming in 2007. It now offers a classic streaming subscription model of 'all you can eat' in video media – with a version of PPV (pay per view) but applied to large catalogues at lower prices than previous cable TV and PPV (IPTV). The success of the Netflix approach to the streaming business is in part based on its analytics for

marketing, plus its infrastructure that covers at least 50 countries directly, as well as its own grasp of content production. Its failure to secure content from others in its early days forced into also creating its own content as well as buying existing catalogues.

Globally it had over 260Mn customers worldwide in late 2023 in 78 countries. It generally achieves margins of 15% to 20%, although in 2022 its margins suddenly dropped slightly from 21% to 18%[166]. It has expanded its back catalogue by acquiring old favourites in reality TV, rom-coms and international series with expensive running shows. That led to heavy debts and falling margins, driving cost cutting including redundancies and stopping password sharing. Margins are forecast to be of the order of 24% by end of 2024 with its cost cutting efforts so that while revenues rose 6.6% in 2023, net income rose 20%. Netflix has recently moved away from its subscriptions only model to an AVOD model with targeted advertising, in a lower priced tier than subscriptions.

Its chief content officer (CCO), Bela Bajaria gives figures for new content spend that are among the highest in the industry – and are dispersed to countries cooperating on development across the world. Budgets for outsourced and co-development are put at US$17BN for 2023 and 2024298. Netflix is one of the largest original content producers globally. Over 67% of Netflix's audience is outside the USA, so local language content is more important than English and the 'one size fits all approach' is abandoned. But some domestic hits can be taken worldwide. Netflix has profited from maintaining low costs of production against the size of audiences. That is why new centres of low cost production are constantly searched for. Live sports (wresting etc) and events such as USA NFL and auto sports are now added. As all streamers, Netflix looks for 'binge worthy' series – Harry Potter episodes top all streaming in Japan now. It also looks internationally for blockbusters – The Leopard in Italian co-production and Marquez's One hundred years of solitude eing made in Columbia, and from Brazil, a film on its star GT race driver. Unscripted content – such as reality TV - is also growing quickly.

Examining its business model further shows a highly granular detailed knowledge of each subscriber as an individual, not as a group as is common in marketing analytics. The approach is to make the experience personal by analysis and constant perfection through testing various customer preference patterns. Such market analysis is uses repeat suggestions for viewing to understand customer preferences. It also gives immediate signals of new memes and trends. This is only possible by using very large databases with analytic engines suited to the "big data" of petabytes

[166] thestreamable.com, accessed March 2024

of detailed statistics. Its business model revolves around what it terms 'consumer science' - Netflix algorithmically adapts its entire user experience to each individual subscriber That extends to the customer presentation screens – the layouts of rows presented for its homepage, the order of content titles and what is there in each row, pre-screening visuals for each movie, the recommendations of other movies etc.

Overall this has been successful. Currently, Netflix not only has the largest worldwide subscriber base of any media streaming business and expanded strongly suddenly from late 2022 into 2024 by over 20% in subscriber numbers. Its marketing also tests out its novel ideas with real customers, at scale, and measures for statistically significant differences in how they engage with the new offering. The testing goes from finding ways to increase the relevance of the search results. That may range from redesigning the user experience (UX) for a new device to adding a new feature, such as friends' 'like' preferences on Netflix.

The Netflix testing process is to drive new sessions, by starting with the hypothesis that a specific algorithm/ feature/ design drives engagement further, and also retention, measured in viewing terms. It claims 75%of users select movies based on Netflix recommendations, and wants to make that number even higher. Recommendations algorithms are based on assumptions that similar viewing patterns represent similar user tastes. So the taste communities are the basis of its recommendation algorithms. The whole personalization process is driven by what Netflix defines as consumer science – effectively a key part of the Netflix business model is centred on the analytical business processes of customer profiling for personalisation, to feed its recommendations.

In consequence, its market capitalization (US$ 270BN) is higher than that of Disney (US$210BN), previously amongst the highest value E&M companies worldwide. Moreover since December 2023, Disney+, Disney's streaming arm, with the now Disney-owned streamer, Hulu, use the Netflix distribution chain[167] to stream their content in the USA and perhaps globally, rather than competing and trying to build its own global content distribution network (CDN). This is evidently fairly exceptional in that Netflix has previously competed in content catalogues with Disney and yet is prepared to act as the delivery and streaming subcontractor in a downstream role for Disney

[167] LEX (2024) Financial Times 26 Jan 2024, *Netflix: the streaming wars are over*

content distribution. Disney is thus dependent on Netflix to distribute its content at lower cost and possibly more reliably into more homes.

The message is - the Web-based streaming infrastructure assets are worth more in a subcontracted role than is keeping them exclusive – as if Netflix did not take that opportunity, there are others that would and Netflix can sell the Disney content as extra offerings. The decision point lies in whether there is a sharing of Disney content in the Netflix offerings. Some will be in a mixed catalogue some separate in a Disney+ bundle, perhaps with streamer Hulu[168]. Netflix has beaten the Hollywood studios using a debt financed long term bet, in which it outlasted them, as the studios were all losing money in the USA on streaming.

The consequences indicates another key success factor in the Netflix business model - its infrastructure – where others have failed. Much is outsourced. To forms a global value chain of local suppliers (ISPs- Internet service providers) mixed with its own links where advantageous. Where it does not have network links, it has a standard approach for leasing of connectivity globally and locally wherever necessary. Naturally that database and streaming functionality is also based on cloud services, from providers such as AWS in a close interworking partnership, despite being in competition with Amazon Prime Video, in many parts of the world, but not all. Netflix also has its own form of CDN, Open Connect, which is surprisingly comprehensive.

However, its outsourcing of the downstream chain includes the local FBB network operators, possibly with their own data centres, in which Netflix installs its own “point of presence”. That also includes some capacity in its databases for local content preferences in language and origin. Netflix may also follow an edge strategy, of placing servers close to viewers in high demand areas and that becomes a further key competitive advantage. It means that network traffic to the remote point is reduced and the serving of local customers, based on the viewing history, is a faster service, if it can be kept to being local by anticipating demand. Edge computing is not new – it goes back to the first content streaming systems for early mobile wideband content networks in 2000 but it does give competitive advantage. In some parts of the world, for instance in northern Brazil, Netflix Infrastructure carries 20% of all broadband traffic but then Brazil is Netflix’s second largest market.

Its marketing strategy and analytics are perhaps its key USP (Unique Selling Point). As early as 2013, Netflix noted “There are 33 million different versions of Netflix” referring to its subscribers

[168] Newsweek 12 December 2023 Disney makes surprising deal with Netflix

in its customer database then. The approach has been driven by a focus on what has been called "a market of one" personalisation using pattern recognition algorithms, some with Bayesian statistics, and with other algorithms. Netflix not only looks at millions of ratings, searches and "plays" a day by its customers, but processes the entire viewing history of billions of hours of content streamed each month, to understand tastes, trends and new directions in genres.

This is also applied to content creation, not just to suggestions for its existing customers. Its own productions are based on intense investigation by the Netflix analytics team. It took the company 6 years to collect enough viewer data to engineer a show that became a global success - its House of Cards. Since then, Netflix has increasingly used this formula for content creation, achieving success rates of 80% in viewer take up compared to 30%-40% success rates of traditional TV shows. Netflix sources its content from any country that is capable of the quality production required. It gives a wide artistic freedom to new and non-mainstream creatives, but takes all the rights and performs very little promotion as all just goes into the catalogue[169].

In this situation, Netflix originates its own content using external production facilities which are commissioned for original content because it supposedly knows what people want before they do (a quote from the New York Times). This is the third plank in its streaming success business model after consumer profiling (with early meme and trend identification) and its streaming infrastructure quality, flexibility and profitability from leasing it as an extra asset. It has over 3000 movies already and over 2,000 TV shows[170].

That is why, using a reversal of its prior customer policy on password sharing for customer authentication, it grew the global customer base over the last 2 years by 25%. Effectively their model had reached its limit with the sharing policy and demand was such that eliminating sharing stimulated many new subscriptions, introduced in a trial phase of sharing.

2.2.10 The video sharing business model – TikTok, YouTube, Twitch (Amazon)

A distinctly different business model is the uploaded presentation of user-generated and pre-generated content by the viewers to the streamer website. In this business model, no content creation, rights management, cataloguing and curation goes on to source the streaming. Anyone

[169] Industry interview

[170] Streamable, 2024,

https://thesreamable.com>news>netflx-unveils-full-2024-slate-of movies- tv-games –including-bridgerton

can upload their own content for free. Thus the viewers provide all the content, so content costs are low. This enables Google to receive operating margins of 35%[171].Hence video sharers are streaming services that upend the rules of online streaming websites by attracting users and their streaming content assets, which they may own, or do not own, and then create two-sided markets that coordinate transactions among participants - those who consume the content and those who create the content. Using this, revenues from the website come from three sources:-

- The enormous avalanche of paid for advertising that accompanies the website access – an AVOD model - so the advertising and revenues are among the most concentrated in the streaming market and subscription cost is zero.
- The pressures for customers to share their personal data, which the operator resells in wholesale volume in 2-sided markets with data brokers. For example, Google (with YouTube) holds regular auctions for these datasets. Google does not require registration but the registering data helps Google in collecting user data for profiles of users to optimise recommendations and maximise time on the platform. Algorithms guide the users to content they prefer, to form their own video 'channel'. So the website may act as a video sharing platform and a social media site with communities of like viewers. Tools are provided to users to produce near professional content and users can be paid for this by other users and by Google.
- The formation of global markets using professionally made videos of high value, with repeat viewings[172] – for tuition, expert information for training, etc, all hosted on the platform with the video creators paying the platform owner to stream their content and their own customers paying the video creator and the platform to view the material – for example, a professional instruction manual on how to repair an expensive smartphone or a car.

Such websites as YouTube or TikTok largely share self-made entertainment videos for the masses - typically short, under 5 minutes and perhaps down to 10 seconds. That matches the attention span of the younger viewers who form a key segment of the audience. Such self-made videos can be monetised in various ways by charging for viewing, forming opinions (influencing) and so attracting advertisers, who may share revenues with their 'influencers' and or the short video

[171] LEX, Financial Times 26 Jan 2024, Netflix: streaming wars are over

[172] Many videos are watched several times to understand all contents

creators. In contrast to the brief selfie videos or cats playing there are highly professional videos made by many large organisations that use YouTube, for instance, to share video presentations and lectures globally.

Video-sharing websites are not a new phenomenon – they go back nearly two decades and the most successful platforms have become the largest. Five trillion views were recorded by YouTube Shorts in 2022[173], a record at the time. Global growth of shorts from TikTok approaches that, with its USA growth reaching 170 million users, before being threatened with banning in 2024 in the USA, due to its Chinese ownership.

This concentration of user attention is due to a massive non-linear network effects with scale. The more viewers, the more the uploaders, which powers is the website's attraction. Thus it tends towards the winner takes all business model of extreme network effects. That makes the video-sharing market highly concentrated. SMP consequences are seen due to those network effects because the value of the platform increases non-linearly with user numbers.

Such impacts are sometimes referred to as same-side (or direct) network effects as they impact comparable classes of user[174]. There is thus a non-linear relation between five variables – which are – 1) the numbers of users, 2) time spent on the website, 3) driven by the number of uploaded videos which sets 4) the value of the website to its users and that drives 5) the attraction of the website to advertisers. All are non-linear amplifying relationships involving different types of actor (also sometimes termed cross-side relationships).

With this concentrating catalyst in the business model, the global market is dominated by three platforms – the largest is YouTube/ Google, launched in 2005. A market leader with over 113 billion visits per month, it has over 2.85 billion users and in 2023 generated US$22.31BN in advertising revenues[175]. Its library has expanded to 10 billion videos, with five hundred hours of content being uploaded per minute. It also hosts competitors to the content streamers using live events (with YouTube Live and YouTube Shorts). Second in global rank is TikTok owned by

[173] Sandvine. (2023) The Global Internet Phenomena Report. San Jose, CA, USA

[174] In contrast, for cross-side effects, users benefit from an increase in the number of participants on the other side of the market – for instance sellers as against buyers' (Parker GG, Van Alstyne MW and Choudary SP (2016) Platform Revolution: How Networked Markets Are Transforming the Economy and How to Make Them Work for You, NY, USA, W. W. Norton.2016: 29–30)

[175] DemandSage, January 2024, https://www.demandsage.com/youtube-stats/

ByteDance of China and launched in 2012 which has the fastest download rate of all apps[176] (Jia and Liang, 2021). In terms of global application Third in global rank is Twitch, a smaller platform now owned by Amazon, starting as site for live video and so for sports and other types of events.

2.2.11 Broadcast TV and after – The Broadcast Video on Demand (BVOD) business model – Freely and the new linear/ non-linear simulcasting

This Video-On-Demand service uses content from the free-to-air or traditional TV broadcasters over DTT, or satellite, which it rebroadcast over the Web (in simulcasting mode). That means it may be streamed simultaneously in parallel with the broadcast be available as a web stream, thus accessible at any time, on demand. Most usually, the content is accessible from an online broadcaster owned website, but may also be shared with other video streaming providers (VSPs). Thus viewing on a variety of devices – smartTVs, smartphones, tablets and laptop computers - becomes the norm.

As with other streaming services, there may be a charge for that. However in some countries such as the UK, the business model is to let any TV viewer with a prepaid TV licence access the content – TV shows (in the UK, BBC iPlayer) and radio broadcasts as podcasts (BBC Sounds). Consequently it is viewable over any Web connection – fibre optic network, mobile connection in the street or home, or local Wi-Fi. Also, if agreed by the broadcaster, it can be accessed via other traditional methods such as cable TV or satellite. That enables traditional 'linear content' from the TV broadcaster to be viewed any time, so that for a specific TV series all episodes can all be watched in deferred time. Thus the viewers can escape from the limits of predetermined programming on linear TV, using the Web interactivity to select their own preferred content at any time. Thus BVOD an appeals to all age groups, perhaps extending linear TV into the younger age-groups.

This opens various business models for monetising the content which include the addition of advertising. BVOD is highly attractive to advertisers, more so than the original free to air broadcast with its ads, which by its nature covers all viewers, of all ages and interests.

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[176] Jia L and Liang F (2021) The globalization of TikTok: Strategies, governance and geopolitics. Journal of Digital Media & Policy 12(2): 273–292.

2.2.12 The Advertising Model – why BVOD is being taken up by the broadcasters

BVOD is attractive to broadcasters for its move into the non-linear model of offering content on demand as well as prolonging the linear programmed feed but with a wider range of devices that match changing viewing trends. It is thus taken up where audiences are shrinking due to streaming and also new revenue streams are needed to finance the new content. It really is just moving into the same space as the rival streamers, using the same OTT access over the web.

Moreover, from the advertisers' business model viewpoint, BVOD has some advantages over the rival streamers, perhaps being regarded as a higher quality video medium than ordinary streaming in terms of several key attributes:-

Targeting ability, - those who stream the content also stream the ads and these can be tailored to the content by age-groups and preferences – eg gardening or sport, so advertisers target viewers based on their interests, and it gives insights into contextual steering, based on the type of TV show viewed. Advertisers can limit display of ads more to their own specific audiences.

Compared to broadcast ads, the net costs per sale with this more targeted audience, can be lower for delivery due to having selected a specific set of viewers. Moreover ad costs can be far lower charges per minute than the over the air broadcast and the digital format enables low cost packaging. In summary, BVOD can bring the advantages of digital ad serving capabilities plus traditional broadcast TV status, which may be of higher quality than opposing content as it comes from well-known and respected broadcasters.

And the BVOD cost advantage is the ad space may be available at lower cost per standard impression than over the air broadcast TV, as the TV broadcasters typically expect millions of viewers and charge appropriately at an expensive level. In contrast to being a scattershot broadcast, streamed ads can be targeted far more, to be viewed by a specific audience who have selected specific content over the Web. Thus BVOD offerings have expanded in many high growth markets – France, USA and Korea – especially following the pandemic - so BVOD use has gained market share among both viewers and advertisers.

Moreover there is reputation. Some advertisers see BVOD as having a target audience that is more likely to trust the advertisements placed on online video streaming platform rather than that of any social media website. Increased credibility may favour brand preference, with higher recognition, awareness, for potential sales.

Some advertisers research claims BVOD ads have higher memory recall from viewers than ads on social video platforms like YouTube and Facebook, owing to higher attention levels, essential for sales. So advertising on BVOD can prompt faster responses.

2.2.13 The broadcasters' business model with BVOD

Thus from the broadcasters' point of view, BVOD can offer:-

- A new digital ad revenue stream to reply to the online streamers and social media providers who have taken an increasing proportion of the total digital ad revenues
- Potential new content revenue streams by subscription (SVOD) without ads, or pay per view with transactions (TVOD) or with ads AVOD, to supplement the revenues from broadcast and compensate for the costs of high quality content.
- Resale of content to the invading streamers also – so another channel for the same content is opened. The BBC World Services may be carried on a streamer or in a bundle from an FBB service provider as AIS Fibre does in Thailand.
- BVOD platforms from the leading broadcasters can make their content available to the dominant video streamers, especially if the audience exhibits content fatigue with the major streamers' libraries (which may also have higher price subscriptions) and also BVOD providers can package their advertising with their content base. Also BVOD is important for catch-up services on broadcast serials, also for news and current affairs and so maintains a link with the broadcaster.

2.2.14 FREELY – a proposed new BVOD example from the UK

In the UK, the BBC and independent commercial UK broadcasters, ITV, Channel 4 and Channel 5, with others potentially, are all suffering from the invasion of the streaming video operators – largely from the USA, especially Netflix. They are proposing a broadband streaming platform to be driven by ads and share content from all the broadcasters, to launch in June 2024 or before. The business model is AVOD – or FAST (free ad-supported TV) so for the first time the BBC will launch into ads which the partner broadcasters already depend on. Studies from the advertising industry are fairly positive[177]. Linear TV and BVOD (currently BBC iPlayer only) could reach more than 90% of the UK's adult population and account for nearly 26% of broadcaster viewing among 16 to 34 year-olds

[177] Thinkbox TV advertising, https://www.thinkbox.tv/research/ thinkbox.tv-research/bvod-almighty-reach-and –return/

This is already generating interest as in the UK, with its plunging economy and rising cost of living, as Netflix, Apple TV+ and Amazon are losing subscribers at the rate of 12-14% over 2023 for all age groups (16-24, 25-34, 26-34 years, 35-45 and 45+) [178] as viewers can no longer afford subscriptions.

This new behaviour cycle by viewers with subscriptions is to cancel them when the cost of living is too high - and then renew only when new funds become available. Some 20% of Netflix and 26% of Apple TV+ UK subscribers followed this pattern in the UK in 2023/2024. Furthermore, 34% of Apple TV+ subscribers say cancellation may be likely in the near future.

According to a recent UK study, linear TV and BVOD (currently BBC iPlayer only) would reach more than 90% of the UK's adult population and account for nearly 26% of broadcaster viewing among 16 to 34 year-olds. Hence a surge in BVOD adoption is expected, offering streamed high-quality TV shows and films on any device of their choice.

BVOD is already generating interest as in the UK, with its plunging economy and rising cost of living. The UK trend to cancelling streaming subscriptions is confirmed by a YouGov 2024 survey of 2000 consumers311 (all aged over 16). The survey of UK consumers reveals a concerning trend for SVOD providers, with a significant number having cancelled existing subscriptions or contemplating future cancellations. Unsubscribing rates were high last year – and as now measured, with a potential threat of even more.

The interesting conclusion is that **streaming subscriptions are among the first consumables to be jettisoned in an economic downturn**, when average disposable income actually shrinks, as in the UK, particularly due mortgage rates – the costs of housing.

This has a key bearing on the free to air broadcast market and the introduction of an advertising supported BVOD platform by the TV broadcasters offering their linear TV with previous broadcasts on demand.

The evidence in the UK that consumers are re-evaluating their SVOD subscriptions as given in the box below, with the various key findings that have emerged from this YouGov April 2024 survey:-

[178] Videoweek, 19 March 2024, Cost and content fatigue are bringing SVOD viewers back to BVOD

https://vieoweek.com/2024/03/19/Cost-and-content-fatigue-are-bringing-SVOD-viewers-back-to-bvod-rearch-finds/

BOX –Streaming in high cost economies: the UK - a SVOD market with strong challenges

- Many households are contemplating subscription cancellations (2024 YouGov survey).
- Over the past year, high subscription churns have been measured by the YouGov survey: 31% have cancelled or removed at least one streaming service in the last 12 months.
- For future cancellations: an even larger portion of UK consumers (39%) report they are likely to cancel at least one service in the next 12 months. Thus, while not all households that express an intention to cancel will do so, the proportion stating plans to cancel is above the rate of cancellations in the past year, by 8%.
- The subscription squeeze is led mainly by low usage and cost concerns so household budgets tighten with rising costs of living, so discretionary spending falls. A separate YouGov survey found that more than a third (36%) of British consumers say streaming subscriptions would be one of the first cutbacks they would make in the face of budget squeezes.
- Market saturation and content fragmentation further exacerbate these issues. Understanding why viewers are cancelling subscriptions is crucial to SVOD brands seeking to retain customers and avoid churn. The survey finds three major factors for cancellation:-
  - Low usage: any subscription streaming service not being used much (40%) will be cancelled. This highlights the importance of the best content for constant use and thus loyalty.
  - Cost concerns: Financial pressures are a major driver of churn - 39% of UK consumers who plan to cancel in the next 12 months state the aim is save money. Furthermore, 33% see their current services as too expensive. SVOD providers need to demonstrate value for money, so plans with mobile discounts may be a possible answer.
  - Subscription overload: Overwhelmed with too many services is the key for cancellation for 31% of those polled - indicating subscription fatigue is widespread.

Source: 2024 YouGov survey of 2000 UK respondents, largely households

But this trend was observed as early as 2022[179] as cost concerns rose. It has accelerated with the UK cost of living crisis in 2023 and 2024. Thus the new behaviour cycle by viewers with subscriptions is to cancel them when their cost of living is too high - but renew - if new funds become available. Some 20% of Netflix and 26% of Apple TV+ UK subscribers followed this pattern in the UK in 2023/2024. Furthermore, 34% of Apple TV+ subscribers say cancellation may be likely in the near future. But the UK may be an outlier, with its failing economy over five years.

Importantly, a surge in BVOD adoption in the UK hence is expected, offering streamed highquality TV shows and films on any device of consumer choice, and free, with an AVOD model.

2.2.15 Impacts of the streamers on the value chain of the TV broadcasters

Michael E. Porter's value chain analysis has offered its interpretation since 1984[180] of the potential operations of a classical business. However the audiovisual model is more complex with the combining of the streaming platform and the sources of content that may form separate inbound supply chain and outbound distribution channels.

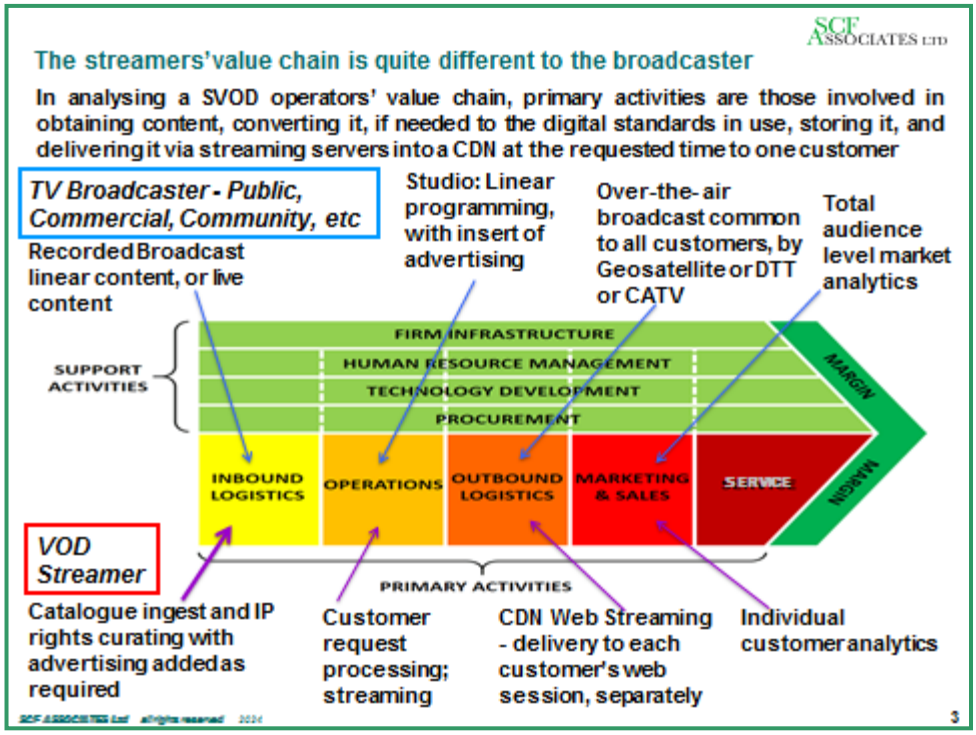
Thus the diagram below illustrates in outline the TV broadcaster value chain in an overview fashion, with that of streamer. The value chain refers to the value-adding activities and the range of economic actors that participate in the value chain design, for delivery of a product or service Typically the value chain includes the main business processes and operational functions which run across many types of audiovisual player usually:-

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[179] BBC News (2022), Households cancel streaming services to cut costs, report shows, 18 April 2022, https://www.bbc.co.uk/news/business-611394

[180] Value chain Model source: Michael E. Porter Competitive Advantage, Free Press, NY,1984

Figure 2-7 Major differences in the value chain for broadcasters are evident in ingest, processing and delivery stages for streamers



Source: SCF Associates Ltd, 2024, all rights reserved

Typically, five operations are considered in such analyses – inbound logistics for sources of material, operations, then the outbound logistics, and marketing with sales, and finally after-sales following with customer service. Two additional business processes of marketing and sales are constantly pursued in the background. The TV broadcasters follow this approximately, with inbound logistics concerned with sourcing content – either from production houses or from their own internal production studios. In the streamers, marketing sales are at individual customer levels in the case of Netflix, with the aim of detecting new trends and preferences early.

For the VOD streamers, that involves parallel customer facing business processes of identification, authentication, anti-fraud measures and billing. If AVOD, with ads, is the contract type, then customer profiling must be activated for targeted advertising to added to the stream. All this occurs in real-time. Background streamer business processes may also include the marketing with sales activities and services. For the streamers such as Netflix, marketing involves complex customer analytics to detect preferences and trends for recommendations - 'the market of one'.

Thus in the video streamers, operating an on-demand video subscription-based business model, the first stage is more complex than for the broadcaster. The business model critically depends on freedom for customers to choose any content that may be of interest currently. So a

streamer's marketing department's understanding of trends, memes, genres, fashions, latest releases takes precedence for high sales and controls two business processes:-

1) The catalogues being maintained, with the lowest demands being relegated to archives
2) The new content investment schedules, updated continually to hit the latest trends.

Thus the range of content gathered and held in stock for viewing, needs to be much greater than for broadcaster, as it is probably different across viewers yet must be delivered on demand. Moreover, the moment of delivery is chosen by the customer – for an audience of one household and perhaps one person. The streamer business model of offering a catalogue of thousands of items on demand means that far higher sheer volume of material may be necessary immediately. That contrasts with the traditional broadcast TV's linear programming, which follows a planned schedule, set months ahead with the content to distribute arriving as needed perhaps just the day before, or, in real time for live events.

This also changes the distribution channel enormously. The streaming provider will be hosted in a large data centre with high volume realtime transaction servers for perhaps thousands of streams simultaneously that also handle customer authentication, cybersecurity, fraud and immediate billing. Additional assets required are high volume realtime databases with integrated database servers, connected into a global grid processing system for international web traffic. Thus customers on Thailand may be serviced by local data centres, or perhaps by nearby giant web streaming hubs in Singapore or Malaysia, over subsea cables, or even from more distant data centres in Japan, South Korea or Hong Kong but less likely from the Californian West Coast.

A major case study as the most successful video streaming provider globally, is Netflix which offers content from other production houses, since January 2024 including Disney and its streaming arm, Disney+. The leading streamer has invested in global productions in various languages across many countries including Korea, Japan and Australia for movies and TV series branded as Netflix Originals. The streaming media sector delivers programmes from the leading broadcasters globally, such as the BBC in the UK, Canal Plus in France, RAI in Italy and NBC in the USA which also have their own production and established external providers for key programming such as serials.

The value chain above shows of the combining the streaming platform as part of a global value chain for content as well as advertising inserted according to the service payment model (subscription- no ads, or else FAST or AVOD). Consequently, there is a weakness in the classic Porter value chain analysis for outsourced supply chains and distribution channels when these are not vertically integrated production units. The value of the global networks is to decouple supply and

delivery, leaving the lead corporate operation to be that which markets the ingested contents and sells subscriptions, or advertising supported free TV (FAST) to the viewing public. The business model of value chain analysis with a single firm for the whole process centre does not reflect the audiovisual sector reality if the supply and distribution sides are not vertically integrated. Certainly there are those, such as Amazon Prime that attempt vertical integration. For others, the business model depends on contracting out, by outsourcing the financing, creation and management of complex production networks and then delivery networks, the CDNs. To some extent, vertical integration in the industry and its associates sectors such as telecommunications has tried to mitigate this by greater control of the supply side (new content) and the delivery side (content distribution into home or the smartphone by CDN).

In contrast, for the broadcast TV industry, the content production studio is either tied into the broadcaster or else contracted independent production studios create the TV programmes. The broadcaster controls programme promotion and inserts paid-for advertising as part of its delivery and perhaps as its main revenue stream, of programmed content for linear viewing to audiences.

2.2.16 Platforms and problems in the monetization of content

SVOD services can own libraries as well as create their own content if they have the studios – as Google has with MGM, and as Amazon Prime has. They may also purchase rights of pre-aired programmes, or produce them, themselves, by paying for production costs as well as commission or co-commission content. Streaming is an important new market for film and TV producers, but global streamers are the minority (around 15 players). Thus Amazon Prime Video and Netflix are extremely active in the content market and deal with hundreds of suppliers worldwide. It could become more important in Thailand, with the right infusion of financing, skills and support strategies. Imbalances in market powers between the few global platforms (the 5 GAFAM players, plus to some extent TikTok) present market dominance concerns. This is also true in the cloud data centres infrastructure for streaming, where possible antitrust considerations. Their market value, revenues and cashflows make them into the most powerful actors in the content value chain.

2.2.17 Potential dominance by the infrastructure providers for distribution

In such conditions, the content creation side may experience the signs of market dominance by the distributors – for instance the major streamers may keep ratings data to themselves and may not share it with the content producers. Moreover the streamers only promote their library –

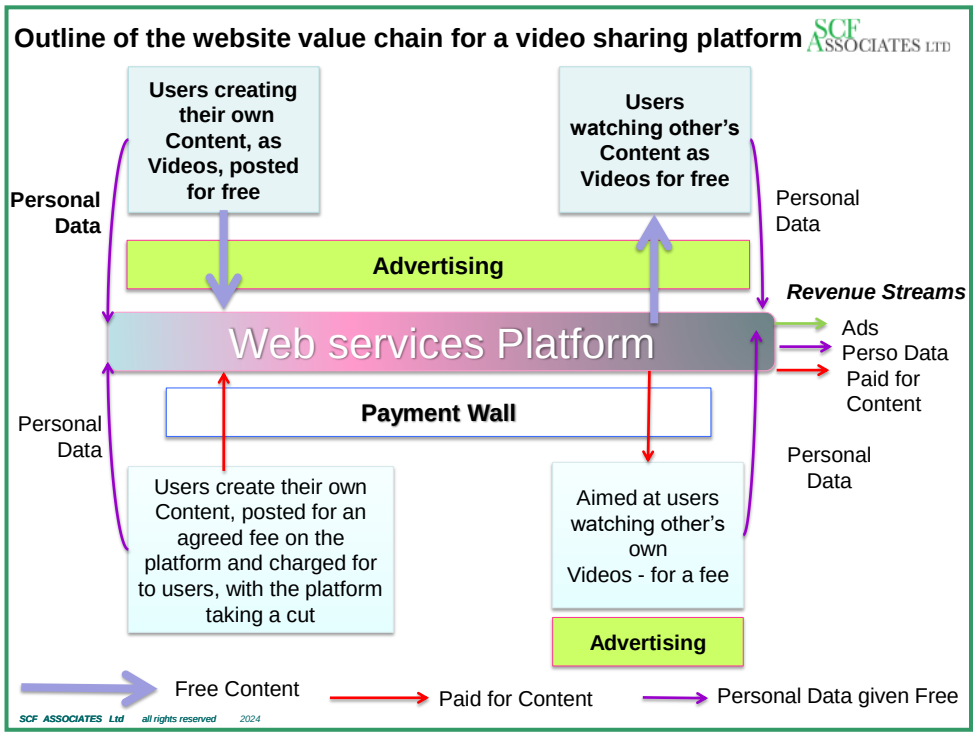
rarely a specific content creation. Thus the asymmetry of power leads to payments problems and margin squeezes with late payments and poor promotion by streaming the platforms. Note that the streamers, be they SVOD, TVOD or AVOD services share all the attributes of the global platforms typical of the GAFAM group in functional working of the supply chain and distribution channels. They employ the same web connectivity via CDNs to deliver content across the world, for the data stream carriage plus local processing resources which are also outsourced for customer processing[181] and final delivery for the distribution channel, by an FBB operator or an MNO for broadband mobile delivery. Thus the business model of streaming platforms is entirely based on outsourcing, requiring management of a set of complex input production linkages and complex customer processing and CDN distribution networks. The revenue generation value chain is shown below for the multi-sided market of streaming user videos.

Note that, in contrast, video-sharing websites exploit a different business model structure with creation of 2-sided markets to take advantage of content they do not pay for, or own. As shown:-.

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[181] Chalaby JK (2019) Outsourcing in the U.K. television industry: A global value chain analysis. Communication Theory 29(2): 169–190.
Humphrey J (2018) Value chain governance in the age of platforms. IDE Discussion Paper 714: 1–20.s

Figure 2-8 Video sharing website Business model and value chain



Source: SCF Associates Ltd, 2024, all rights reserved

The users supply both the content and their personal data, harvested for reselling to data brokers and also are the audiences for intense advertising.

Also, in many cases, the uploading user may pay the platform for distributing their content – the case of high value content including classes and tuition, especially on YouTube using the network effects of its global audiences for a range of dealings among contributors on an ad hoc basis.

2.2.18 In conclusion: outcomes of the business models of the streaming platforms on the broadcast TV sector

The key question is how much the TV broadcast sector will be changed towards a new industry structure, driven by the streaming entrants, with business models still based on finances from advertising flows, just as broadcast TV and radio has traditionally followed. Any final outcomes rest on the relative influence of the two main groups with somewhat different (though overlapping) business models:-

- The global conglomerate players having a range of consumer facing businesses based on their 'digital ecosystems' platforms of consumer interfacing utilities, from app stores to payments. These GAFAM global players see media just as another new growth market

they can easily enter, and, in the absence of regulatory resistance, dominate using their data centres and global subsea assets as the business infrastructure, upgraded for CDNs. They are already world market leaders in some categories such as video-sharing (YouTube).

- The mono-business model of the international streaming media players, largely USA-based, descendants from Hollywood studios with some other players. Here, some European players such as Vivendi, Studiocanal and the BBC operate. They tend to offer their pure streamer models backed by rich content catalogues. But they operate with much lighter owned infrastructures (except perhaps for Netflix) - depending on a supply chain of third party ISPs and CDNs (such as Akamai). But even here the GAFAM players figure strongly with cloud networks and software such as AWS (Amazon), Azure (Microsoft) and Google's cloud assets, under their consumer device operating systems (Google Android and Chrome, plus Apple iOS and the interfaces bundled with them). These Streaming platforms can be defined as those whose business model rests on video monetization.

Other minor categories exist within and around this – such as gaming (although Microsoft may soon dominate, despite the consoles segment being now dominated by Nintendo and Sony as the business moves towards smartphones and tablets) and of course music (although the platforms such as Apple iTunes might take more market share quite easily, especially with the GAFAM ownership of the two global app stores).

In summary, the current direction is not just one that the TV broadcasters can adapt by going into streaming technology. It also demands regulatory supervision to produce a level playing field in which many sizes of player can flourish and survive, if the dominant global streamers are not to be the sole victors. And this solution is quite possible – in Europe - where regulation is established, some 200 streaming websites provide 30% of SVOD views (European Audiovisual Observatory, March 2024[182]); there are possibly over 50 streamers in the USA, the legacy of their movie sector's past.

[182] European Audiovisual Observatory, 28 March 2024, *SVOD usage in the European Union,* Dec 2023 and *Film and TV content in TVOD,SVOD and FOD catalogue, 2023 editions*

2.2.19 Final Summary on selected key points from this chapter

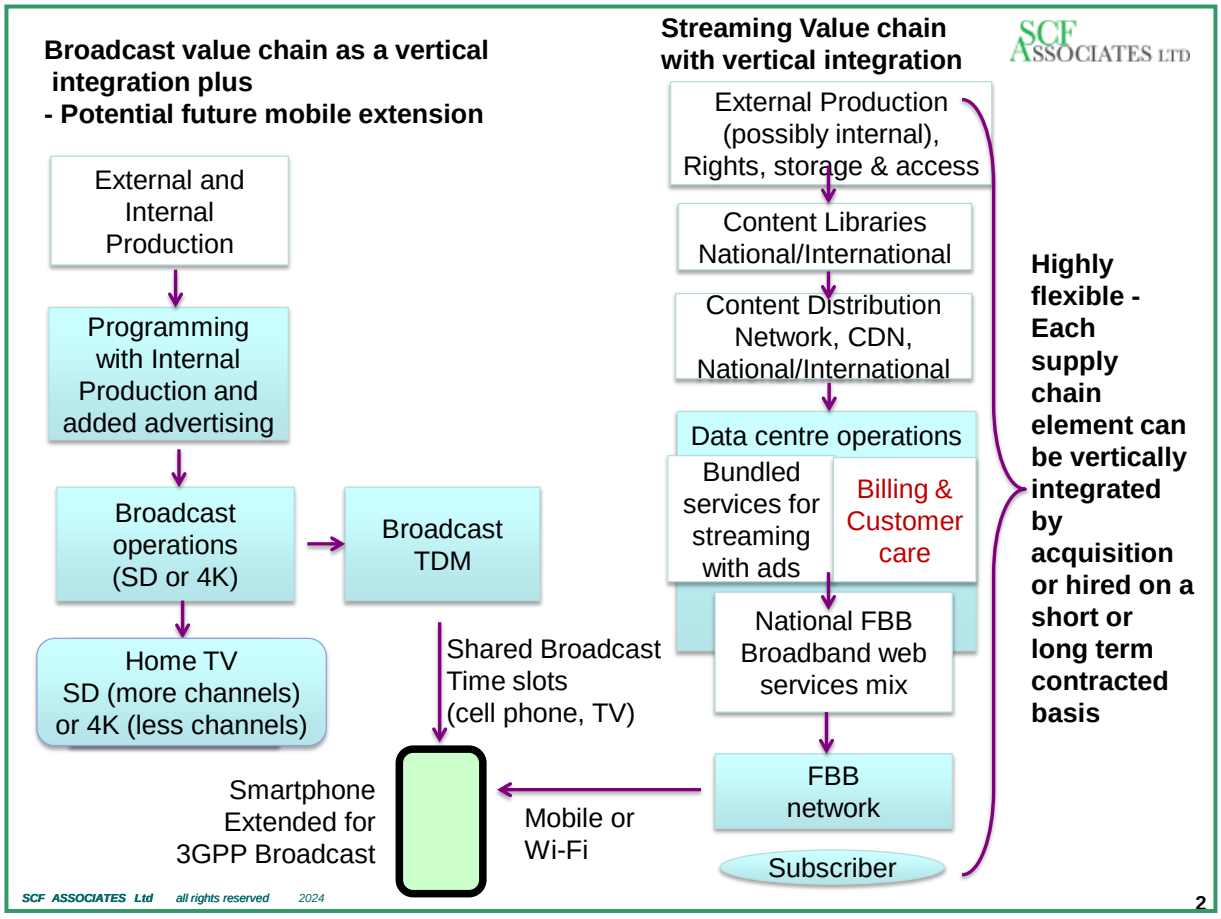
The requirements for a recap of key points is given here – following the detail of the business models above in the audiovisual industry over the next five years. So we offer a brief tour of some of the main business factors and participants.

1) First we examine the changes and impacts on value chains

This looks briefly at results of digital disruption in relation to telecommunications and other related industries.

The business models for the traditional TV broadcasters are different in terms of the delivery channels and their costs, but the role of high quality content, as perceived in the terms of the ordinary viewer, is still key and that, as always, is changing by age-group. The business models when compared are considerably different – largely in terms of the delivery chain, downstream from the content provider.

Figure 2-9 comparing the current business models in the streamer value chain with that of the PSB TV broadcasters



Source: SCF Associates Ltd, 2024, all rights reserved

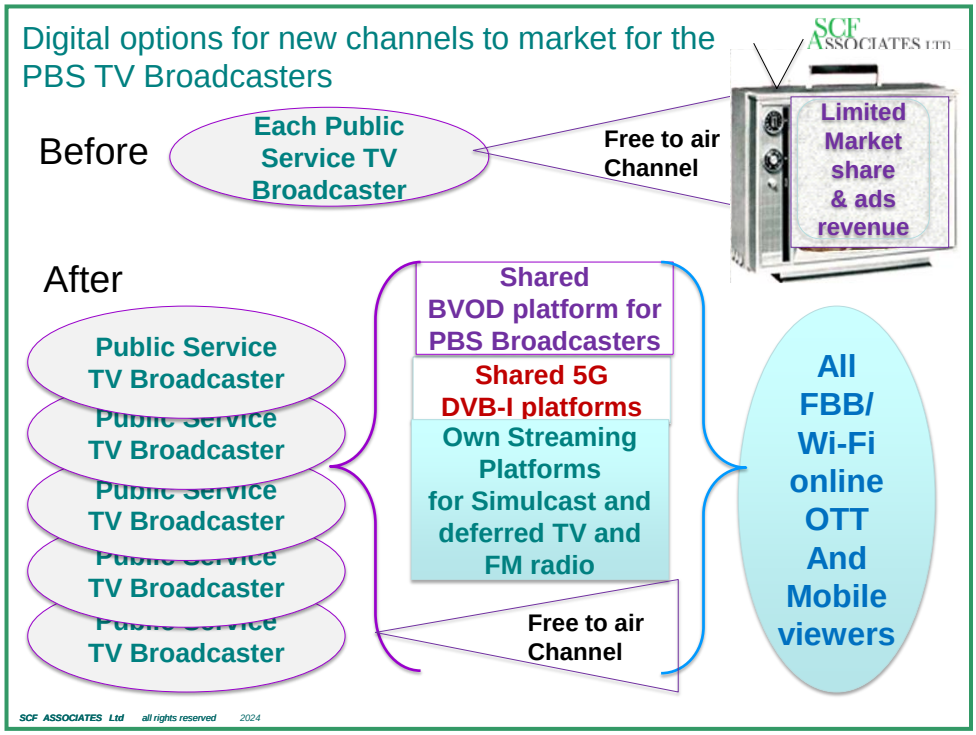
The above diagram shows the completely different value chains for delivery – with streaming being far more complex, possibly being spread internationally and/or nationally with the use of large data centres, perhaps hosting the content libraries and subscription billing operations.

Operations of mergers and acquisitions in the value chains could bring concentration of market power if they concerned supply of content, or the key elements in the distribution chains, as is currently the case for both the Thai FBB delivery infrastructure in Thailand and the duopoly in the mobile sector. Interestingly, the latter two concentrations of market power for OTT providers might leave the TV broadcasters in a stronger position as free to air providers, if duopolistic price following occurs, with price rises in the streaming market due to the delivery infrastructure.

2) Overview of business models of all types of television broadcast/audio-visual operators that are licensees of the NBTC

Here we include the need to change the DTT broadcaster model to be able to compete in the changing industry context – with a diagram of before and after with some analysis:-

Figure 2-10 Comparing the PSB position before and after response to the invasion of streamers



Source: SCF Associates Ltd, 2024, all rights reserved

What we can foresee for the broadcasters, if they take it, as PSB broadcasters have done in the UK, France and the USA is to adjust to these new digital infrastructures and harness it for the

same business, with business models that include shared streaming platforms. It is still advertising based free TV for new audiences and new technologies.

The secret of success is always the same – good content that is fresh, at a reasonable price - affordable by the majority of viewers. All that changes is the channel over which it is delivered – FBB or mobile broadband and in the future new LEO broadband, and possibly the resolution of the screen display (so you always see the ball at Wimbledon).

3) Long term impacts of technologies on the television broadcasting and other audio-visual sector

This is really a question for the scenarios in Phase 3. Over the long term we can see signs of various trends, some of which may be changed, or even reversed by intervention from government, especially using the models from those overseas countries having an industrial strategy for the AV sector:-

- Continued influence and possible growth of OTT streaming services,
- Possible growth of the streamers taking market shares
- Sustained presence of the public TV broadcasters, offering free over the air services (via existing geosatellite, DTT and CATV)
- With acceptance of new access methods by the public TV broadcasters, entering the OTT market in various ways, long terms survival, with growth of the Thai creative production segment could be possible.

4) The international content providers and their role in the Thai audio-visual market

International content providers may be:-

- Major studios – largely from Hollywood
- International streamers with content being gathered from the world – so Bollywood (India) and Nollywood (Nigeria) are also becoming more important, as much as Japan for manga and Korea for K-Pop with France and the UK plus specific writer/directors from places such as Vietnam, as well as China. These sources are gathered into the major content libraries of the largest streamers (as given in the relevant sections above, 2-3 to 2-10)
- Specialist streamers with long histories – the major player is Netflix

The role of the content providers is expanding quickly into not just being streamers abut also to be investors and owners of new content. Netflix, Amazon Prime and Apple are investing large budgets around the globe.

But being the international content providers, their business conditions are different to the traditional studios, who may visit for location shooting but then production occurs elsewhere. All the production can be in a remote country. But once the project is finished two differences are apparent. The international content providers:-

- Take all the rights, none remaining with the production company
- Carry out very little promotion publicly, as the production is immediately added to the content library and sold to their streaming customers, on an individual basis, constructed from viewing preference analysis

The international networking infrastructure for streaming and its revenues basis

Here we explain the roles of the international online platforms in Thailand, and also the international hubs and IXPs for OTT in Thailand with external hubs feeding into Thailand

The international online platforms in Thailand are largely from the USA, the GAFAM group, plus TikTok from ByteDance of China.

They are the major players via their global finances and their control of the markets – usually several markets as all are conglomerates, so in Thailand they operate (as elsewhere) with:-

- Two sided markets - for consumers, merchants, data brokers, advertisers
- The major currency is not monetary, but is consumer data, which is collected, usually without consent or even user knowledge, formed into profiles and sold to others such as advertisers and wholesale data brokers, often in closed auctions
- The second major revenue stream is digital advertising
- A further major revenue accelerator in many markets is the lack of taxation of OTT services, be it for the various profit centres cited above or for sales taxes or VAT on local consumer sales, including streaming. This gives the global players a major advantage over local rivals on competing on the costs basis in any market

The international online platforms are all conglomerates and so enter any market they see as advantageous, and the audiovisual market is one in expansion as the global audience increases with new infrastructure for streaming internationally.

As they are all conglomerates, streaming content is just another business– so they operate with multiple businesses in parallel. Thus Amazon sells consumer goods but also owns MGM for its film library, while its Amazon Prime brand is a major streamer, with its datacentre operations supplied by affiliate AWS (Amazon Web Services). AWS is key to the content delivery networks (CDNs) globally across all streamers, including that of Netflix. Note that Google/Alphabet operates the most profitable streaming site of all –YouTube - for user-generated content, with its major ads revenues and no content costs – as the short form videos are all from the users.

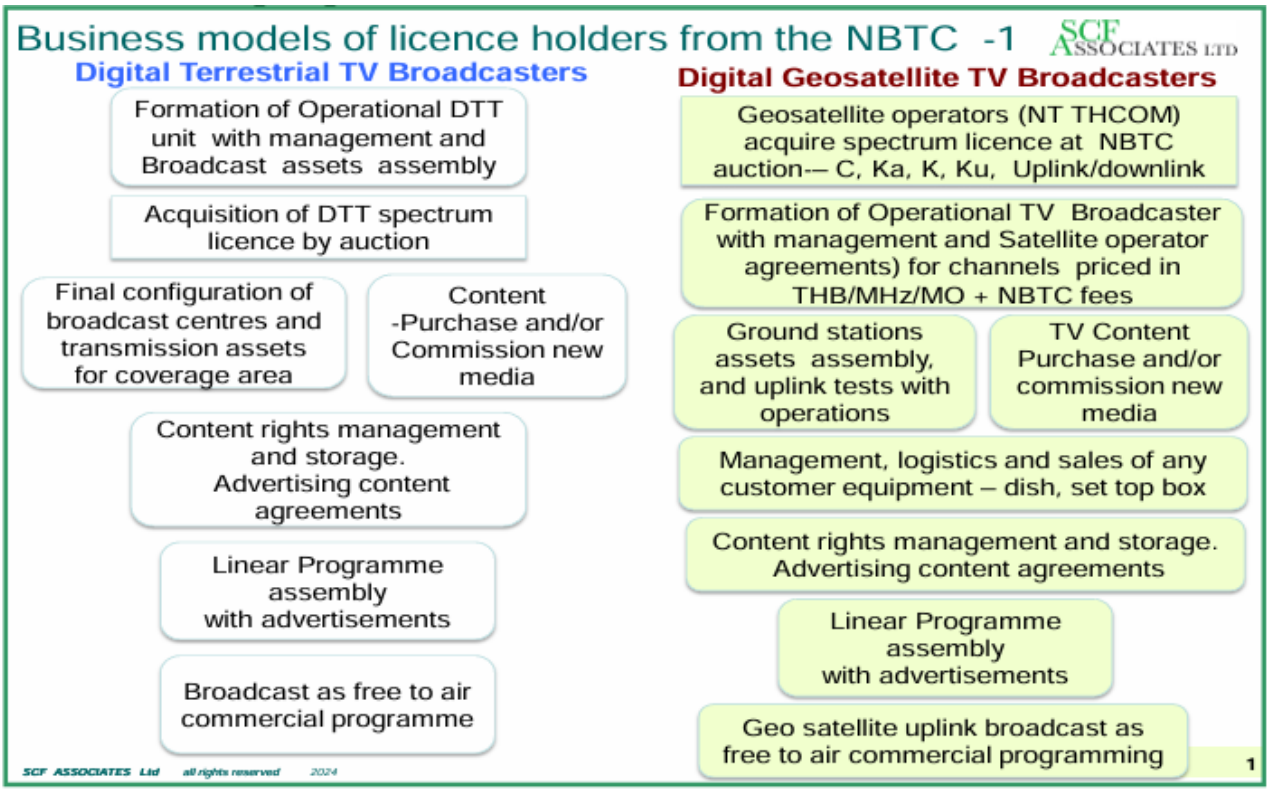
The international influx of OTT content depends on an international streaming infrastructure. This consists of large capacity digital networks, the largest today connecting the world globally, by subsea cables. They have capacities in the Terabit per second range.

The major financiers and owners of the subsea cables linking and within the ASEAN region are the International online platforms – specifically the GAFAM group. The subsea cables terminate via landing sites in international hubs to which the large scale data centres are attached, offering streaming and other cloud services. These hubs may be Internet Exchange Points (IXPs) which are the public international entry points for OTT services into Thailand from external hubs feeding into Thailand. IXPs enable internet service providers, of all kinds, to enter the national Internet networks at a neutral point and not via third party networks only, so lowering costs and ensuring access without traffic limits.

5) Business models for other NBTC Licence holders

The business models of the existing TV DTT broadcast, Digital geosatellite TV, cable TV and for IPTV on demand video and broadcast are shown below diagrammatically:-

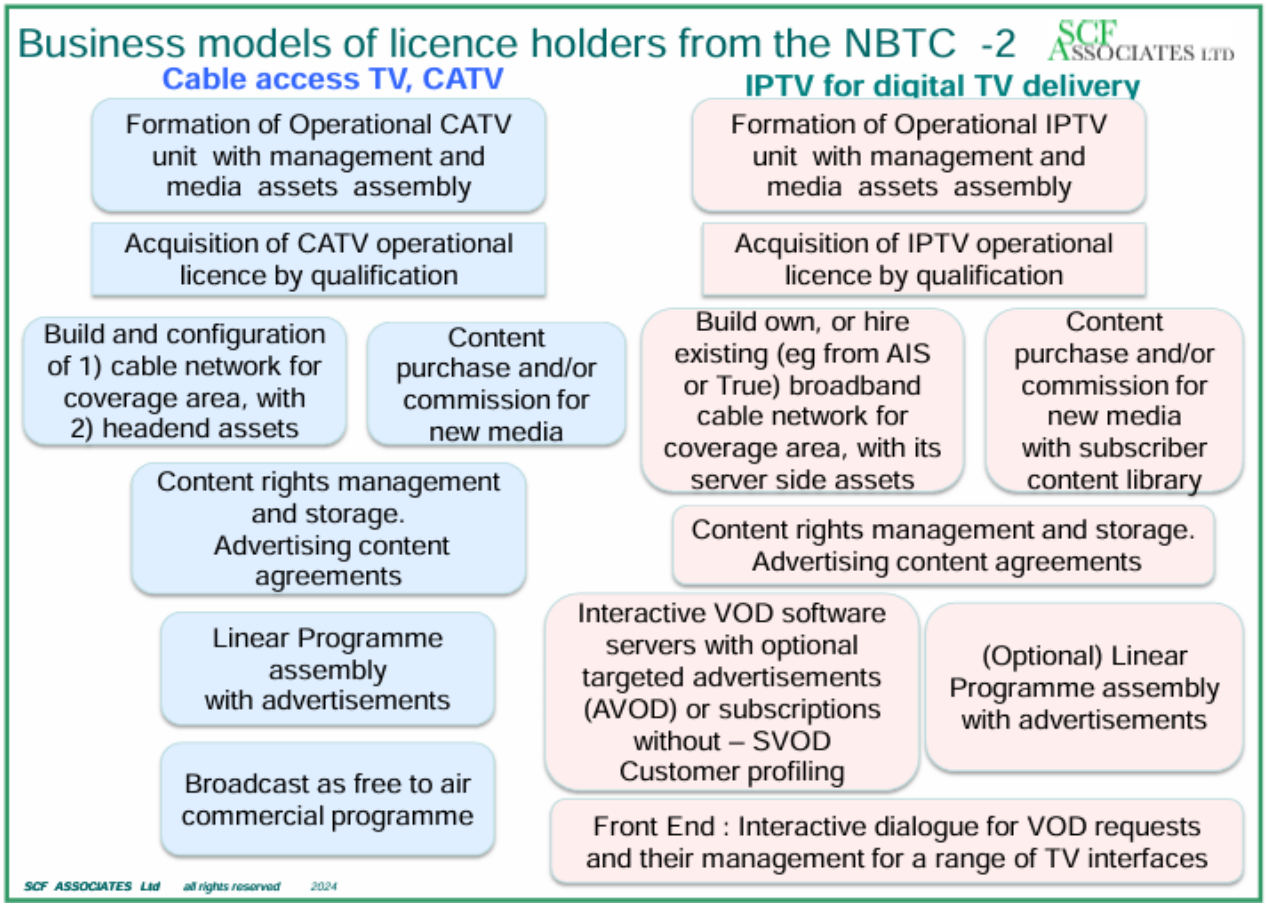
Figure 2-11



Source: SCF Associates Ltd 2024

Below, the business models of cable TV operators and IPTV network operators are compared:-

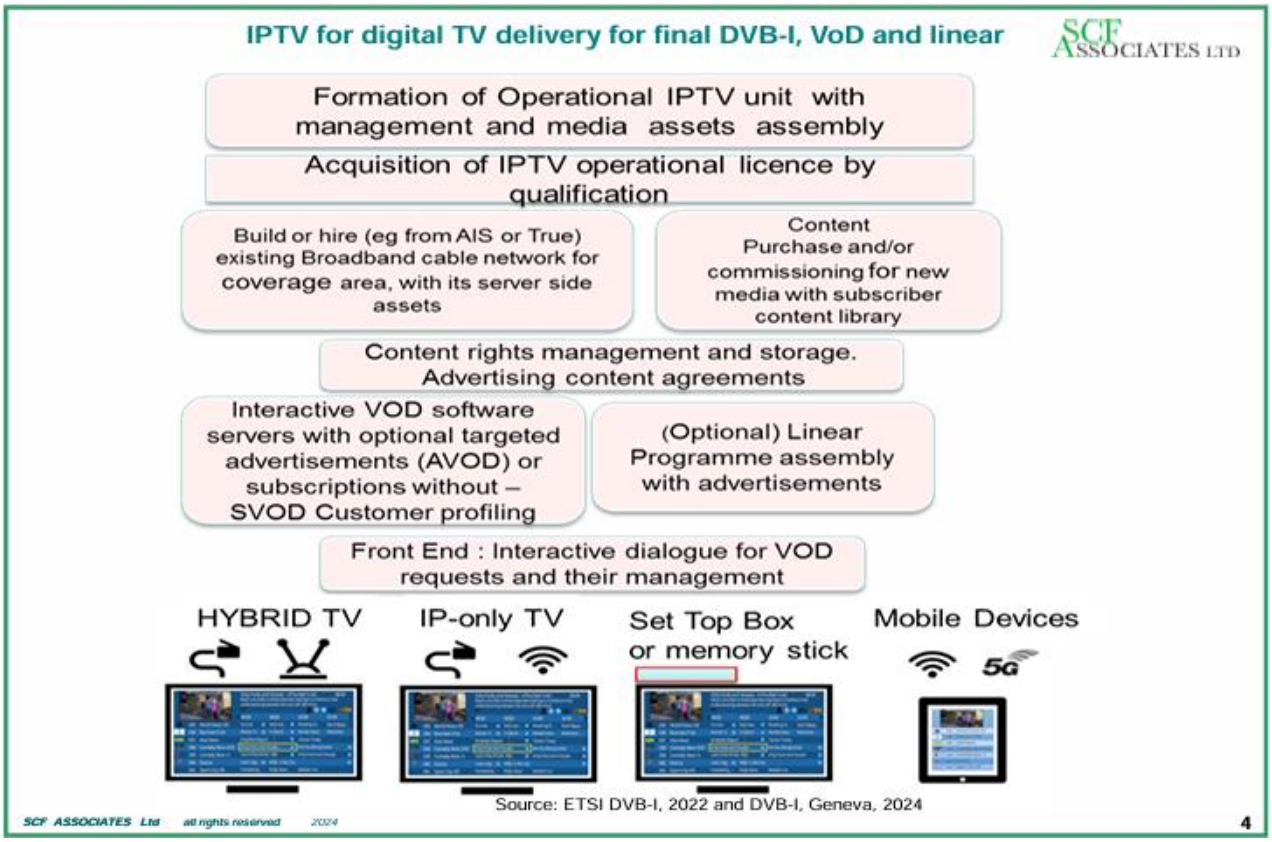
Figure 2-12 Business models for cable TV operators and for IPTV network operators



Source: SCF Associates Ltd 2024

DVB-I, Digital Video Broadcasting – IP for interfacing broadcast or streamed TV to Internet ready TV sets are shown below:-

Figure 2-13 IPTV streaming value chain with the various forms of DVB-I digital Video Broadcast receivers and their various expected TV signal interfaces



Source: SCF Associates Ltd 2024

The various Forms of DVB-I combine an IP connection via a TV display or a smartphone to view broadcast over IP (via the IPTV infrastructure) which supplies various interfacing configurations for the consumer viewing the content – this is the streaming model used for non-linear TV (and if also streamed) for linear TV programmes over IP connections.

Receiver configurations are also shown - with the various streaming connections, for a smartTV, or IP only, to those with multiple interfacing for an antenna and for a broadband connection, or for those using a set top box (STB), or the various interfaces via a common TV operating systems, perhaps on a memory stick or already loaded in a memory module.

2.3 Global financial situation and the FDI prospects for the Thai economy

2.3.1 Levels of foreign direct investment - Prospects for the Thai economy

This section considers global financial conditions with industry projections for the Thai economy of the impact on the audiovisual sector of the Thai macro-economy and the extent of

foreign direct investment into it. It thus offers a brief analysis of external financial drivers (here limited to English language sources).

A way of thinking about the relevance of overseas investment to Thai GDP growth is that the country's economic performance in this regard is likely to have direct impact on the speed of forthcoming changes in the audiovisual sector. Because an increase in consumer spending makes both investment more attractive and elicits faster spending on paid audiovisual services and, possibly, paid advertising on relevant channels. It may also enhance government subsidies.

However, the move towards new technologies in audiovisual in the general direction of migration from linear channels to streaming seems universal and unavoidable. As an example, the UK has seen no GDP growth of any significance since the global economic crisis of 16 years ago, but the UK population has undergone a massive switch in its use of audiovisual. This suggests that modest variation in changes in GDP (rather than massive benign or, more likely, catastrophic variations) do little more than shorten or lengthen the birth pangs of audiovisual history, leaving our advice on how to regulate it largely intact.

However, the same may not be true of the flow of FDI, which is likely to be more affected by both global and country-specific economic trends in both the sending country and the receiving country, and also more amenable to changes in government policy and regulation.

Note also that current economic forecasts place Thailand in the centre of future global economic expansion, being part of the developing Asia area, now identified as the beneficiary of a shift in world output into it over the next decade[183]. Moreover the impacts of future lower energy costs, as renewables, in the long term provide a larger percentage of the total power demand globally. That is likely to drive down the cost of living, and so increase disposable income, for audiovisual services.

2.3.2 Projections of the Thai macro-economy

According to the OECD, Thailand's development has been rapid, passing through several changes in growth policy over the past 60 years:-

- 1960s – agriculture-based growth

[183] Wolf, Martin, (2024), What we know about the Global Outlook, Financial Times, 17 Jan

- 1970s – import substitution (– that is the substitution of imports for nationally produced goods and services)
- 1980-96 – economic reform and export-led growth
- 1997-2006 – 1997 crisis and recovery
- 2006 -2020 -- moderate growth, political uncertainty, global crises.

In this transition, annual GDP growth has fallen from 8% in the last century up to 1997, to roughly 3% currently.

Recent experience has included a large Covid/air travel crisis leading to a GDP fall of 6% in 2020, a recovery to 2.6% in 2022, and a disappointing end to 2023, which generated a provisional figure of 2.8%. This last was attributed by the Asian Development Bank to a further contraction in merchandise exports, lower public spending and public investment, and front -loading of expenditure in financial year 2022/2023.

According to the same ABD source, 'the growth forecast for 2024 is lower, at 3.3% down from 3.7%, on weaker than expected tourism receipts and merchandise exports, and subdued business sentiment and investment.'

This may be affected by the Government's Digital Wallet plan, to distribute THB 10,000 (USD 286) to each Thai national aged 16 or above, below a certain monthly income level (THB 70,000) and having less than THB 500,000 in the bank. The total planned amount is equal to 2.7% of GDP. This would increase both government transfer payments and household spending as the key factor in media sales – disposable income - will climb. The Bank of Thailand Economic Outlook projects that this would increase GDP growth from 3.2% to 3.8% in 2024 and from 2.8 to 3.1 % in 2025. (How much would go on AV services or investment in new means of reception is as yet unclear.)

The World Bank's Thailand Economic Monitor for December 2023 projects Thailand's GDP growth for 2024 and 2025 at 3.2% and 3.1% respectively. (These figures were revised down over 2023.) Private consumption is projected to grow at 3.9% and 3.4% in the same 2 years. From the above the key points on the Thai economy in the near future are:-

- The current account balance will be positive and growing because:-
  - Net exports of services and private consumption will grow;
  - Tourist arrivals will reach 90% of the 2019 level in 2024;
  - The government deficit will decline, but public debt as a percentage of GDP will grow slightly, to 63.1%.

- It is also pointed out that weaker than global growth and geopolitical uncertainty do also pose key downside risks to the near term outlook.

It is not unusual for short-term forecasts of an aggregate such as GDP to converge closely. Over the medium term there is often more divergence. There seems to be agreement in Thailand around the 3% growth figure. But compound interest does have an effect with even a modest 3% growth rate which gives: an increasing of 6% in 2 years, 13% in 4, 27% in 8, and 61% in 16 years. Thus there are various market projections for Thailand's future growth – for example - Statista offers a GDP forecast to 2027, with growth figures from 2024 to 2027 of: 3.2%, 3.1% and 3.3%.

Finally, considerations of interest rates:-

These are set in Thailand independently by the Bank of Thailand Monetary Policy Committee. The current rate is 2.5%, confirmed on a 5-2 majority at a meeting on February 7, 2024. This rate is comparatively low globally and positive for investors in that it points to a stable economy with interest rates low set for growth (in comparison currently - the current US target rate is 5.25-5.5%; the UK rate is 5.25%).

This followed public agitation by the Prime Minister/finance minister for a cut, on the grounds that inflation was falling. The chair of the Committee argued in return that this was because of government subsidies, not natural economic forces. (See reports in the Nation, 5-7 February 2024.) The Deloitte Thailand Economic Outlook at end 2023 expected the rate to rise to 2.75% in 2024.

2.3.3 Foreign direct investment (FDI)

This bears upon the question not of whether the Thai viewer will consume audiovisual content from overseas: all retailers of content (Thai-owned or foreign) will clearly want in varying degrees to import and distribute programme display rights from overseas. We also know that overseas investors, from Singapore for example (Singtel and Temasek) have invested in the more advanced fibre optic communication networks which distribute streaming video content so that Thailand is already seen as market for high technology investment.

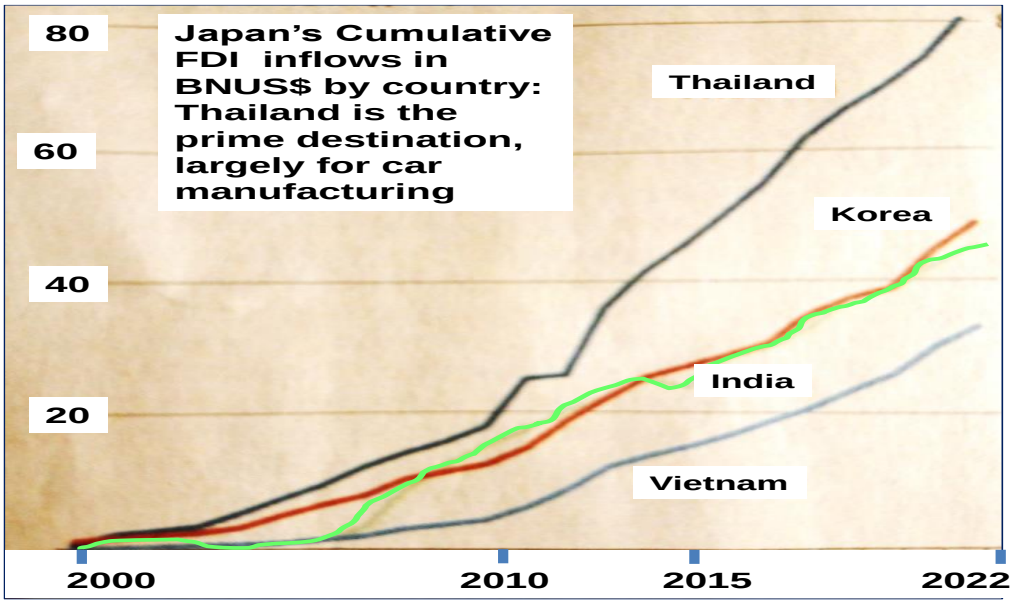
The issue here is more to do with media video production: would a US company like Netflix want to expend resources on making programmes in Thailand, as it does in many other countries? And thus, does Thailand need a video production policy to direct locally created content?

2.3.4 The background on FDI in Thailand in general

From the World Bank's Thailand Economic Monitor, December 2023:-

- Thailand's FDI inflow as a percentage of GDP grew faster than comparable economies such as Indonesia, Philippines and Vietnam, but not faster than Malaysia, between 2011 and 2022.
- In 2021-2022, in terms of its FDI inflows, Thailand was exceeded by Vietnam also. Thailand retains the highest inward stock of foreign capital remaining in the economy of all four countries, from 2011 to 2022, demonstrating the perception by investors of thriving economy, now and for the future.
- At the same time, its share of total FDI inflow into ASEAN declined. This is because other countries with lower labour costs have made themselves more attractive. Thailand has also reformed business regulation, streamlining processes – and so reducing the time to set up a business from 29 to 6 days.
- Where does FDI for Thailand come from? According to the World Bank, a wide array of countries - in descending order, Japan (notably for its car industry in Thailand), Taiwan, China, USA, and EU.

Figure 2-14 Thailand has led in Japan's FDI destinations over the past 20 years making Thailand its primary destination for FDI in SE Asia, beyond South Korea, Vietnam and India (BNUS$)

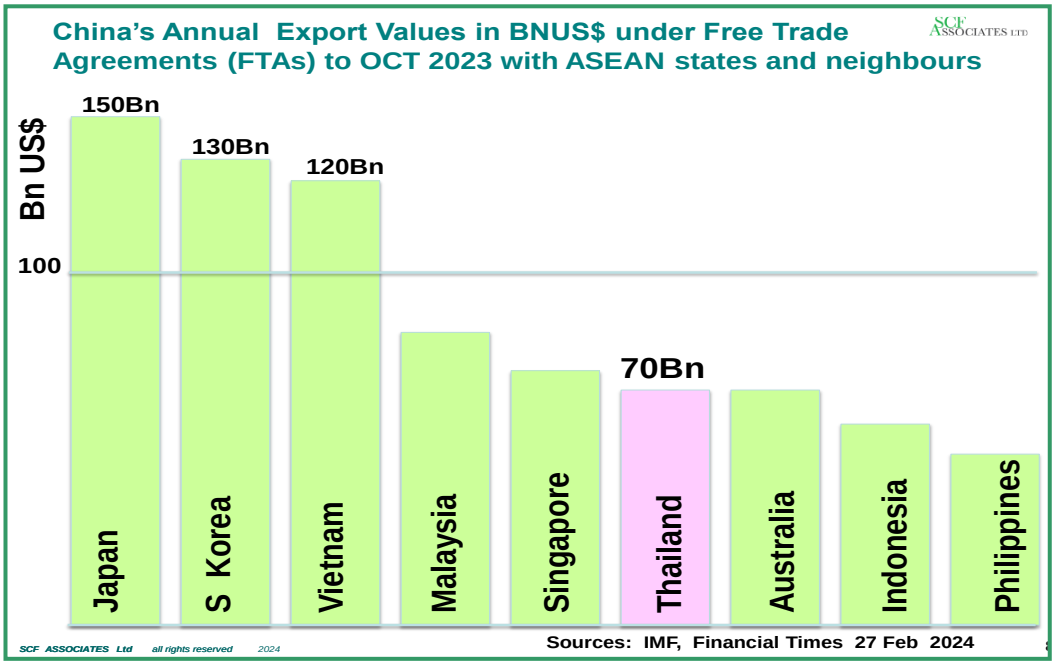


Source: Japan External Trade Organisation, Financial Times, Lex, 04 May 2023

What could be the future major sources of FDI? Upcoming sources of large-scale FDI could well be China, but possibly not using its Belt and Road initiative, but instead, direct agreements on

mutual benefits under China's Free Trade Agreements (FTAs) shown below[184] to October 2023 for ASEAN states and neighbours, annual funding export values in BNUS$:-

Figure 2-15 FDI from China under direct FTA investments



Source Financial Times, 27 Feb 2024, and IMF

China has a glut of excess savings[185] and is anxious to reinvest this, probably via various state owned or affiliated investment banks specialising in overseas direct stimulation of new businesses. And the sums are large – some 28% of world savings. For instance CICC (China International Capital Corporation) notes that future investment from China into South East Asia will be significant over the next decade[186]. CICC already invests in the online platforms in China- Tencent and Alibaba. It has opened investment offices in Singapore and Vietnam, looking for future opportunities, with a Thai office soon, using the Chinese 'Panda Bonds' rather than dollar denominated.bonds.

- What sectors does FDI generally go into? According to the World Bank :-
  - Predominantly, electrical appliances and electronics

[184] Kynge James, and Fray, Kieth (2024) *China's Plan to Reshape World Trade,* 27 Feb.

[185] Wolf, M.,(2024), China's excess savings are a danger, Financial Times 06 March 2024

[186] Ruehl, Mercedes, (2024), CICC targets South East Asia for next growth phase, Financial Times, (2024), 18 March

- Machinery and vehicles: car parts and car assembly. Thailand's car making is now over 10% of its GDP[187]
- Metal and materials
- Chemical and petrochemicals
- Agriculture, food and biotech
- High value services.

More detailed breakdown of the destinations of FDI can sometimes spread light on how much, if any, the Thai audiovisual sector has received. This issue is associated with a much broader one of the extent of the necessity of (or advantages in) offering content in the Thai language - a question for the study on the Thai AV market.

Interviews with those industry sources who operate internationally indicate that financing content in one country does not preclude that content's sale in other countries now, due to the use of the latest low cost translation technology and the possibility of direct translation rather the traditional voice-over dubbing, or subtitles.

The major USA studios may sell their content in 17 standard languages, and not just for major features films but for low cost children's cartoons. Moreover the cost threshold for translation with lip synchronisation and facial expression changes is reducing with pattern recognition software (termed 'AI') coupled to VFX graphics in post-production studios.

Thus a further source of investment in the Thai production and post-production sector is likely to be the streaming platforms (especially Netflix, possibly Disney, WBD MAX, etc) and the global GAFAM platforms especially Amazon Prime, also AWS, possibly Apple+, all seeking lower cost, higher technology applications. If the sector can invest in higher training standards for both creative resources, as well as technicians, then investments from the global players looking for new content could expand.

In conclusion

In summary, the outlook for FDI globally is fairly positive. Thus the possibility that FDI flows inwards to the Thai audiovisual industry production and distribution segments is quite feasible. Thailand could be seen as attractive if investors begin to consider Thailand as a vibrant market for content sales, with its rising tourist trade as well as a potential centre for original production. That

[187] Financial Times, (2023) Thailand: Hub Club, Lex: 04 May

could happen spontaneously but would probably require promotion by the industry itself, possibly with government support as such investment inevitably seeks a benign regulatory and backing for training and new talent.

2.3.5 Possible growth in regional import/export markets that could impact the Thai content production sector

Here we introduce a Note on Possible Growth directions in regional Import/export markets that may impact the Thai content production sector

The basic parameters

We use three sources of market developments to examine potential Growth in regional Import/export markets that may impact the Thai content production sector

- FDI outlook
- Demand for content to 20230 by Netflix
- Rate of growth for a major area for Thai AV sector growth – gaming.

FDI outlook[188]- an ASEAN FDI prognosis

Using the data above on FDI the current view is that the ASEAN (the Association of Southeast Asian Nations) region will remain one of the fastest-growing regions of the world in 2023 and into 2024 but economic growth could likely fall marginally. The ASEAN region was among the fastest growing regions of the world in 2022 – the Asian Development Bank (ADB) predicted that economic growth in Southeast Asia will equate to 5.5 percent for 2022. This may be due to worsening global economic conditions and tightening monetary policy. The second half of the year might see conditions that are favourable to organic growth as falling inflation provides central banks with greater rate flexibility. This should complement increasing economic activity in China, if its internal economic-political problems with the real estate market stop spilling over[189] into the wider economy. ASEAN FDI inflows have been strong in the recent past with a 42% increase after COVID in 2021 to US$174 Million (UNCTAD[190]). Rising tourist inflows should maintain this trend[191].

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188 James Fox January 3, 2023, ASEAN Briefing https://www.aseanbriefing.com/news/asean-economic-outlook-2023/

189 Financial Times, July 2024.

190 UNCTAD ASEAN investment report 2022

191 Focus Economics 2024

Thus the ASEAN region will remain attractive to foreign direct investment, with trends in commercial and state investment likely to remain consistent throughout the year, despite a more challenging macroeconomic environment. However ASEAN nations enter 2024 and beyond with a host of evolving economic pressures. Some of which will undoubtedly act as a drag on growth globally. As such, the ADB in 2023 forecast to 4.7% for ASEAN as global demand weakens. The IMF forecast global growth at 3.2% in 2022 and 2.7%in 2023. However, Credit Suisse analysts expect the growth of six ASEAN economies – Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam – to moderate to 4.4% in 2023 from their projected 5.6 % in 2022. The ADB expects 4.9% ASEAN net growth in 2024-2025[192]

These figures put regional economic growth some way above the global average. As such, ASEAN remains an attractive destination for international investment, with offering one of the fastest-growing regions globally.

Expected future ASEAN economic outlook

ASEAN nations might perhaps benefit from a privileged geopolitical position in future as USA-China rivalry intensifies and both superpowers seek to deepen ties in the region. Both nations have highlighted their commitment to trade with ASEAN economies, with FDI promises – China particularly through access to the Regional Comprehensive Economic Partnership (RCEP) agreement and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). The US only has free trade agreements with selected ASEAN countries but note this approach is now being favoured by China in ASEAN and for Thailand.

Moreover, Thailand with several nations in the region have large international tourism sectors, and a further improving tourist environment should contribute to the further industry's recovery in 2025. Thailand and Malaysia could post over 4% growth next year with strong tourism The former's current account should rebalance next year on a tourism rebound.

[192] ADB, AD Outlook, April 2024

Table 2-5 ASEAN countries, projected CAGR, 2023

Nation (In CAGR order)	Goldman Sachs real GDP estimates growth % 2023	Average real GDP estimates (%) 2023
Singapore	1.5	2.6
Malaysia	4	4.3
Thailand	4	3.9
Indonesia	4.4	4.9
Philippines	5.8	5.7
Vietnam	5.8	6.5

Goldman Sachs, 2023

Malaysia, the Philippines, and Thailand will likely see the tourism sector recover to pre-pandemic levels in 2023. But doubts remain as to whether Chinese tourists will return immediately despite a recent removal of restrictions. In December, the Chinese immigration authority said it would resume issuing visas for mainland residents to travel overseas from January 2024.

S&P Global analysts suggest that the global slowdown will have less impact on domestic demand-led economies over the next few years such as Indonesia and the Philippines – both were predicted, to see at least 5% growth in 2023. They contends that domestic demand has further to recover in Indonesia, Malaysia, the Philippines, and Thailand, as these nations reopen in their entirety.

However, prevailing global conditions, elsewhere are weakening growth, and even recession in developed economies; that may reduce economic activity in demand from ASEAN nations. Meanwhile, many Southeast Asian central banks have raised policy rates in response to rising global interest rates, capital outflows, currency depreciation, and accelerating inflation with higher global food and energy prices. However the falling inflation may persuade the central banks to adopt a softer interest rate position towards the second half of 2024 or in 2025.

Foreign direct investment

ASEAN economies have been attractive destinations for FDI in recent years. These nations generally provide attractive alternatives for companies looking to reduce their exposure to China in light of increasing trade barriers and the desire to simply find cheaper production sites.

Nations in the region are broadly seeing faster than average GDP growth, reflecting booming population expansion and increasingly liberal trade policies. In turn, multinational corporations are

increasingly looking to Southeast Asia as an alternative production hub, attracted by its competitive wages, improving business regulations and infrastructure, and increasing domestic demand. Singapore attracted some US$100 billion in foreign investment in 2021 and more in 2023. Key industries for investment in Singapore include IT, aerospace, electronics, pharmaceuticals, and professional services.

Thailand has been a consistent recipient of Chinese investment for some time and with its savings glut, this is likely to expand with the acquisition of technology based businesses. Thailand is at the heart of the ASEAN bloc. It is becoming important for the Chinese state plans for global connectivity in ASEAN as well as private investment. The former point is being addressed by the Belt and Road Initiative while private investors are increasingly seeing Thailand as an investment destination for initiatives in fintech, possibly AI, as well as health care, medical tourism.

Note that Vietnam offers investors access to a host of internationally competitive industries and provides greater market access and certainty for global producers than China. With trade wars between the USA and China, Vietnam has emerged as the main alternative supplier for some products including from its textile industry to the USA, following the USA laws on forced labour, shutting out China.

The above examples are reflective of longer-term trends that will continue despite a weakening global economy. The continuing increase of FDI into ASEAN, particularly for Singapore, Malaysia, Thailand, Indonesia, and Vietnam will likely continue in 2024-5.

China reopening in focus: China and the health of its economy is, partially by virtue of its geographic proximity and the associated trade networks, a significant factor influencing economic growth in the ASEAN region and Thailand. The impact of China's sudden reopening is likely to slowly felt. The World Bank data sees Chinese economic growth recovering to over 4% from an estimated 2.7 percent in 2022. While some sectors in some ASEAN economies can be seen as net beneficiaries of China's internal challenges and its trade war with the US, improving Chinese growth may be positive for the whole ASEAN region, in the short term.

Demand for content to 2030 by Netflix, Disney+ and others

A most important factor in the future market in AV content for Thailand is the degree of demand for new content from the major streamer. Thailand with a suitably trained and priced AV production sector could be ideally placed to take a significant market share of the demand for content by the streamers, largely.

It is interesting from the point of view of the available cashflow for new content commissioning to look at the Hollywood studios and Netflix revenue for the twelve months ending March 31, 2024 was $34.932B, a 9.47% increase year-over-year. Netflix annual revenue for 2023 was $33.723B, a 6.67% increase from 2022. Netflix annual revenue for 2021 was $29.698B, a 18.81% increase from 2020[193].

The real interest is in the content procurement globally by Netflix as a market indicator of the cashflow for the AV industry, as well as the 'Hollywood Bunch' who are considering the ASEAN market as a source for new production. The USA streaming platforms Disney+, Netflix and Amazon Prime Video are expected to account for almost a quarter of the global growth in spending on original film and TV content over the next five years to 2029. The projections from 2023 are that between 2022 and 2027, Walt Disney Company's subscription-based, video-on-demand streaming service, Disney+ is expected to increase its annual investment into original content by 82.8%. Original content spending by Disney + is expected to hit $7.7bn in 2027.That is the highest rate of any major global media and entertainment group[194],.

Over the same period, Amazon Prime Video with an expected growth rate of almost 70% in its original content investment, reaching $6.46bn; followed by other streaming platforms Peacock (+68% to $3.13bn); Netflix (+43% to $9.7bn); and Paramount+ (+33% to $2.28bn). These forecasts are primarily driven by shifting consumer viewing habits away from broadcast 'linear' TV to streaming OTT online services. That takes advertising revenues away from the traditional TV players. The global content market is seeing a flat spend for linear TV channels. Traditional TV groups and cinema film producers are seeing the largest declines so they now also own and operate their own streaming players. As the business is now based on high quality new content to satisfy 'on demand' digital video markets, a shift in content investment towards digital players to supply these major players is the norm globally.

This applies to the main USA commercial broadcasters, such as HBO with Discovery, and NBC Universal, which are expected to reduce spending on original content by the highest rate over the next five years. Streaming platforms, including Netflix, have also moderated their spending

[193] https://www.financecharts.com › stocks › NFLX › summary › revenue-ttm-cagr

[194] Ampere Analysis, 2023, London

budgets to cut costs and rolled out new subscription models, including cheaper options that come with increased advertising, in a bid to retain subscribers.

This means although they are desperate for new content, the productions costs must be cut enormously over the next five years. That provides a significant opportunity for Thailand if it can move to becoming a major production centre, with creative writing, real series, pre and post-production as well as the main major productions for the ASEAN and global markets.

The industry expects this to diversity and cost cutting to continue due to the spread of local content's potential to attract new audiences and incentives for film production in countries from Colombia and Ghana to the UK and Poland.

As early as 2022, half of Netflix's total new content investment was spent on acquiring and producing titles in markets outside the USA and UK. For Amazon Prime Video the figure was 66%. Spending on local content in new markets has been central to streaming platforms' strategies to push subscriber growth and has created opportunities for local job creation and economic development. Ted Sandaros, Netflix's chief content officer, speaking with investors noted that the local content investments are more important because it actually increases the total addressable market for Netflix around the world. If we were just doing English content for the world, we would be mostly attracting Western-centric viewers.

There have been other shifts in types of content and genres in recent years, including more unscripted content being commissioned, which is typically cheaper to produce. Also, local language content has spread, in the original, ever more popular outside of its original language markets now — particularly for younger audiences who increasingly will watch subtitled and dubbed content. So Netflix's South Korean series Squid Game and French crime drama series Lupin are prime attractions.

Rate of growth for a major area for Thai AV sector growth – gaming

We now turn to examining growth in key economic activities in a more focused approach to the AV sector than general FDI flows and the approach of China. Thailand already is and could be far more present in software for gaming. The global video game market size[195] is estimated to reach USD 583.69 billion by 2030, with its CAGR of 13.4% from 2023 to 2030.

[195] Grandview Research 2024, https://www.grandviewresearch.com/industry-analysis/video-game-market, according to its new report

The growing penetration of smartphones, easy availability with access to games on the Internet, and increasing use of AR and VR technologies in gaming frameworks are driving the growth of games markets across the world. Players now seek games with more realistic graphics, detailed textures, and advanced visual effects to utilize their gaming rigs' capabilities fully. The demand for games that can deliver visually stunning graphics for mobile platforms has contributed to the growth of the market.

Furthermore, favourable demographics are contributing to the demand for video games on different gaming platforms as younger age-groups dominate the Thai and ASEAN countries, providing an expanding customer segment. Moreover appeal is widening to new social groups. The participation of female gamers, as according to MMA Global, the marketing trade association, most mobile gaming audiences comprise a majority of women in some Asian countries, such as India. Trends overall are to e-sports, social gaming with cloud-based gaming, all of which positively impacts sector growth.

In addition, as per the State of India Gaming Report 2022 report by Lumikai, a venture capital firm in collaboration with Amazon Web Services (AWS), women, on average, spend 11.2 hours per week playing video games; while the time spent by men on video games is 10.2 hours/week. Moreover, the gaming landscape has evolved significantly in recent years, with a notable shift toward mobile/smartphone gaming. Mobile gaming has experienced rapid growth, becoming the dominant segment of the gaming industry. The widespread availability of smartphones & tablets, improved hardware capabilities, and increased internet access have led to a surge in mobile gamers worldwide.

In addition, mobile gaming has remained popular among gamers, with a growing community of dedicated mobile gamers. The rising preference for mobile gaming has positively impacted the market by fuelling the demand for high-quality and visually appealing games. Given advances in mobile hardware capabilities, mobile games are expected to have impressive graphics and visual effects.

Of the world's top 10 most popular online games, eight games are serviced on mobile platforms. But AR/VR is entering although the headset costs are high. In June 2023, Apple launched its Apple Vision Pro, currently with a price in US$ of 3,500- 4,000 US$, which may be a high barrier. The headsets offer immersive viewing experiences, spatial sound and high audio-visual quality in mixed reality (MR) modes. Facebook/Metaverse and others have also a new gaming meme to move characters from one gaming experience to another ('Web 3.0'). Such new product directions

just may trigger accelerated games market growth – with possible avenues for developments in the Thai sector for gaming software creation.

In summary

Thus the global investment environment is positive on inwards financing generally to Thailand. If Thailand can create a strong AV production sector – the market globally is moving towards that model. This would be especially encouraging if Thailand can offer low cost production technology for VFX and 'AI' techniques, with the technicians for general film production and post-production at world-beating costs.

Furthermore, when we examine global growth in media content in a particular sub-segment such as gaming, with its software production, the outlook is also distinctly positive.

2.3.6 Final Summary on selected key points from this chapter

In the audiovisual industry over the next five to ten years, the questions of the main business factors and participants, with the major directions are reviewed as Scenarios, which are given in the next Phase 3 of the Study Project. International infrastructure developments that may have impacts on Thai market and possible growth in regional export/import markets that will impact the Thai content production sector are similar questions, which we consider here.

However, investment flows from national players, both creating new distribution channels (linear TV and OTT platforms) and also the content production side with its prospects for the ASEAN region can be seen from the data above, projected, as in general terms a number of trends:-

- Internal investment flows from within Thailand for new production and new post-production facilities and new delivery systems are unlikely to dominate the sources of revenue
- More likely is visibility of the need for stimulation by the relevant administrations to stimulate the AV sector in both distribution terms and original production
- Thus investment in new distribution systems for the PSB TV broadcasters would have to come from their internally generated funds.
- The investment flows from outside Thailand are expected to be large if the national production facilities are seen as targets for investment and show signs they can evolve into world class centres of production and post-production.
- The OTT market in Thailand may be seen as interesting, although small, and might form part of an OTT strategy for all of ASEAN.

- In that case two main scenarios of investment are likely:-
  - Commissions from the major global streamers for new productions and also separate post-production commissions can be expected if costs are low compared with global charges
  - Investment in the production facilities as long term ventures, from those with major funds to invest in new production long terms. The key player here is China, rather than the USA's Hollywood studios of the GAFAM group.
- International AV infrastructure developments that may have impacts on Thai market are quite diverse, with possibilities of new satellites streaming, but a significant development could be an ASEAN subsea cable network for access to a wider market, but again, that might be overtaken by a global LEO and geostationary satellite trunk network in space using laser beams, not only radio communications.
- Possible growth in regional export/import markets that will impact the Thai content production sector are related questions, and the conditions for that are treated in the scenarios.

2.4 Social media – Benefits and Costs

2.4.1 The entry of social media into Thai society

We have already noted the entry of social media companies and digital platform companies into the audio-visual sector in Thailand and globally. Thus Facebook, following TikTok's example, has recently largely reconfigured itself to accommodate the switch of customers' tastes away from postings of recent events to friends and family and access to news and towards viewing short videos, many of which are home-made. Crucially, the criterion which Facebook uses to select which videos to promote to each user depends increasingly on that person's own characteristics, rather than the 'likes' of their Friends.

The liberating and beneficial effect of social networks based on digital platforms has been generally recognised. However, various less benign consequences are also observed. Both of these effects are captured in three successive studies over recent years based on polling different cohorts of US college students. In the first, Facebook users were asked to specify what monetary compensation they would need to give up their use of the service for a month. In 2016-7, the figure

was at the US$35-50 level.[196] The second study found that a four-week period without Facebook 'improves subjective well-being and substantially reduces post-experiment demand, suggesting that forces such as addiction and projection bias may cause people to use Facebook more than they otherwise would.'[197]

A third more recent study shows both that a sample of several thousands of US college students, questioned in 2023, would need to be paid US$59 to deactivate TikTok and US$47 to deactivate Instagram, if others in their networks continued to use their accounts. But they would be willing to pay USD28 and USD18 respectively to have those others and themselves deactivate the two platforms [198]. Based on these findings, the authors identify a 'social media trap' for many customers, who would pay to avoid exclusion from the platform if it is widely used, but would also pay for it to go away entirely. In other words, for this group of respondents the social network may be not a public 'good' but a public 'bad'.

A massive amount of international data has been accumulated on what forms of harm social media can inflict on users and on wider society. It includes studies on their impact on vulnerable groups in society - for example young people likely to self-harm or to commit suicide, and the effects on users of hate speech. We illustrate this by briefly citing two reports on the impact of social media on the mental health of young people, before turning at greater length to Thai evidence of these phenomena, which may merit a regulatory response which will be considered in later phases of this report.

Both the US Surgeon General and the UK Government Department of Digital, Culture, Media and Sport have recently reported, and in the former case issued an Advisory on the impact of social media on youth mental health.[199]

Both reports agree that there is potential risk of harm to young people from both content exposure and excessive and problematic use, as well as conferring benefits on children and adolescents. The harms include social isolation, competitive pressure, increased exposure to

[196] E. Brynjolfsson et al., 'Using massive online choice experiments to measure changes in well-being', *Proceedings of the National Academy of Sciences of the USA*, 116(15) 2019

[197] H Alcott et al. 'The Welfare Effects of Social Media.' (2020), *American Economic Review,* 2020, 110(3), 629-76.

[198] L Bursztyn et al. *When product markets become collective traps: the case of social media,* University of Chicago, Becker Friedman Institute for Economics, 2023.

[199] See Social Media and Youth Mental Health: The US Surgeon General's Advisory, 2023 and UK Department of D,C,M and S (SMH0155) , What Evidence there is on the Effects of Social Media and Screen Use on Young People's Physical and Mental Health. 2023. For a wider analysis, see O Ulvi et al. 'Social Media Use and Mental Health: a Global Analysis.' *Epidemiologia (Basel),* 2002, 3(1) pp. 11-25.

abusive content, increased likelihood of exposure to cyberbullying, and a heightened risk of grooming for exploitation. The US Surgeon General proposes a number of steps which various parties can do to improve the situation.

It should be borne in mind, however, that US college students, and even young users as a whole, are not the only users of social media, and the benefits of them are widely appreciated by billions of users. Recognition of this has focussed attention on the approach, which we illustrate below and involves a regulatory regime which seeks to eliminate their adverse effects but retain their benefits.

2.4.2 The benefits and costs of social media: what has Thailand's experience been?

In 2023 around 61.2 million Thai people, accounting for 91% of total population, used social media. According to Digital 2022, Thai people spent an average of 7 hours 4 minutes per day on the internet. Gen Y and gen Z spent time more than average at 8 hours 55 minutes and 8 hours and 24 minutes respectively.

From Digital 2022, Thai people use Facebook the most (93.3%), followed by LINE (92.8%), Facebook Messenger (84.7%), Tik Tok (79.6%), and Instagram (68.7%).

The objectives of using internet were, in order: communication and chat (92.2%), followed by online financial transactions (83.8%), online shopping (83.4%), news and information (77.5%) and access to government online services (77%).

When considering media used for each objective, data showed that social media platforms have been used the most for communication and chat 92% such as LINE and Facebook Messenger, for receiving news and information 78% such as Facebook, Instagram, and Twitter, and for recreation watching clip and content 73%.

The growth of social media users rose dramatically in the past decade, including Thailand. Many studies pointed out that social media has both positive and negative outcomes.

Some of the positive impacts are, for example, creating social networking for communication and sharing experiences with other people who share similar interest and ambitions, building identity, offering emotional support during tough times, enhancing learning opportunities, accessing valuable information, promoting democracy, and etc. Online networks allow individuals to share personal information interest, beliefs, thoughts, and images with others, providing a place to express themselves on these social networks and creating sense of psychological ownership. The main

motivation for using social media is the individual's desire to socialize and connect with others. People have a great need to connect. Social relationships are necessary for well-being.

On the negative side, studies indicated problems arising from social media addiction, fake news and information, bullying and hate speech, privacy issues, and the impact on mental health. Studies on the positive and negative impacts on accessing news and information through social media found that if social media users access news and information on the basis of add-on to traditional media, this would create positive impact because social media would receive quick information. However, if they use news and information as a substitute for traditional media, it might cause the negative impact due to fake or wrong news and information. Studies on willingness to pay in Thailand found that Thai people are willing to pay more for speed increasing of internet signal.

As we focus in this review on mental health impacts, several Thai studies have proven that the excessive use of social media can lead to a significant impact on user's mental health, including causing stress, sleep deprivation, anxiety, loneliness, depression or even thoughts of harming yourself or committing suicide.

The impact of social media on mental health is as follows:

Many studies in Thailand indicated that time used for social media increased continuously. This is due to fear of missing out and social media addiction. It is very convenient to access social media via smartphones or tablets. The expansion of internet signal with coverage and speed allows people to access to social media anytime and anywhere. The constant alerts and notifications affect concentration and focus. People keep worrying about missing something important until they have to check the mobile screen all the time. It may cause them not to be able to concentrate on their work, stay up late or lose the opportunity to do other activities that are better for their health and career.

Young people especially are increasingly using social networks as an escape from external pressures that pose a threat to their mental health. Yadpirun[200] and Prawit[201] studied the impact of social media usage of senior high school students on emotional, social, studying, and health

[200] Yadpirun Supharakornsakul. Phetchabun High School Student's Behavior in Using Online Social Networks and their Impact". Humanity and Social Science Journal, Ubon Ratchathani University. 2017: 8 (2), 53-71.

[201] Prawit Jun-up. "Behavior and Aftermath of Social Media Usage of Senior High School Students in Phitsanulok". Independent study. Master of Education in Educational Communication and Technology, Naresuan University. 2017.

factors and found similar results. Some students accepted that they have feeling of paranoia, depression, and easy irritation and anger, and spend a long time on online social networks, unable to arrange time for study-life balance; they focus on social media all the time, don't like to be disturbed, stay up late, and are addicted to social media. On social impact, studies showed that they felt isolated or being alone and liked to stay with social media network more than talk with friends and family in the real world. In relation to the impact on studying, students who spent a long time with social media had lower grades due to sleep deprivation and loss of concentration on studying. And for health factor, studies showed that students became less healthy due to not enough rest, exercise, and eating. Many people think that using social media helps to relieve loneliness, but in reality, it is the opposite - which has been proven to be that the use of social media it will only make you feel more and more lonely.

It has been found that social media increases competition among people in the network. This leds to feelings of jealousy of others. When we constantly compare ourselves with people in the world of social media, feeling we are not good enough can cause us to be jealous and find fault or cyberbully others. Studies in Thailand[202] found that the social media usage had effect on envy but it had no effect on narcissism significantly. Envy and narcissism had effect on both desire for self-promotion and to save face. Desire for self-promotion and face-saving also had effects on conspicuous consumption. It showed that the envy in social media was higher when using social media led people to increasing desire for self-promotion, face-saving, and conspicuous consumption. Usually, social media users are trying to be sure that their identity on Facebook shows them as they want to be perceived.

An increase of cyberbullying, especially among young people, led to social media platforms becoming a source for spreading rumours of stories that cause harm to others, which cause the victim to be traumatized. Many young people report being subjected to offensive comments or being bullied on social media. Besides, cyberbully by photo editing can still make people feel dissatisfied with their lives, even though they know that photos are edited. Or they can be dissatisfied with their own appearance because they constantly compare themselves to others. It also leads to depression and anxiety.

[202] Korawit Suchadaphong. "The Influence of Social Media Usage on Conspicuous Consumption: The role of envy, narcissism, desire for self-promotion and face-saving". Independent study. Master of Science. Thammasat University. 2016.

Studies by Krongrat Dullaphan[203] found that the primarily objective of using social media was to achieve communication or contact with others. The majority of users (in a survey of 400 social media users) displayed signs of addiction to social media by spending more time than planned. In terms of social comparison, the majority of the sample group compared their skills at a certain field to others who are better than them. Some felt invaluable. Some displayed symptoms of depression such as insomnia or excessive sleeping behaviour.

2.4.3 Considering the Regulatory Options

It is apparent from the above that Thailand has not escaped the experience of the USA, the UK and other countries in terms of the detriment which young people suffer from their experience of social media, which in many cases leads to adverse effects on their mental health. This is arousing increasing concern in many countries. The research team is of the view that it is a matter to which it will have to return as we move on to discuss the form of regulation which may be required to mitigate these adverse effects.

At this stage we indicate the measures of this kind adopted in the European Union by the Digital Services Act 2022 or DSA, which came into effect in early 2024.

Digital platforms provide a variety of services from communications to the delivery of health care to shopping and to a great deal more besides. Hence there is a strong need to regulate for data security and the protection of privacy. But other communications platform issues – mendacious content, damaging communications with juveniles, unlawful political meddling, use of personal data without owner consent - are also covered. As a result the DSA contains a set of varied measures directed to different ends.

2.5 New OTT regulation for online platforms and streamers

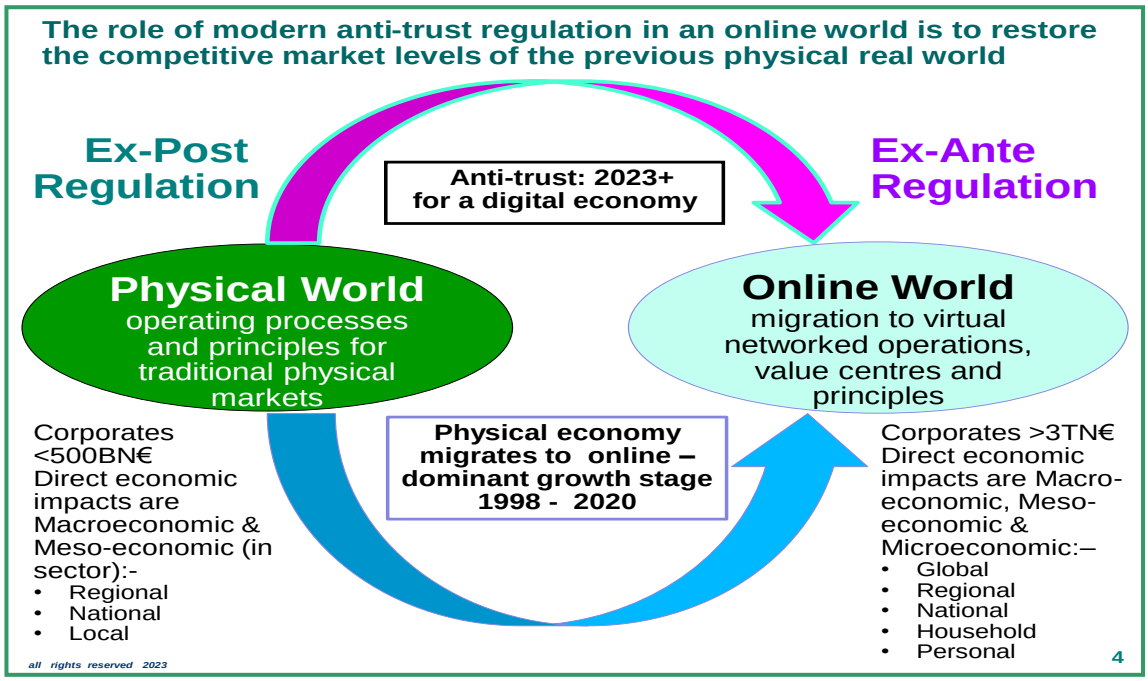
2.5.1 Overview of the new regulatory generation - the European Union's Acts for a digital online marketplace

There is a growing body of new regulation that through the 'Brussels effect' will affect the Thai audiovisual market.

[203] Krongrat Dullaphan. "Social Networking Usage Behavior and Mental Factors as a Predictor of Depression". Master of Arts (Communication Arts and Innovation), NIDA. 2018.

Four main EU Acts are the central influencing legislation – the DMA for antitrust problems with the global platforms, termed 'gatekeepers'), the DSA (on operations of digital platforms and their ecosystems to protect the public), the Data Act (operations of Cloud service providers) and the AI Act (AI harms and AI package use for abuse of SMP).

Figure 2-16 The next generation of OTT and global platform regulation is now active



Source : SCF Associates Ltd, 2024, Rebuilding anti-trust regulation for global web platforms -a note for policymakers in developing economies, to be published 2025

As shown above the principle behind the DMA has largely moved from ex post operations – studying behaviour and then attempting in various courts to prove abuse of SMP to ex ante regulation, in which the operations of the largest platforms are subject to specific slowing by the platforms of their observance of rules of market behaviour, in terms of privileged or excluding measures. The reasoning behind this is shaped by the failure of ex post court battles in the EU and in the USA.

Global digital platforms, even as they are currently invested with very high levels of market power, differ from traditional utilities such as energy transmission or distribution companies - which are almost invariably public or regulated private monopolies. Platforms are much less capital intensive and easier to replicate but can multiply that investment globally through the network effect for a key 'obligatory' must-have application such as search, e-commerce or social networking.

This opens up the necessity to use what is often called 'pro-competition regulation', an approach which uses the tools of mandatory regulation applied to near-monopolists to convert

that market into a competitive one. The strategy was expressed in a 2019 report to the UK government, which stated: 'To make competition effective [in digital markets] requires policy that . . . creates space for businesses to start, compete and grow alongside and around the big platforms. This can be achieved through a pro-competition approach that sets rules and standards to change how a digital market works and creates new opportunities for competition, innovation and consumer choice." This means that, "in addition to conventional behavioural regulatory interventions, pro-competitive regulation can provide for the possibility of solving problems at source, reducing the need for ongoing and costly regulatory controls...'[204]

The clearest exemplification of this approach is the European Union's Digital Markets Act 2022 (or DMA), which came into effect at the start of 2024, dealing with the abuse of market power. This is now briefly described, together with the parallel Digital Services Act 2022 (or DSA), which deals with user protection.[205]

Particularly noteworthy in the DMA is the way in which the legislation builds up the regulatory regime in stages: its overall goals,

- The combination of firms and services to which the act applies;
- The obligations and prohibitions placed on those firms;
- The institutional framework for enforcing the regulations and penalties for infractions.

2.5.2 The Digital Markets Act (DMA) – for antitrust in an online world- - with use of pro-competition regulation

The DMA deals with abuses of SMP by major digital web platforms, including the GAFAM group. It has been some five years in the making and is the only complete approach to controlling the market behaviour of the global digital ecosystems of the GAFAM groups and a few other majors, such as TikTok and Alibaba.

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[204] *Unlocking Digital Competition. Report of the Digital Competition Expert Panel* (2019), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf, hereafter "Furman Report," at pp. 5, 8, 7.17. On 'pro-competition regulation, see also, N Dunne, 'Pro-competition regulation in the digital economy: the United Kingdom's digital markets unit' *The Antitrust Bulletin* (2022) 67(2) 341-366; A. Fletcher, 'International pro-competition regulation of digital platforms: healthy experimentation or dangerous fragmentation?' *Oxford Review of Economic Policy, 39(1)*2023, pp. 2-33.

[205] European Commission, Regulation (EU) 2022/2065 of the European Parliament and of the Council or 19 Oct 2022, on a single market for digital services, OJ277, 27.10.2022, The Digital Services Act,

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2065

on a Single Market For Digital Services and amending Directive 2000/31/EC Digital Services Act.

Particularly noteworthy in the DMA is the way in which the legislation builds up the regulatory regime in stages: its overall goals, the combination of firms and services to which the Act applies; the obligations and prohibitions placed on those firms; and the institutional framework for enforcing the regulations and penalties for infractions.[206]

Overall objectives and principles. As described by the European Commission, 'the Digital Markets Act introduces rules for platforms that act as "gatekeepers" in the digital sector. These are platforms that have a significant impact on the internal market, serve as an important gateway for business users to reach their end users, and which enjoy, or will foreseeably enjoy, an entrenched and durable position. This can grant them the power to act as private rule-makers and to function as bottlenecks between businesses and end users. The Digital Markets Act aims at preventing gatekeepers from imposing unfair conditions on businesses and end users and at ensuring the openness of important digital services.'

Which services are subject to regulation? The core platform services subject to regulation are chosen on the basis of certain shared characteristics, including:

- Economies of scale or scope – where size may have non-linear impacts
- Network effects – the power of "many to many"
- Indirect - two-sided- markets effects – for instance hosting online merchants for their consumer market sales
- Possibilities of user lock-in – such that users cannot move to a competing offer
- Lack of multi-homing, or different using sources of origin – incompatibility of different services
- Vertical integration – controlling both or either of the supply chain and the distribution channel
- Data-driven advantages – having specific unshared data that gives benefits.

Ten platform services are chosen as particularly subject to abuse of significant market power (SMP):-

online business to consumer (B2C) intermediation services; online search engines; online social networks; video-sharing platform services; number-independent interpersonal

[206] This account relies on A. de Streel and P. Alexiadis, 'The European way to regulate big tech: the EU's Digital Markets Act,' in *The Legal Challenges to the 4th Industrial Revolution,* 2023. For a very helpful analytical summary of the Act, see A. Fletcher et al. 'The effective use of economics in the EU Digital Markets Act', *Journal of Competition Law & Economics,* 1, 2024, pp. 1-19.

communications services; web browsers; virtual assistants, cloud computing services; operating services; and advertising services offered by a provider of any of the above.

There is also a procedure for adding more services.

Which platforms are 'gatekeepers,' subject to more severe regulation? The three criteria for inclusion in this category – all of which have to be satisfied are:-

1) A significant impact on the EU internal market; an annual turnover of €7.5 Bn or market capitalisation of €75 Bn, with activity in at least three EU Member States.
2) Control of an important gateway, with more than 45 million users in the EU and 10,000 active business users.
3) An entrenched and durable position; applies if end user and business user thresholds have been satisfied for three years.

In September 2023, the EC announced that six gatekeepers were designated under the DMA: - the GAFAM group, Alphabet, Amazon, Apple, Meta and Microsoft, plus ByteDance (owner of TikTok). Twenty-two core platform services were designated. There were some appeals to the designations.

Obligations and prohibitions imposed on gatekeepers

A gatekeeper can be made subject to up to 22 prohibitions and obligations. The 'black' list of nine, mostly prohibitions, are supposed to be self-explanatory and self-executing. A 'grey' list of 12 may need to be specified by the Commission separately for each gatekeeper.

These categories of conformance (both black, clearly infringing, and grey, uncertain position) can be described as seeking to achieve key objectives for mass market services of:–

- Transparency (for example, price transparency for ads), the prevention of unfair leverage (no self-preferencing)
- Facilitating user mobility (allowing the un-installing of apps and data portability) and
- Opening up platforms and data – for instance no refusing to list and access rivals via an owned app store, such as a rival in music streaming or in online games.

Interoperability obligations on gatekeepers

Article 7 of the DMA introduces a so-called a so-called 'horizontal' interoperability obligation for gatekeepers providing number-independent interpersonal communications services such as messaging services. Horizontal implies similar functional levels – such as messaging services.

Within 6 months of the designation decision, interoperability should be available for text-messaging and the sharing of images etc. between individual users. After 2 years this should extend to group chat, and after 4 years to voice and video calls. An interesting question here is whether these time limits will be shortened as the technical barriers are not high.

Article 6 also includes, amongst other things, separate provision of 'vertical' interoperability under which gatekeepers must provide 'effective interoperability with the same hardware and software features accessed or controlled via the operating system or virtual assistant as are available to services or hardware provided by the gatekeeper.' Vertical thus implies inter operations within a set of layers of processes, hardware and software.

Institutional framework.

The European Commission will play the pivotal role in the implementation of the Regulation. It can take specific decisions autonomously – in particular, designating gatekeepers, imposing obligations on them, where appropriate sanctioning them. In these and other respects it is responsible to the European Parliament. The new regulatory function will be discharged by a task force composed by commission staff. The plans envisaged that it would employ 80 people, although this is expandable and is augmented by Member States (MS) Market Surveillance Administrations (MSA) for the 27 EU MS and Switzerland, with their NRAs. Furthermore, Member States' competition authorities and certain regulators (of communications and data protection) will support the Commission in monitoring performance and in the enforcement process. Note that certain MS, such as France are particularly active here.

Enforcement and penalties

For current levels of penalty the Commission can impose administrative fines of up to 10% of global turnover (20% for repeat offenders) on gatekeepers' infringements of their obligations or prohibitions. It can legally separate an offender's business units with the aim of breaking up the units involved in SMP abuses by creation of competing new units to increase the levels of competition. Also, in certain circumstances it can prevent a gatekeeper from making an acquisition.

Appeals and the longer term impacts

The DMA has already had impacts as the platforms register in advance of the date for the regulation to come into force; it has already had significant effects in terms of the approach of the platforms to the EU public, as their top managements realise the extent of these new market conditions being set in the EU. But it is likely that the full implications of the Act will only gradually

unfold, especially as cases are brought by the Commission and any appeals to the European courts are heard over the next three years. After that the market conditions are likely to be redefined in new directions for the longer term, especially as new additions to the DMA are made to fill any gaps. One major area may be restructuring monopolies into competing units.

2.5.3 The Digital Services Act - The DSA

Digital platforms provide a variety of services from communications services to the delivery of health care to shopping to a great deal more. Hence the need to regulate for data security and the protection of privacy. But other communications platform issues – mendacious content, damaging communications with minors, unlawful political meddling, fake news and hate media, etc. - are also covered. As a result the DSA contains a set of varied measures directed to different ends.[207]

Three activities play a major role in the Act:-

1) Hosting intermediaries - which comprise all organisations which store information provided by a recipient of a service;
2) Analysis of 'content moderation practices' which involves examining the measures intermediaries take to manage content, aimed at identifying any outcomes in violation of the law or of their terms and conditions, including ways in which platforms manage their users, by such actions as suspending or terminating their accounts;
3) Diffusion of illegal content, which is any information which does not comply with an EU or EU MS national law of any kind.

Effectively the latter two operations, based on the DSA's considerations of the digital platform's processes as an intermediary, move the definitions of platforms from information carriers, with no knowledge of the semantics of the data content being transferred, to the role of publisher with full knowledge and responsibility. It eliminates the USA's 1996 exemption of ISPs (internet service providers) from any responsibility for the content they carry.

The Act builds on a number of clauses in the e-Commerce Directive 2000, which established a special liability exemption regime for online intermediary services. The core of this provision was elimination of liability of the online platform host as intermediary for material uploaded by a user when the intermediary does not have knowledge of illegal activity or information. This relieves it

[207] For a discussion of the prevalence of some of these adverse effects of digital platforms in Thailand, see Chapters 1 and 2.

of the obligation to monitor the legality of all material it stores, but not the obligation to remove it when made aware of its nature. To obtain immunity, the hosting platform has also to be neutral in the sense that its role is technical, automatic and passive. Hence unaware of the data that it stores and passes on when accessed, freely on demand – for instance with no age verification on the viewer – and thus an illegal process in the EU and in many countries globally now.

The DSA builds on this to provide a graduated set of rules for different types of hosting intermediaries. Some apply to all; others apply only to very large platforms or search engines. The latter are required to have a compliance function with specified powers and resources, to publish their reports on content moderation, and to allow investigations which may involve inspections of business records and of algorithms. The maximum penalty which may be imposed for a failure to comply with an obligation laid down in the Act is 6 % of the annual worldwide turnover of the provider of intermediary services concerned in the preceding financial year.[208]

However the platform business model demands this sender/receiver knowledge, in detail. The platform's operation is based on knowing who is the sender and receiver as part of its marketing analysis, which is then sold to data brokers and advertising agencies for placement of ads and for wider market intelligence on trends and consumer segments – a powerful source of revenue. For instance this has allowed Google and Facebook to dominate the digital advertising market, since as early as 2018

In consequence, further measures have been adopted in the EU after 2000 to regulate the moderation of specific types of online content, beginning with racist hate speech in 2008, and then a broader category of hate speech in 2016; also covering child sexual abuse material since in 2011, and since 2015 a variety of measures against terrorist content.

The DSA builds on this to provide a graduated set of rules for different types of hosting intermediaries. Some rules apply to all qualifying platforms; further provisions apply to online search engines and online platforms (which display information to the public at the request of their service recipients). Yet more rules apply to very large platforms or search engines, with at least 45 million active monthly service recipients in the EU – the same definition as that used in the DMA.

Effectively the DSA's considerations of the digital platform's processes as an intermediary between those who post content and those who view it, moves the definitions of platforms from

[208] The EU *Digital Services Act*, 2024, Articles 41, 49, 52.

information carriers, to the role of publisher with complete responsibility for the legality and veracity. It eliminates the USA's 1996 exemption of ISPs (internet service providers) from any responsibility for the content they carry.

The very large online platforms and search engines identified in 2023 were required within four months to have a compliance function installed with personal responsible for (amongst other things) specified powers and resources, to publish their reports on content moderation, and to allow investigations which may involve inspections of business records and of algorithms.

Supervision and enforcement are performed in each Member State by a Digital Services Coordinator, unless the Member State concerned has assigned certain specific tasks or sectors to other competent authorities. The maximum penalty which may be imposed for a failure to comply with an obligation laid down in the Act is 6 % of the annual worldwide turnover of the provider of intermediary services concerned in the preceding financial year.[209]

Lessons for Thailand from these two key Acts

The first lesson which the EU's experience with the DMA and the DSA is that it is quite feasible to introduce such legislation against the will of the major global big tech companies (the GAFAM group).

That is a most important point for the NRA that is considering their use.

The GAFAM group lobbied aggressively against the EU's plans, but by properly taking into account the mitigating points made by the companies, yet being resolute in achieving the important economic and social objectives of the proposal, these laws were successfully passed and have come into force. Note also the very high level of possible fines for infringements, which are based on global turnover.

The second lesson is that reliance solely on competition law, even in jurisdictions where that law is fully developed, may be unsatisfactory for adequate control in the public interest over the harmful effects resulting from the abuse of significant market power and lack of consumer protection.

Note that in relation to the global digital platforms, competition law has been described as exhibiting 'under-deterrence', including - among other factors - taking an unconscionable time to

[209] Digital Services Act, Articles 41, 49, 52.

complete. There are also problems with generalizing the results of any exhaustively examined case; requiring remedies to deal with cases is which entry is blockaded by intrinsic features of the market, rather than wilfully deterred by identifiable action; and requiring behavioural remedies which may be beyond the powers and understanding non-specialist competition authority.[210] As the above accounts of the DMA and DSA show, they do go beyond competition law in ways designed to overcome these and other obstacles to effective enforcement.

A Third lesson is the successful passage of the Acts creates a model which other countries can follow. This has already been happening. In early 2024, a think tank which broadly supports the US global digital platforms deplored the tendency of other countries to follow the DMA's example, mentioning Australia, Brazil, India, Turkey and the UK as likely to do so. In our view, however, in the absence of a superior local proposal, this is a quite useful, rather than a negative outcome, and other countries could benefit from following the EU's example, either on an individual basis or as part of wider regional grouping such as ASEAN which would have the advantage of a critical mass in regulatory coverage and power.

2.5.4 The Data Act

In addition there is the European Data Act, agreed in 2023, which came into force in 2024 also[211]. Its purpose is to ensure fairness in the digital environment by clarifying who can create value from data and under which conditions, and to stimulate a competitive and innovative data market. It contains explicit provisions preventing providers of cloud services (a very concentrated global market) from being able to impede customers seeking to switch provider.

It is also more specifically concerned with the market for data and software processing using what is termed the cloud computing model of remote data centres. These are usually linked globally to run processing and store large volumes of data automatically, without the business users being aware of the location, see it as software as service or storage as service. The Data Act considers the rule of operation, migration and service level agreements (SLAs) given by the cloud service providers (CSPs) to their customers.

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[210] A Fletcher et al., 'The effective use of economics in the EU Digital Markets Act,' *Journal of European Competition Law and Economics*, 018, 2024.

[211] The ACT, NOV 2023: https://www.consilium.europa.eu/en/press/press-releases/2023/11/27/data-act-council-adopts-new-law-on-fair-access-to-and-use-of-data/

2024 enters force: https://commission.europa.eu › news › data-act-enters-force-what-it-means-you-2024-01-11_en

And also, https://digital-strategy.ec.europa.eu › en › policies › data-act-explained

The Data Act complements the Data Governance Act[212] of November 2020 by clarifying who can create value from data under which conditions. It includes:

- Measures that enable users of connected devices to access the data generated by these devices and related services
- Measures to provide protection from unfair contractual terms that are unilaterally imposed
- Mechanisms for public sector bodies to access and use data held by the private sector
- New rules that grant customers the freedom to switch between various cloud data-processing service providers
- Measures to promote the development of interoperability standards

It combines a wide range of other EU regulatory measures.

- **Database Directive:** the 1996 Database Directive provides for the individual nature (sui generis) of databases to be protected, as they were created as a result of a substantial investment, and so must be treated as a single, separable entity when hosted on a large data centre, with many other databases
- **GDPR:** the 2016 GDPR created a right of portability of personal data for data subjects
- **Standards initiative:** the Data Act envisages the development of a variety of European industry standards to permit interoperability and switching among data processing services and portability of data. This is important for regulating cloud services.
- **Free Flow of Non-Personal Data Regulation:** the 2018 Free Flow of Non-Personal Data Regulation but with limited geolocation requirements for data within the EU
- **Platform to Business Regulation:** the 2019 Platform to Business Regulation requires platforms to describe for business users the data generated from service provision
- **Open Data Directive:** the 2019 Open Data Directive encourages sharing of data held by the public sector and publicly funded research data, but not data held by private persons.
- **Data Governance Act:** the recently agreed Data Governance Act facilitates the voluntary sharing of data by individuals and businesses and harmonises conditions

[212] https://digital-strategy.ec.europa.eu/en/policies/data-governance-act

- **AI Regulation:** data-generating products addressed by the Data Act are likely to use "AI systems". The AI Regulation imposes strict rules on developers, resellers, business users for biases in the data used in training as 'machine learning'.
- **European Data Spaces:** for the 2020 EU Data Strategy, the Data Act provides a horizontal framework for interoperability across all of them.

2.5.5 The AI Act

protection from harms of the AI products and their use and protection from anti-trust effects of AI systems sold as online services

In the policy debates on algorithmic competition for next-generation antitrust policy in an AI-driven world[213] again the EU is setting the pace globally. The Act in preparation is complex due to its multiple aims that are necessary for a scope that is wide in order to catch all the major harms and hazards it anticipates. It has to go much further than the fairly vague statements made so far in the USA's AI Bill of Rights with an uncertain real agenda behind it. The AI proposed act for the EU was endorsed finally by its Parliament on 14 March 2024 and should become law by May 2024.

The proposed legislation covers risks by prohibiting AI systems it deems of risk to individuals or humanity:-

- Systems that present social scoring that classifies people on the basis of behaviour or personality on which future social, career and financial harms may result
- Any systems used in sifting people for significant roles or social profiles that are likely to show bias (often necessary for pre-trained systems using machine learning on large databases that have in-built bias)
- Attempts at predictive policing based on past behaviour.

2.5.6 Any system that classifies people by biometric data

gender, race, images, sexual orientation, including those based on images from mass surveillance cameras, the Web or CCTV

- Such systems are restricted or prohibited if they promote decisions based on:- gender, race, images, sexual orientation, including those based on images from mass surveillance cameras, the Web or CCTV

[213] Simonetta Vezzoso, Next-generation antitrust policy in an AI-driven world, Promarket, July 25, 2023

- Any system used in applications of unacceptable risk to humanity – military or national security duties – in which decisions are taken by AI systems without human cognisance and approval – hence only information can be given, not orders
- Systems monitoring of emotions at work, school, university or home, with predictive analysis

Other more complex provisions include:-

- Under the AI Act, and the DSA also, posting fake material is now illegal, which is the same that applies to all forms of published media - news, images and audio content. Thus, the platform hosting the content is now held responsible for disseminating it as an online publisher, the same as in the print world. In contrast, the USA's Section 230 of the 1996 Communications Decency Act exonerates Internet platforms from responsibility for the content they distribute.
- Law enforcement services can only use AI systems and facial recognition to find missing persons, prevent a terror attack, and must have risk assessments, logged usage and human oversight.
- EU citizens must be given explanations of any decisions made by AI systems and have the right to challenge that decision. The Member States may have discretion in forcing reversal of decisions and prohibition of such systems.
- Generative AI systems such as ChatGPT, termed – general purpose systems - are covered by this legislation, for the generation of plausible, photos, text, images and audios. There is a 2-tier approach, with the first requiring all model developers required to comply with laws of copyright and to give detailed descriptions of the data used 'train' the model, including any possible or known biases in the ML training data.
- Open system models having open source software[214] may be exempt from some restrictions but closed models such as those from ChatGPT such as GPT-4 are not exempt from any rules. Those that have more difficult outputs in terms of being able to detect artificial generation are to be more highly restricted in application of rules. Moreover the major platforms will have to have processes in place to escalate

[214] Forge, S. (2006) The rain forest and the rock garden: the economic impacts of open source software, info, vol 8, No 3, 2006, discusses open source software as a balance in a commercial environment dominated by effects of increasing returns of software and network effects on the industry, with open source licence types and impacts

complaints about fake material – as under the AI Act and the DSA, fake material is now illegal[215].

Remote biometric identification (RBI) restrictions are also covered:-

- Using AI-enabled real-time RBI is only allowed when not using the tool would cause considerable harm and must account for affected persons' rights and freedoms.
- Before deployment, police must complete a fundamental rights impact assessment and register the system in the EU database, though, in duly justified cases of urgency, deployment can commence without registration, provided that it is registered later without undue delay.
- Before deployment, they also must obtain authorisation from a judicial authority or independent administrative authority, although, in duly justified cases of urgency, deployment can commence without authorisation, provided that authorisation is requested within 24 hours. If authorisation is rejected, deployment must cease immediately, deleting all data, results, and outputs.

Further provisions examine High risk AI systems (Title III) - providers of those systems will be subject to additional requirements, with Classification rules for high-risk AI systems (Art. 6) for instance High risk AI systems are those: used as a safety component or a product covered by EU laws as stipulated and required to undergo a third-party conformity assessment.

AI and anti-trust law

With the development of AI programmes with copyrighted and patented algorithms offered free, or for payment, the market enters a new field for anti-competitive behaviour through exclusive ownership advantages, possibly of a monopolistic nature[216]. This is especially critical as the leaders are the major platforms namely Google, Amazon, Facebook/Meta, Apple and Microsoft, (the GAFAM group) which all have major investments at the level of billions of US$ in research efforts into AI programming products

From the perspective of competition policy, one concern is the possibility of access to proprietary, advantageous models becoming restricted or controlled by a few large private

[215] O'Caroll, L., Hern, A.,(2024) EU call on tech firms to outline plans for deepfakes, The Grauniad, 15 March 2024 and Milmo, D., Hern, A.,(2024), What the proposed Brussels law will mean. The Guardian, 15 March 2024

[216] SimonettaVezzoso (2023) Next generation anti-trust policy in an AI driven world, Promarket, 25 July

companies leading to abuse of SMP with global results due to their market dominance. This market segment has very barriers to entry. Thus competition authorities have emphasised that such enterprises must ensure in their use and offerings of their 'AI' tools that they are antitrust compliant by design, to ensure that these 'AI' programmes fulfil all requirements of the EU competition policy and laws. For instance one example of a transgressing programme was one for making shopping decisions from Google – which was accused of abuse of SMP- as it was self-preferencing in making shopping decisions (EC decision 2017, EU General Court endorsement 10 November 2021.

A further emerging trend is for competition authorities to consider the underlying AI technology in detail, requiring that competition authorities have access to the programming and understand more about algorithmically determined competition – and especially the biases in training data used for shaping the 'AI' processing. A further emerging trend is to review how cross-market competition is affected by the potential biases in 'AI' models on competition in other markets. This is also important in cases of two-sided markets – for instance wholesale and retail sides.

2.6 In Conclusion – external forces are shaping the Thai audiovisual market

The Thai audiovisual sector is no longer being shaped by internal forces so that the future will be greater intervention by external forces proposing streaming video content and anxious to add Thailand as another customer for their offerings. This is due to their business models that turn on falling incremental costs with volume, for each piece of content they curate in their content library.

2.6.1 Overview of the impacts of key external forces on the Thai audiovisual market

The influence of three major forces for change on the Thai audiovisual market will be seen over the next decade:

- Technology that favours consumption of media by video streaming
- Investments from two main sources, (international and national, including government subsidies) plus others, offering FDI stimuli. These investments will tend to impact two major areas of the Thai audiovisual market :-
  - The production of content for exports to global markets, probably serving the streaming providers, such as Netflix and other USA streamers - Disney, Amazon, etc

- Financing of new content distribution networks, be they streaming substitutes for FTA broadcast or expansion of coverage by the existing FDD networks.

- Responses by the incumbent broadcasters to the loss of advertising revenues, audiences and of their dominance in linear programming to the streaming model of on-demand content using interactive dialogue over the Web with the OTT service providers to request SVOD services.

2.6.2 Video technology based on OTT streaming

Competition from OTT video streamers using fibre optic and mobile broadband networks can be expected to continue to challenge the national Thai broadcasters.

This largely external pressure can only increase in its capture of revenues from digital advertising with profiling, as well as subscriptions, so that the majority of funds will move to the streamers. In contrast with the last 50 years of TV and radio broadcasting, in which international influences were restricted to some items of popular content and linear programming ruled, so these recent advances of technology have brought two major changes:-

- Firstly - internationalising content viewing so content no longer just produced nationally in Thailand but content from South Korea, Japan, USA and China, is viewed with some versions in Thai of the originals in Korean, English or other languages
- Secondly - providing selection on demand, of specific content has begun to challengewhich challenges the Thai linear TV market. and non-linear is increasingly demanded by younger audiences, who use OTT services for entertainments, social interworking and self–generated videos, going far beyond passive viewing.

At the same time these advances in internationalisation of connectivity, by universal Web access, have changed what is viewed, and even what is media entertainment with its passive watching mode. Instead, users may upload their own self-made content, as video clips for sharing, as part of the entry of social media. Moreover interactive gaming which, in some countries such as the UK, gains revenues twice that of the value of the music streaming industry (some 4.5BN US$ in the UK in 2024[217]). Thus what is audiovisual content in new forms must compete for attention with social media interactions and gaming to replace passive viewing as forms of social entertainment.

[217] BBC News, UK, 11 Apr 2024

2.6.3 Investment sources for the sector

The main sources of overseas investment in the audiovisual sector that can be expected are:-

- Firstly, existing overseas audiovisual players entering the Thai Streaming market with their own channels either using the existing offering, or seeking expansion locally through acquisitions. Netflix could be seen in this category and have already concluded agreement with AIS Fibre to offer the Netflix streaming channel across Thailand. Whether this is exclusive to AIS Fibre in the long term is unclear, as Netflix would probably prefer direct subscriptions. These types of AV industry investors will also be looking at Thailand as a source of either new content production or for some form of post-production editing. This may include for example, special video effects (VFX) including forms of computer generated imaging (CGI), or multiple language translations with lip synching and facial expression adjustments, etc.
- Second are investment companies targeting South East Asia in general as the highest growth region worldwide. Here, the Thai audiovisual sector is just one growth opportunity among many others across its many technology-based industries that will expand over the next decade. Investors may be a wide range of those with significant capital resources, including state oriented investors, such as those from China, or investors from the USA's capital markets spreading risks globally.
- Finally, further investment is likely to come from the pressures to upgrade the national Thai media production and post-production industry from competition by the national Thai AV companies, who are competing with the global streaming players and GAFAM platforms. They may wish to co-invest with the Thai broadcasters in BVOD streaming as has been seen in the overseas country studies of France, the UK, South Korea and Japan.

2.6.4 What do the impacts of these external forces point to?

Despite these fundamental changes due to strong external forces in the sector's structure with the effective importing of global competition through new technology gateways (and to a

degree never expected a decade ago) the outlook for the Thai audiovisual sector could be highly positive. But that depends on planning for change by:-

- Construction of multiple scenarios for potential new development that assess the possible impacts of various policy directions, including the stimulatory actions necessary that include constructive business models for the new conditions, so that the Thai creative media industry, as well as for the incumbent broadcasters, can cooperate in new and expanded roles, harnessing the potential sources of inward investment
- Examining the options for an industrial strategy for the way forward, using the scenarios
- Preparation for transformation by the stimulating the administrative bodies, including the Ministries governing the media sector and the economy, drawing from Korea's and France's examples of industrial strategy.
- Meeting the new regulatory demands imposed by the continuing entry of the global platforms, the global streamers and the rise of the national streaming providers, with a reviewing of the priorities of the NBTC to meet the new challenges, and harnessing regional ASEAN cooperation where necessary.

Chapter 3 Lessons from Eight Overseas Markets – development, drivers and regulation

3.1 Country Case Studies

3.1.1 Approach of this study

For the country case studies we used a multi-method approach combining the following:

- Comparative data review (industry data, surveys)
- Secondary literature and theoretical analysis (academic databases, scientific journals, grey literature)
- Analysis of new laws, codes
- Expert interview programme

It is important to note that this multi-method study aims to offer expert views on fast-changing realities, insights for discussion and guides to policy. A study of this kind is inevitably preliminary. Data is selected from trusted sources but not every aspect of data gathering methods have been tested and metrics vary between countries.

3.1.2 A global shift in infrastructure transforms broadcasting

The global rollout of high speed fixed and mobile internet access has created the potential for a transformation in broadcasting and legacy television industries. Figure 3-1 illustrates the speed of change in the infrastructure layer around the world. As this report explores in more detail, the availability of this new infrastructure has fundamentally and irreversibly transformed the broadcasting industry in the countries studied. The biggest story in economic and public policy terms has been the rise of various forms of ‘over the top’ on-demand audiovisual services, which no longer rely on the traditional broadcast technologies of terrestrial, cable or satellite broadcast, but rather offer ‘on demand’ programmes which are delivered ‘over the top’ of the existing broadband internet infrastructure at a time and place determined by the consumer.

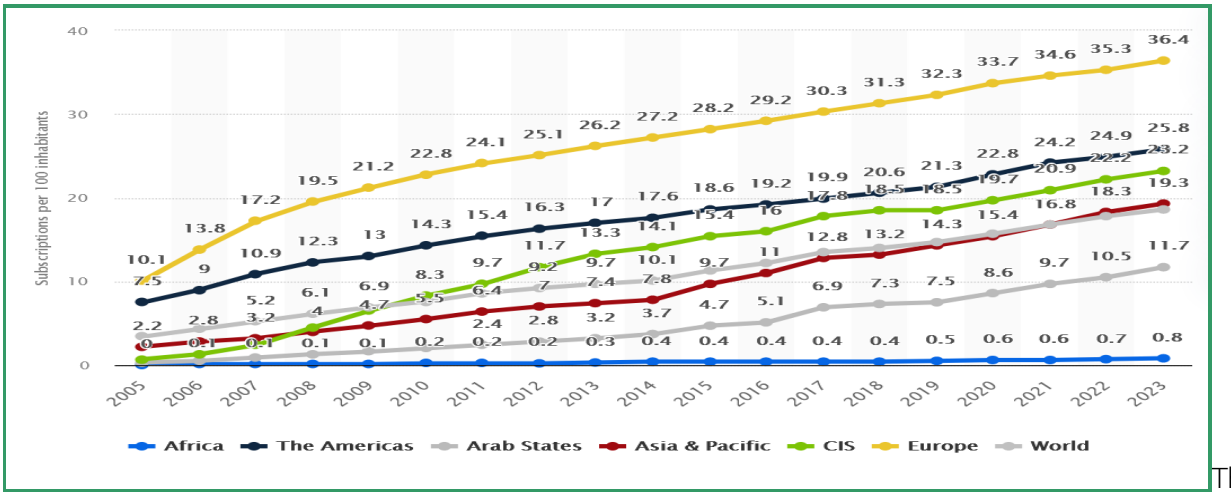
Lessons from Eight Overseas Markets – development, drivers and regulation

Overall Objective

In the current industry there is rapid development of technologies, with new competition in an increasingly global content production and distribution industry. That is largely based on over the top (OTT) World Wide Web/Internet access through the Internet. For Thailand to successfully achieve this requires the support of the NBTC in developing the Thai market in ways that benefit the Thai viewing public, as well as its creative production industry. This demands supporting the existing TV broadcast sector through a transition to the new market conditions as its valuable contributions to Thai society should be maintained.

In consequence, the overall purpose of this section of the study is to learn lessons from the experiences of other countries at various stages of market development and draw upon them to inform the future shape of the Thai audiovisual sector, with its challenges and opportunities.

Figure 3-1 Fixed broadband internet subscription rate from 2005-2023, by region. (STATISTA based on ITU data from 2024).



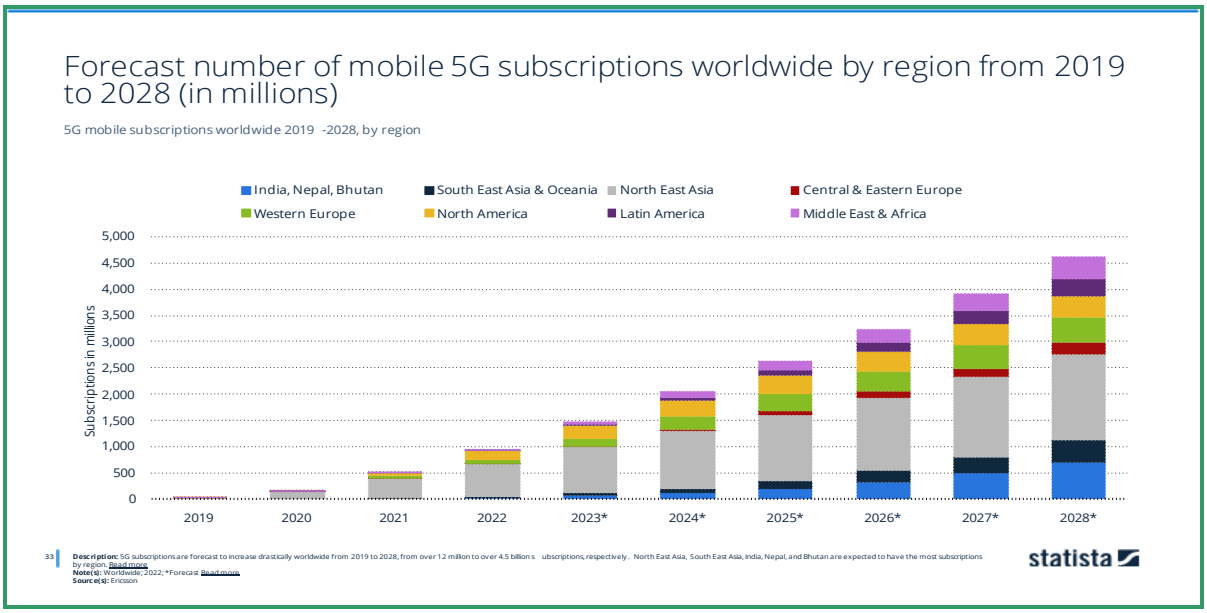
The next wave of high-speed internet development involves the shift to 5G standards in mobile networks, which enable more individual, on the move consumption of on demand and streaming services over mobile connections.

Figure 3-2 shows that the growth in mobile 5G subscriptions is predicted to accelerate. This will create a platform for further increases in time spent, willingness to pay, ARPU and advertiser value of existing on demand services, which will in turn further undermine legacy broadcasting services. However, 5G has often failed[218] for technical and commercial reasons so the LT-A-Pro-A

[218] Forge, S Vu, K., (2020), Forming a 5G strategy for developing countries: A note for policy makers, Telecommunications Policy, August 2020, Vol 44(7)

norm is providing mobile broadband networks adequately for SVOD in most countries having significant mobile coverage.

Figure 3-2 Rollout is predicted by its manufacturers to be a growth market but MNOs may not agree



These technological developments forms a backdrop to the developments described in more detail in this report.

Whilst these changes are in some senses universal as new tech is made globally available, there are choices to be made in terms of structuring the market through consumer choice, regulation and investment, and in terms of the social and public interest implications of these developments.

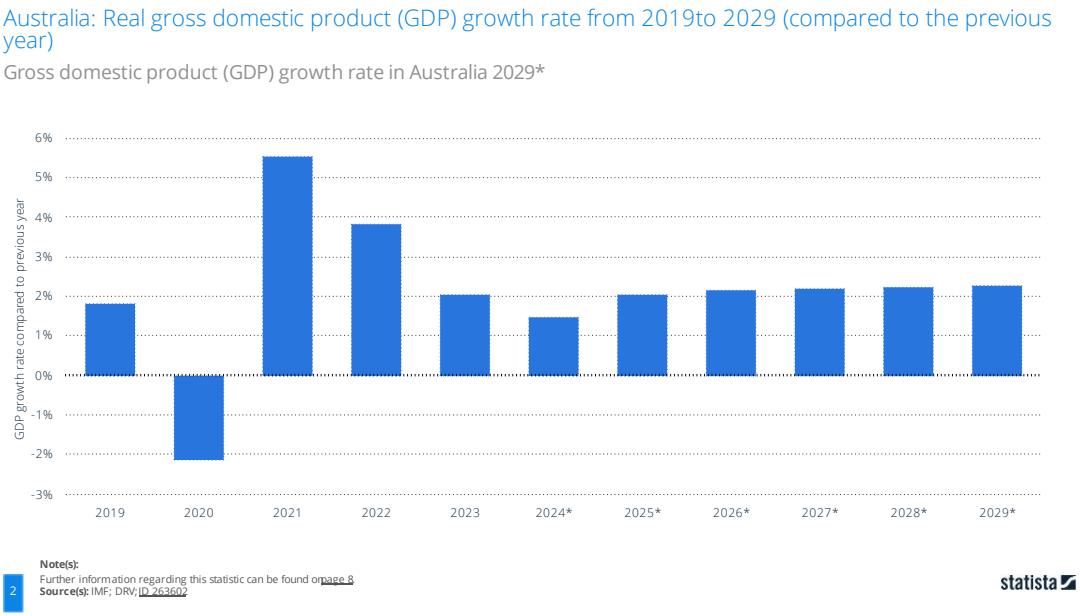
The aim of this report is to examine recent developments in television and audiovisual markets in 6 countries especially the implications for domestic market players and production and to present key policy and regulatory responses to these developments. The report also covers the EU as many policy issues in Europe are resolved on the level of the EU single market, and the EU in many ways coordinates and leads policy for member states in the telecommunications space and the market for audiovisual media production and distribution.

Overall, the aim will be to examine the relevant market structures, drivers, policies and interventions shaping development of the AV sector in each of the countries studied and draw out comparative insights as well as regulatory and policy best practice.

3.2 Australia: Structure of an evolving market

3.2.1 Key economic trends

Figure 3-3 Australia GDP growth



As of mid-2024, Australia is experiencing several key economic trends:

1) **Moderate Economic Growth**: Australia's economy has been growing at a moderate pace, driven by strong performance in sectors such as mining, services, and technology. The growth rate has been steady, although slightly lower than pre-pandemic levels. The chart above indicates a projection of steady 2% growth going forward.
2) **Inflationary Pressures**: Inflation has been a concern, with rates higher than the target set by the Reserve Bank of Australia (RBA). This is partly due to global supply chain disruptions and rising energy prices, impacting the cost of living.
3) **Housing Market Dynamics**: The housing market has shown signs of cooling after a period of significant price increases. Higher interest rates and stricter lending standards have contributed to a slowdown in property price growth and a decrease in housing affordability.
4) **Labour Market**: The labour market remains relatively strong, with low unemployment rates. However, there are ongoing challenges related to underemployment and wage growth, which has been sluggish despite the tight labour market.

5) **Interest Rates**: The RBA has been adjusting interest rates in response to inflationary pressures. After a period of historically low rates to support economic recovery, the central bank has started to raise rates to curb inflation.
6) **Trade and Exports**: Australia continues to benefit from strong demand for its natural resources, particularly from China. However, geopolitical tensions and trade disruptions pose risks to future export performance.
7) **Government Fiscal Policy**: The government has been focusing on fiscal consolidation after substantial pandemic-related spending. Efforts are being made to reduce budget deficits and manage public debt levels.
8) **Renewable Energy Transition**: There is a significant shift towards renewable energy, with increased investments in solar, wind, and other green technologies.

Summary and Overview

- Australia is one of the most OTT-penetrated markets in the world.
- Taking into account households with multiple subscriptions, user penetration of OTT Video is projected to be 105.8% in 2024 and is expected to increase to 114.4% by 2029.
- Television revenue is not declining as fast in Australia as some other countries, but it is being displaced by OTT Video.
- The OTT Video market in Australia is projected to reach a revenue of US$5.11bn in 2024. It is expected to show an annual growth rate (CAGR 2024-2029) of 5.50%, resulting in a projected market volume of US$6.68bn by 2029.
- Australia's OTT Video market is experiencing a surge in subscription-based streaming services, with Netflix and (Australian subsidiary of Nine Entertainment) Stan leading the competition.
- Netflix has its highest global penetration rate in Australia. In 2022 65% of households had Netflix.
- Among the various advertising segments for TV, the largest market in Australia is OTT video advertising, with a market volume of US$3.47bn in 2024.
- The average revenue per user (ARPU) in the Australian OTT Video market is projected to be US$29.23 in 2024.

3.2.2 Introduction

The traditional features of broadcasting in Australia are that the market is a plural system including well developed public service channels, more commercial legacy TV channels often cross owned by newspapers, as well as a subscription pay TV sector driven mainly by valuable sports rights. The main traditional television networks in Australia are ABC and SBS, and licensed commercial channels, Seven, Nine, Ten, and Foxtel. All of these channels operate with licensed public interest obligations including to provide Australian content. Until 2014 these channels received around 95% of all TV viewing.

(https://en.wikipedia.org/wiki/Television_in_Australia#Ratings).

With the shift to online and alternative modes of viewers the main direction of change, as in other countries has been towards a gradual deregulation of the more expensive regulatory obligations for publicly licensed channels, including requirements to provide news to standards of industry codes of practice.

Audiovisual production has been divided between a domestic-focused TV production sector with few exports and a film sector that has been integrated into global production supporting many joint productions with US studios in particular, a close integration with US productions known as 'Ozzywood' and supported by active government policies.

Pay TV platforms (on Cable and Satellite) have not historically been as successful in Australia as they have been in Europe. In this context, Netflix quickly exceeded the total number of households served by previous subscription services. In 2022, Netflix Australia had the highest penetration rate of all countries, with 65% of all Australian households subscribing to Netflix. As elsewhere, convenience and choice drove these high subscription rates, along with the high quality of the programming on Netflix, which was particularly impressive compared with what domestic providers were offering in this relatively small market.

A range of different measures: subscription revenue, advertising revenue, self-reported audience time, and a range of other indicators confirm a long-term shift from free to air television to various forms of OTT video on demand services in Australia. Already by 2021 almost 70% of survey respondents claimed to have used subscription VOD in the past month. The Australian market contrasts to others, in that whilst the revenues from SVOD are rapidly rising, Television revenues are not in such a rapid decline as elsewhere. This reflects various factors including audience demographics as well as government policy which is described below. Some of the

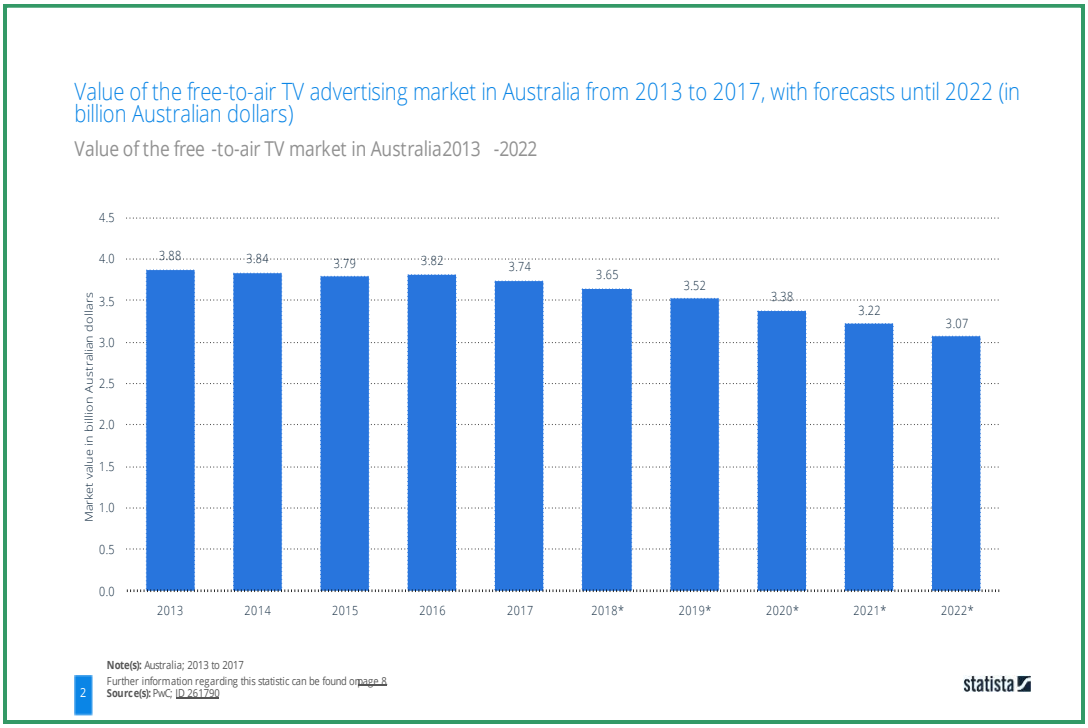
revenue gains reported for OTT video reflect increases in ARPU which tend to reflect increases in advertising revenues, in a similar pattern to other markets. Taking all the various indicators into account, it is likely that the overall size of the OTT video market in terms of audience and revenue will overtake that of traditional TV services including satellite, cable and other forms of pay tv around 2025.

Public interest regulation has been somewhat more restrictive than other markets but this has not inhibited investment, and powerful press and media interests have driven powerful lobbying in favour of some media incumbents. Under the influence of influential lobbying campaigns by both legacy media and international platforms, Australia has innovated with several controversial policy approaches to the media and communications sector, with a range of motivations: from a desire to protect and promote the domestic content industry, public service, and quality news, to industry policy goals of improving culture industry balance of payments and projecting soft power.

3.2.3 Market structure

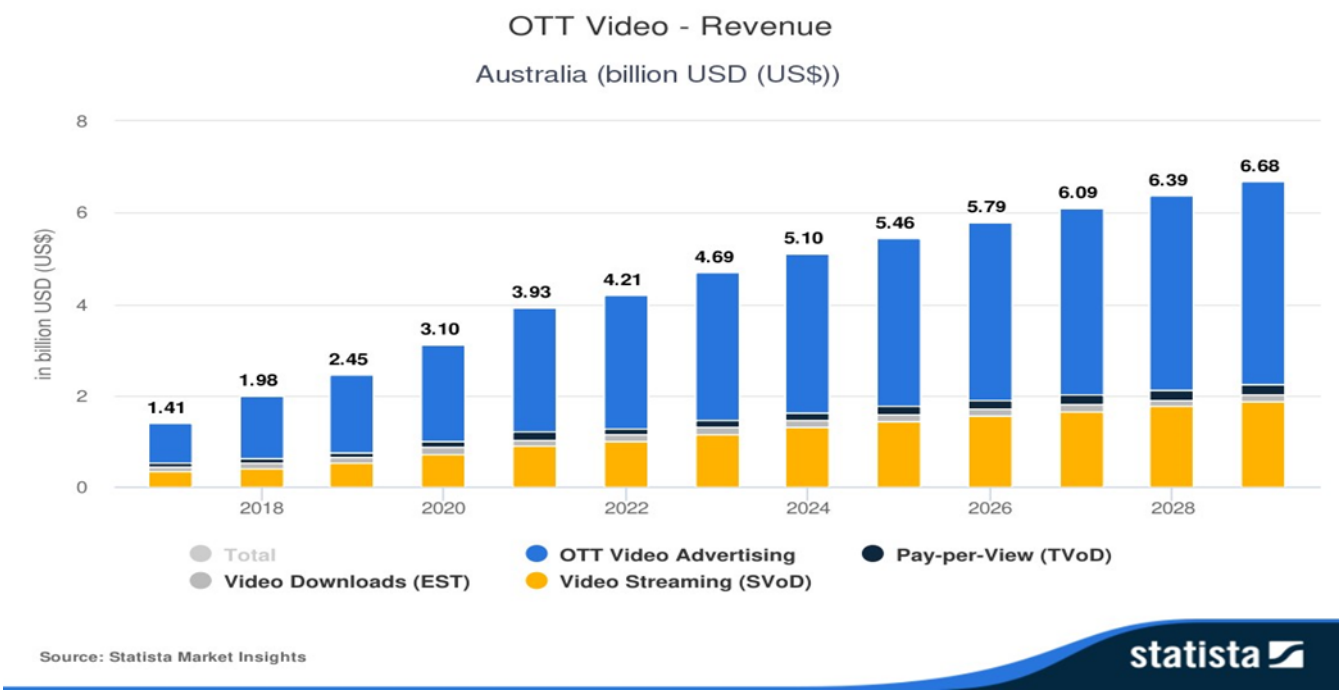
The Australian market is characterised by slowly declining free-to-air television that is almost entirely dependent on advertising. Figure 3-4 shows the long-term decline in TV advertising revenue between 2013 and 2022. During this period, free to air ad revenue from TV declined from 3.88 to 3.07 billion dollars per annum.

Figure 3-4 Free-to-air advertising market in Australia shows descending revenues



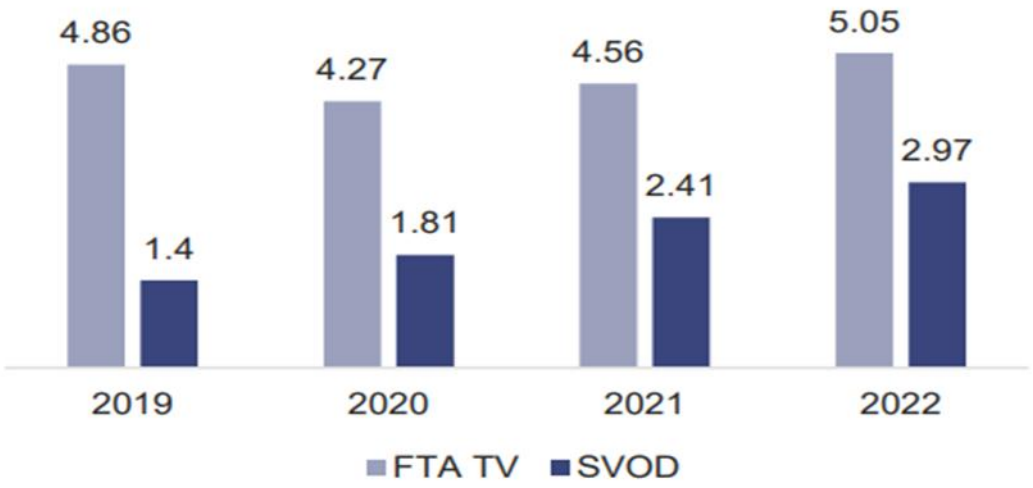
In the same recent period, as is evident in Figure 3-5 below, the revenue from OTT continued to increase.

Figure 3-5 OTT revenues – SVOD subscriptions, PPV(TVOD), downloads and OTT ads, 5BN US$, 2024



Taking into account the difference between Australian and US dollars, it is evident that OTT Video revenue was in excess of television ad revenue by 2022. However, if other sources of TV revenue such as the public service license fee is added in, total free-to-air revenue still exceeded OTT video revenue, and Figure 3-6 depicts.

Figure 3-6 Australian broadcast and streaming industry revenue (A$bn) free to air (FTA) and streamed

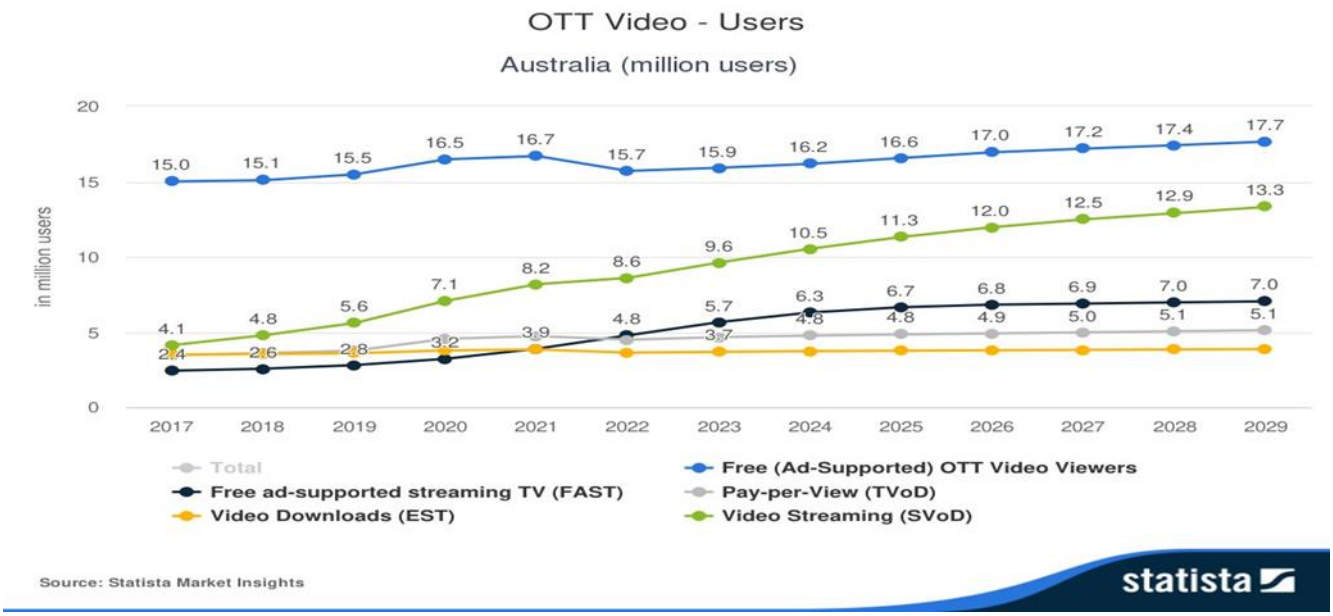


Note: FTA TV revenue is reported in financial years while SVOD revenue is reported in calendar years.
Source: Globaldata, Subscription Video on Demand Forecast, 15 November 2022 and IBISWorld, J5621 Free-to-Air Television Broadcasting in Australia, August 2022

Source: Australian Communications and Media Authority. Report: Trends and Developments in Viewing and Listening 2021-2022. ACMA 2022. acma.gov.au/research Values in Australian Dollars

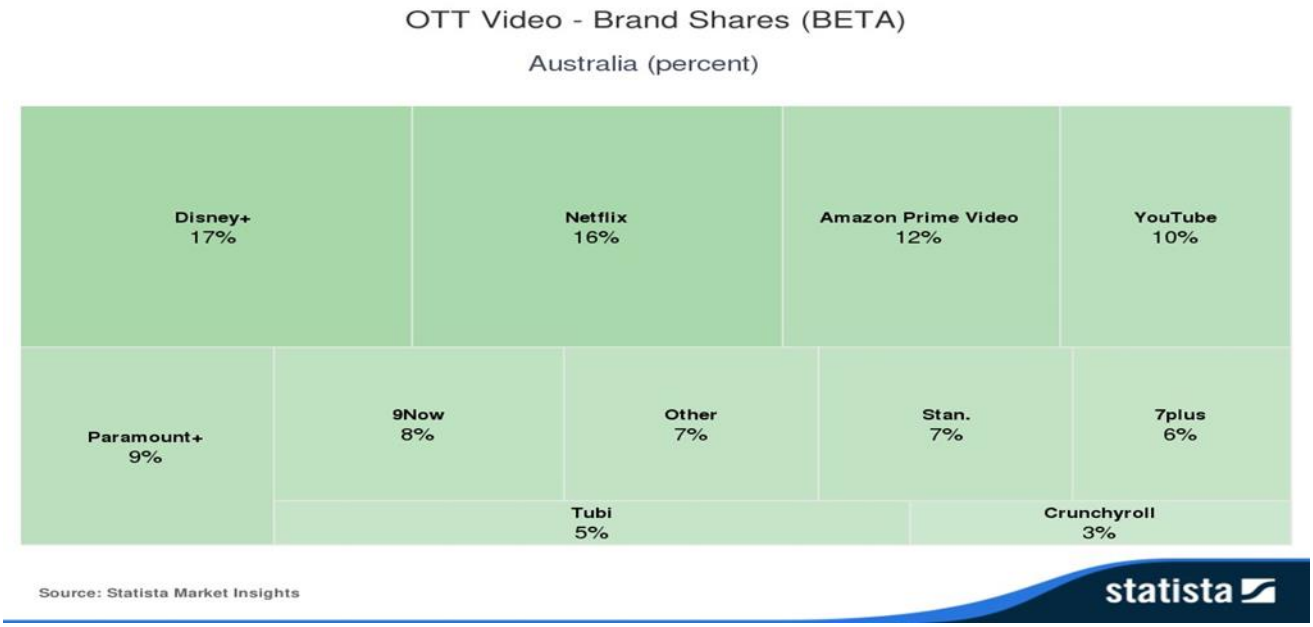
Growth in OTT video is expected to come largely from SVOD, which has been consistently growing its userbase since 2017 and is projected to continue in the coming years while other types of VOD services appear more stable. Figure 3-7 shows projections for users until 2029 based on multiple sources compiled by Statista in 2024.

Figure 3-7 Recent and projected users of OTT Video services in Australia



The main global SVOD players dominate that part of the OTT video market in Australia, with Disney+, Netflix, and Amazon Prime capturing the largest share. Figure 3-8 represents the share of total market revenue received by the main branded SVOD portals operating in Australia, to give an idea of the basic market structure:

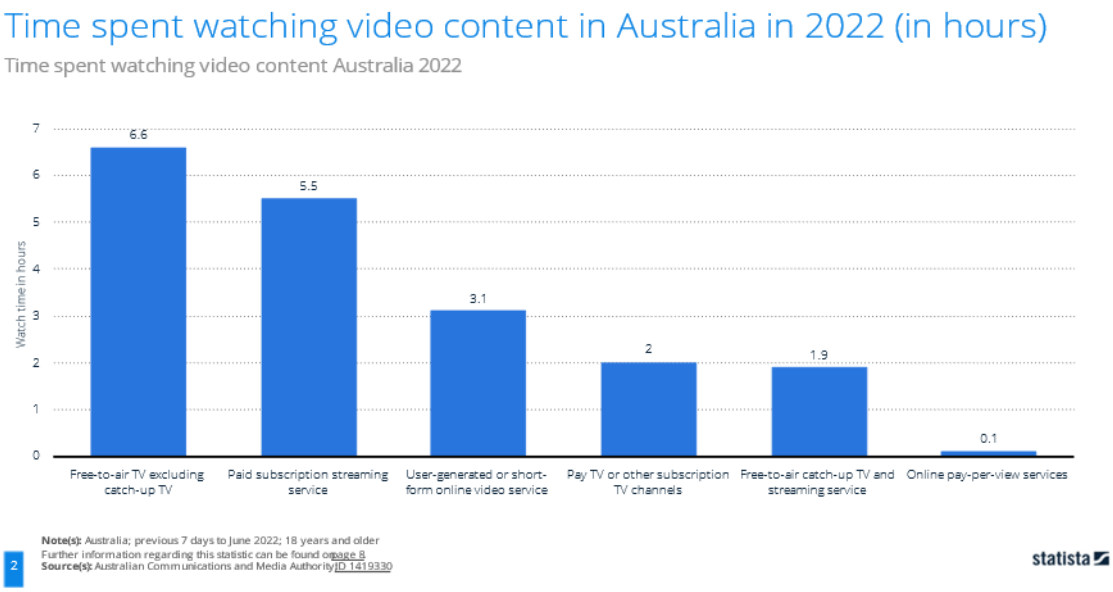
Figure 3-8 Brand shares of OTT Video in Australia, in a second follow-up survey (beta)



Taking the OTT video sector as a whole, large US based SVODs such as Netflix, Disney+, Paramount and Amazon Prime Video together accounted for more than half the share of revenue

in 2023. Australian VOD such as Stan and 7Plus were significant but struggle to catch up to the global players.

Figure 3-9 Time over week watching video 2022, with FTA, Free to Air, broadcast at 6.6 hours and user generated video at 1.9 hours



Surveys report a similar trend in self-reported time spent on various media. Data for 2022 from the Australian Communications and Media Authority showed in Figure 3-9 above indicates that already in 2022 the time people reported spent on free to air TV (6.6 hours per week) was already less than combined time spent watching SVOD services and services for user-generated content (8.6 hours).

The shifts in consumption also drive changes in the production sector which has thrived in the past decade. Screen Australia reported that the overall budgets for Australian production rose from 467 Million Australian dollars in 2010-11 to 1534 million in 2022-3. Whilst this figure does fluctuate there is a clear growth trend during the OTT boom. [219]

Development Drivers

In addition to convenience and choice, the high differential in content quality between TV and SVOD has been a significant driver of SVOD take-up in Australia. Also generational differences

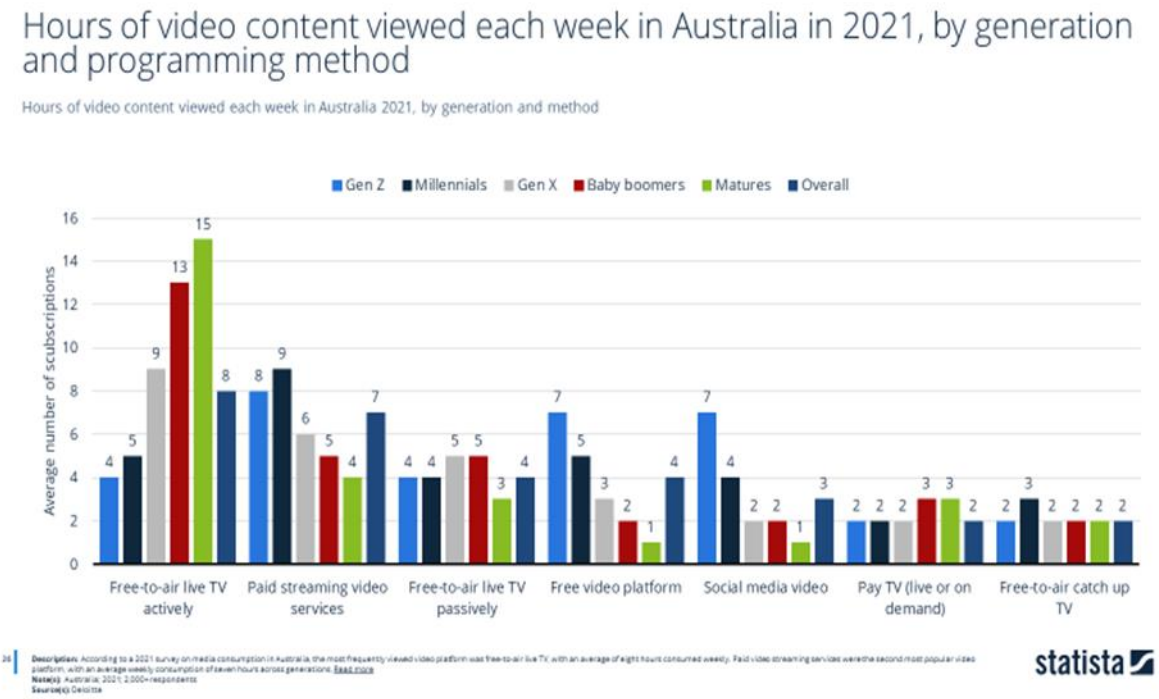
[219] https://www.screenaustralia.gov.au/fact-finders/production-trends/all-drama/activity-summary

in viewing habits in Australia have been well studied. This 2021 study showed that Baby Boomer generation were watching average 18 hours of free to air television per week, double the time spent by millennials on FTA.

As with many issues of changing audience behaviour there is a controversy about whether this is an age or cohort effect but it seems that there is at least a very strong cohort component of learned viewing behaviour. Surveys asking why people use on demand cite convenience and choice as a strong drivers, and whilst there is some churn between individual SVOD services user once users shift to more on demand consumption they rarely shift back to more linear viewing, except in times of emergency.

Figure 3-10 indicates that age is a good predictor of whether viewers are likely to use Free to Air Television. It is unlikely that the younger viewers will switch to FTA in the future.

Figure 3-10 Content viewing hours by generations in Australia



note: The report defines the generational cohorts as follows: Gen Z: 14-24 years; Millennials: 25-38 years; Gen X: 39-55 years; Boomers: 56-74 years; Matures: 75+ years

Actively means VoD – ie channel selection; Passively means broadcast no channel selection

3.2.4 Regulatory framework overview[220]

The Australian market has been characterised both as a hotbed of public interest-oriented policy activity, and as a prime example of what can result from lobbying by incumbent broadcasters and powerful platforms. A number of policy interventions have been experimented that seek to minimise the impact of the rise of OTT video on the broadcasting system and maximise the benefits for Australian producers and/ or media users. These have had mixed results.

3.2.4.1 Market Competition

Australian policymakers have acknowledged that digital platform markets engender novel competition problems undermining the consumer interest, and whilst it is generally accepted that consumers enjoy low switching costs and a good range of choice of services of traditional TV, pay TV and OTT VOD, some concerns have been expressed about OTT VOD in particular. Australia is yet to implement a comprehensive new regime for digital platforms, or significant competition enforcement activity in relation to SVOD or any other OTT VOD market.

For competition, unlike the DMA in the EU, Australia has devised a competition regime which aims to achieve similar types of prohibition of anticompetitive conduct, but on the basis not of a new designation of 'strategic market status' applied according to threshold criteria, but on the basis of codes negotiated with specific platforms[221]. Like the UK, Australia has also begun to re-engineer its regulatory landscape by creating a Digital Platform Regulators Forum on the model of the UK Digital Regulation Cooperation Forum.

New legislation is expected following completion of the 5-year Digital Platforms Services Inquiry[222] in 2025. In November 2023 the government announced that their inquiry had found evidence that platforms with significant market power could use practices like tying and bundling, defaults and pre-instillation to limit consumer choice and lock in consumers with a detrimental impact on competition and innovation. These findings were limited to social and search platforms rather than AV on demand.

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[220] See: https://www.acma.gov.au/broadcasting-content-licences

[221] https://www.ibanet.org/regulation-of-digital-platform-services-in-Australia

[222] https://www.accc.gov.au/inquiries-and-consultations/digital-platform-services-inquiry-2020-25

The Platforms Services Inquiry has thus far not examined audiovisual streaming and content markets, though it appears to be within the scope of the inquiry according to the original ministerial direction.[223] This reflects the consensus that this market remains competitive. In theory the legislation likely to emerge at the end of the inquiry will impact a range of potentially uncompetitive practices of video platforms such as bundling, self-preferencing, and data exploitation.

News Media Bargaining Code[224]

One of the key outcomes of the Digital Platforms Inquiry is the News Media Bargaining Code which in 2021 imposed a complex new framework to ensure that platforms – principally META and GOOGLE that benefit from news by selling advertisements pay for it. This was a unique and innovative model when it was introduced, in that it is a competition-based model that works by enabling news producers to bargain collectively with platforms, in order to address a social problem namely the lack of investment in publicly available news and information. This has been discussed and other countries are considering introducing similar systems in order to find new ways to fund journalism that has been starved of investment due to collapsing ad revenue.

The News Media Bargaining Code works by establishing a procedure to designate relevant platforms on the one hand and news businesses on the other. On the assumption that news businesses provide public benefits, and economic benefits to platforms, the code is designed to redress the imbalance in bargaining power between news providers and distribution platforms by establishing rules for negotiation between them and arbitration should it fail.

The regulatory scheme is designed carefully to protect media freedom and pluralism and prevent media capture or control by Government. Designations of news services within scope are made through a procedure of self-registration according to criteria in section 52A of the legislation[225] with the process managed by an independent agency, the Australian Communications and Media Authority. In order to benefit from designation under the legislation, news providers must meet general criteria including having an Australian audience, carrying news content, meeting a revenue threshold, and respecting professional standards. These apply to legacy media and news websites.

[223] https://www.accc.gov.au/system/files/Ministerial%20direction%20-%20Digital%20platform%20services%20inquiry.pdf?ref=0&download=y

[224] https://www.acma.gov.au/news-media-bargaining-code

[225] https://www.legislation.gov.au/C2021A00021/latest/text

Designations of digital platforms and services within scope are made by the minister according to criteria in section 52E of the Act. These are designed to allow the minister to identify platforms that have market power in distributing and prioritising news.

In practice the legislation has operated with minimal coercion from ministers or the regulator, with platforms establishing procedures for payment to news providers based on voluntary agreements, but there has always been resistance to the scheme from designated platforms. In early 2024 Meta took the radical decision to cease to collaborate with Australian authorities by refusing to pay charges levied under the News Media Bargaining Code. Meta argued that it offers free distribution to news publishers including broadcasters like the ABC, legacy newspapers and community news organisations, and threatened (as it had done in Canada) to remove or deprioritise news content from social media platforms run by Meta. At the time of writing the government, which has yet to designate the platforms under the scheme, were discussing their next moves under the legislation. Google appears to be collaborating with the code.

Alternative ways of funding news as a public good through taxation or specific levies are being considered.

3.2.4.2 Content and Creative Industry Policy

There is a long tradition in Australia of quotas, tax breaks, public service subsidies, export promotion and other forms of support for domestic audiovisual production as part of a proactive cultural and creative industry policy. Most of these measures date back at least 3 decades to the publication of Paul Keating's Creative Nation policy in 1994, but the first film quotas were introduced in the 1920s to protect the nascent production sector[226]. Australia has very high Australian content quotas: 55% of content shown on TV should be Australian in prime time. (Lobato et al 2024: 10). This is based on a widespread recognition in Australia of the interconnectedness of questions of creative economy contributions to GDP, national branding and soft power and issues of art, culture and education policy goals. Australian creative exports target Southeast Asia and the UK as key export markets.

Recently, policy also sought to incentivize investment in Australian content by large streaming services. For example, following a long series of parliamentary and government inquiries

[226] Lobato, R., Douglas, J., Scarlata, A., & Cunningham, S. (2024). Cultural policy between television and digital platforms: The case of SVOD regulation in Australia. *International Journal of Cultural Policy*, *30*(1), 1–16. https://doi.org/10.1080/10286632.2022.2160715

dating back to 2017, the Australian Government introduced a Streaming Services Reporting and Investment Scheme in 2022. (Lobato et al 2024). This was a process driven by industrial policy considerations namely a perceived need to protect Australian film and TV from the rapid growth of Netflix. Introducing the scheme the government acknowledged that "Australia is not alone in grappling with the challenge of safeguarding access to content with local cultural relevance in an increasingly globalized marketplace. A number of countries – Belgium, Croatia, Denmark, France, Germany, Italy, Spain, Switzerland, Portugal and Poland – have implemented regulations on streaming services to incentivize or require the provision of local programming." (Australian Government 2022: 9) The scheme recommended that streamers should invest 5% of gross Australian revenue on new Australian content. The scheme was however criticised for weak sanctions.

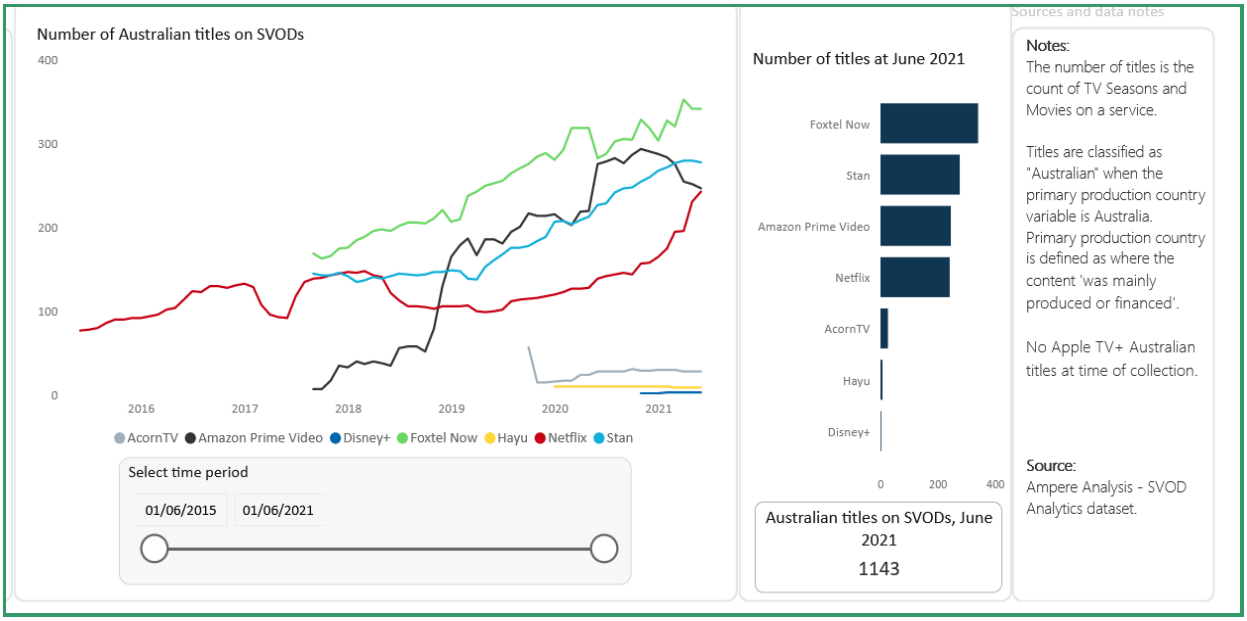
In 2023, the Australian Government published 'Revive National Cultural Policy', a five-year plan to renew the wider cultural landscape, including investment quotas towards the VoD streamers. Following consultation proposals for new legislation have been published. The new Streaming Bill proposals are an attempt to fund Australian content. Quotas will require streamers such as Prime, Disney and Netflix to invest in production of Australian content from 2024. Details are not clear yet but the film and tv sector has argued for a 20% revenue levy to fund local productions.[227]

It is likely that this policy environment was a contributing factor in the growing number of Australian titles available on SVODs in Australia, but growth pre-dates key policy interventions and there are natural incentives for streamers to commission content to appeal to domestic audiences to drive subscriptions. The following graph shows that both domestic and international SVOD services provide access to a growing number of Australian titles. Domestic VOD consistently serves Australian audiences more Australian titles, but the combined total of Netflix and Prime is much greater than leading Australian streamer Foxtel.

[227] https://www.abc.net.au/news/2023-01-29/streaming-giants-to-be-required-to-make-australian-films-and-tv-/101904938

https://www.smh.com.au/culture/tv-and-radio/d-day-looms-for-netflix-disney-as-government-firms-new-streaming-rules-20231107-p5ei8h.html
https://senalnews.com/en/research/streamers-respond-to-accusations-and-justify-their-investment-in-australian-content

Figure 3-11 Australian Content Availability on SVOD in Australia



source: SVOD in Australia Dashboard. Australian Government March 2022[228].

3.2.4.3 Protection of Children/ illegal and harmful content rules

Australia has had a stricter approach to internet content than US and European countries since the 1990s:-

- The Online Safety Act 2021 (OSA) updates this framework and introduces complaints systems to address harms caused by cyber-bullying and cyber-abuse material, the illegal sharing of intimate images, and the sharing of certain forms of illegal online content.[229]
- The legislation sets out a framework of standards, the Basic Online Safety Expectations (BOSE) which are broad requirements that apply to most providers of relevant services and require service providers to take reasonable steps to be safe for their users, for example by minimising abuse, bullying and other harmful content and activity, and operating effective complaints systems.
- Social media platforms and other key gateways in the market for online services will be required to draw up industry codes. This is broadly in line with the approach in Europe for example in the EU DSA and the UK Online Safety Bill (See UK and EU cases).

228
https://app.powerbi.com/view?r=eyJrIjoiYmE0ZGUxNjItZmIyNS00YzA0LWE4MTgtNGQ0MjI4NjE4ZDBjIiwidCI6ImFhMjFiNjQwLWJhYzItNDU2ZC04NTA1LWYyY2MwN2Y1MTc4NCJ9

229 https://www.legislation.gov.au/C2021A00076/latest/versions

- For the purposes of service safety and the prevention of harm, new on demand services will fall partly within the scheme for online harm reduction under the Online Safety Act and also some of the (more stringent) content obligations that apply to some providers under legacy broadcasting legislation. In this context, the global debate about VOD, and in particular the potential for addiction based harms, manipulation and 'rabbithole effects' in the use of short form video in particular, were discussed as potentially justifying regulation or even (in the case of TIKTOK) restrictions for government employees or children.

3.2.4.4 Public Service Media

Australia has a well-established and plural system of public service broadcasting in the form of both the general interest ABC and the more education and culture oriented Special Broadcasting Service (SBS). These services do offer their own OTT on demand TV apps: Iview in the case of license fee funded ABC, and SBS On-Demand in the case of SBS which is funded by both public and ad- revenue.

Regulated Prominence of Free to Air TV services

The Australian government has consulted on a new prominence framework for connected TVs in 2022-23 and on 29 November 2023, the Australian Government introduced a Bill into Parliament to legislate the prominence framework, which in Australia is more often referred to as 'Discoverability'. This differs to other prominence regimes (such as the German and the UK schemes) in that it is explicitly designed to protect the category of 'free to air' TV broadcasters rather than 'public service', or 'public interest' providers. The same legislation, which refers to the objective of maintaining 'discoverability' of public media is driven by lobbying by commercial television and continues a tradition of 'anti-siphoning' or listed events rules that protect certain events from being restricted to subscription services. The legislation aims to achieve this objective by implementing them for new on demand platforms. According to the Australian Government summary: "The Bill makes two key changes to the anti-siphoning scheme:

- expanding coverage of the scheme to forbid 'media content services' from acquiring rights to broadcast listed events, until they have been acquired by certain free-to-air broadcasters, or the events have been de-listed. Currently, the scheme only restricts rights acquisition by subscription television broadcasters.
- lengthening the automatic de-listing period for events from 26 weeks before the event starts to 52 weeks before the event starts.

The amendments to the anti-siphoning scheme benefit free-to-air broadcasters and increase the likelihood of events being broadcast for free. However, it is unclear whether the amendments will significantly reduce the risk of content being made available exclusively online. Further, it provides increased advantage to free-to-air broadcasters at the expense of other media content providers and (in particular) sporting organisations."[230]

The prominence/ discoverability regime is introduced for social policy reasons: According to the government of Australia's explanatory memorandum the aim of the Bill is follows:

"The Bill seeks to ensure that Australian audiences have access to regulated television services on regulated television devices, with the latter being certain internet connected television devices that are supplied in Australia. Regulated television services play an important role in ensuring Australians have access to information and content essential to their entertainment and safety, as well as supporting our national identity, cultural diversity and social cohesion."

Following a government consultation in 2023[231], legislation[232] was introduced into Parliament and is expected to pass in some form in 2024. Due to furious lobbying against this legislation by some aspects of the TV and hardware industry, the legislation remains controversial[233].

3.2.4.5 Infrastructure and distribution

Internet speed is no longer a barrier to accessing OTT Video services in Australia for the vast majority of consumers. Figure 3-12 below shows the proportion of fixed broadband subscriptions that exceed speeds of 10 Mbit/s.

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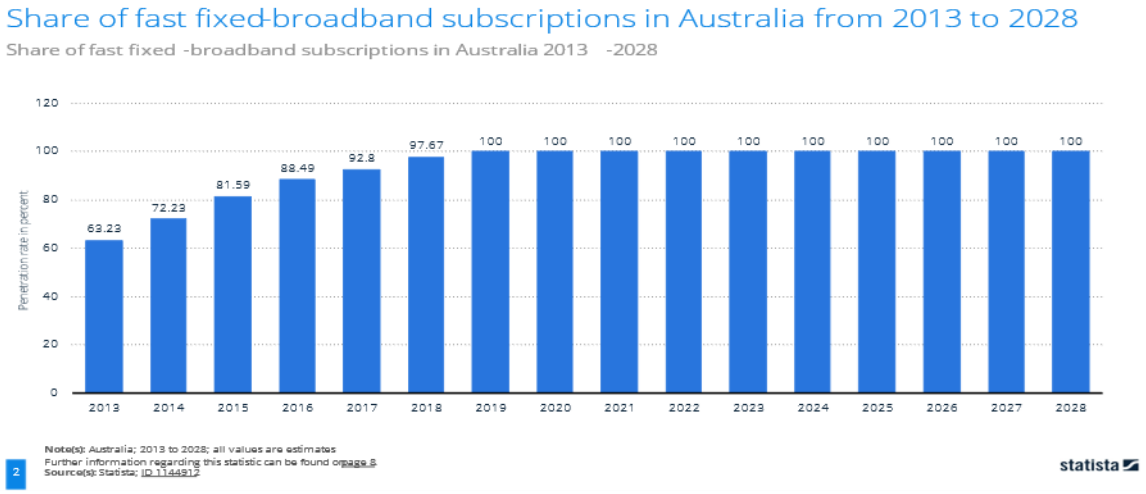
[230] https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd2324a/24bd057

[231] https://www.infrastructure.gov.au/sites/default/files/documents/prominence-framework-connected-tv-devices-proposals-paper.pdf

[232] https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bId=r7132

[233] https://www.theguardian.com/media/2023/nov/16/astra-tv-ad-australian-government-control-tv-pominence-free-to-air

Figure 3-12 Fixed high speed broadband penetration in Australia



3.2.4.6 Effectiveness and sustainability of regulation

Whilst the Australian media market is often criticised by international free speech NGOs, this is less likely to be in the form of criticism of the government policies introduced above. Rather, the hyper concentrated and oligarchic nature of the Australian media are seen as a threat to independent journalism. Despite these concerns, Australia generally scores highly in press freedom indices, in 2023 Australia improved its position to 27th of 180 countries in the view of the experts consulted by Reporters Without Borders. There has been some criticism that the technology-driven revenue squeeze on the public service broadcasters has enabled the government to undermine the position of both ABC and SBS and inhibit their ability to adapt its services to the new on demand landscape. Additional conclusions that can be made about the Australian case are:

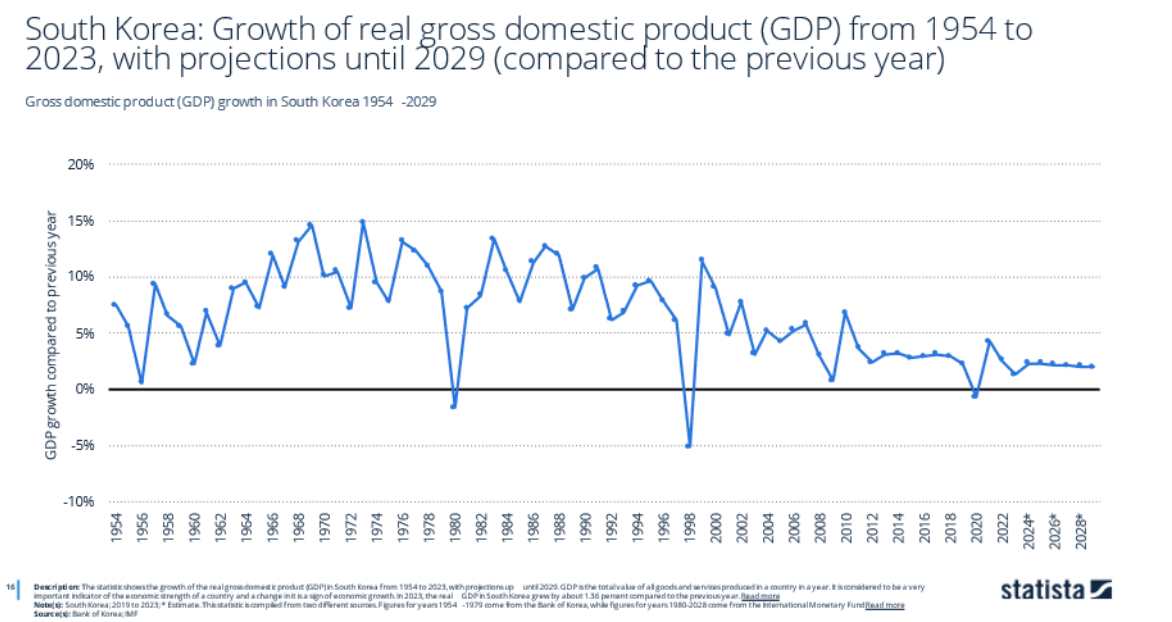
- The distinctive features of the Australian market appear to be rapid take up of VOD OTT in particular Netflix. This is probably explained by the easy localisation of English language content, and the high production quality in comparison with domestic production.
- Online regulation for user protection with BOSE (BASIC ONLINE SAFETY EXPECTATION) and other acts are among the strongest in the sector globally.
- Regulatory responses have combined appeals to protect the public interest in domestic production and public interest content such as news, which have resulted in attempts to extend quotas to news, regulated prominence for public service apps and competition privileges for news providers.

- Commentators have identified the origin of this legislation in intense lobbying by the monopolistic legacy media in Australia and a lobbying battle with the rising power of the platforms, which continues. All markets witness power struggles of this type, but it is particularly pronounced in Australia.

3.3 South Korea

3.3.1 Key economic trends

Figure 3-13 South Korea annual GDP growth over previous years 1954- 2023



As of mid-2024, South Korea is experiencing several key economic trends:

1) **Moderate Economic Growth**: South Korea's economy continues to grow at a moderate pace, driven by strong performance in technology, automotive, and export sectors. However, growth rates have been tempered by global economic uncertainties and domestic challenges. The chart above shows projections indicating future growth between 2 and 3%.
2) **Inflation and Cost of Living**: Inflation has been relatively high, impacting the cost of living. This is influenced by global supply chain disruptions, rising energy costs, and increased consumer demand.
3) **Housing Market**: The housing market remains a critical issue in South Korea, with high property prices and concerns over affordability. The government has been implementing

measures to stabilize the market, including regulating real estate transactions and increasing housing supply.

4) **Labour Market**: The labour market shows a mixed picture. While unemployment rates are relatively low, youth unemployment remains a significant concern. Additionally, there is a focus on improving job quality and addressing issues of job security and underemployment.
5) **Interest Rates and Monetary Policy**: The Bank of Korea has been adjusting interest rates in response to inflationary pressures. After a period of low rates to support economic recovery, there have been gradual increases to manage inflation.
6) **Export-Driven Economy**: Exports, particularly in semiconductors, automobiles, and electronics, continue to be a major driver of the economy. However, global trade tensions and supply chain issues pose risks to export performance.
7) **Government Fiscal Policy**: The government has been balancing fiscal stimulus to support economic recovery with measures to ensure long-term fiscal sustainability. Efforts include infrastructure investments and social welfare programs.
8) **Technological Innovation and Digital Economy**: South Korea is investing heavily in technological innovation and the digital economy through its active industrial policy. Areas such as 5G, artificial intelligence, and green technology are receiving significant attention and funding.
9) **Ageing Population and Demographic Challenges**: The ageing population and near-zero birth rate presents challenges for the labour market and for social welfare. Policies are being developed to address these demographic shifts, including incentives for higher birth rates and improved support for elderly care.
10) **Renewable Energy Transition**: Similar to other advanced economies, South Korea is focusing on transitioning to renewable energy sources. Investments in solar, wind, and hydrogen energy are part of the country's strategy to reduce carbon emissions and enhance energy security.

Summary

- South Korea OTT development is part of a regional and global success story of a medium sized economy leveraging infrastructural advantage, creative industry policy and national branding comparative advantage for economic benefit and soft power projection.
- This success has been enabled, if not created by a sustained and proactive central and regional government policy programme to support the creative industries.

- South Korea is marked by a number of inter-related features that help explain the success: such as early and rapid investment in super-fast broadband networks enabling world-leading levels of access, a related boom in gaming, music, and film sectors, global breakthrough blockbusters creating a K-wave of global content success and a well-developed market in domestic news and information portals.

3.3.2 Introduction

- The South Korean OTT Video market is projected to reach revenues of US$4.60bn in 2024.
- It is expected to show an annual growth rate of 5.60% from 2024 to 2029, resulting in a projected market volume of US$6.04bn by 2029.
- The largest market segment in South Korea is OTT Video Advertising, with a market volume of US$2.68bn in 2024.
- Initial dominance of global OTT players has been partly displaced by domestic OTTs mainly formed as collaborations between legacy Korean broadcasters.
- In the South Korean OTT Video market, the number of users is expected to amount to 51.1m users by 2029.
- User penetration is projected to be 87.5% in 2024 and is expected to increase to 99.5% by 2029.
- The average revenue per user (ARPU) in the South Korean OTT Video market is projected to be US$15.20 in 2024.

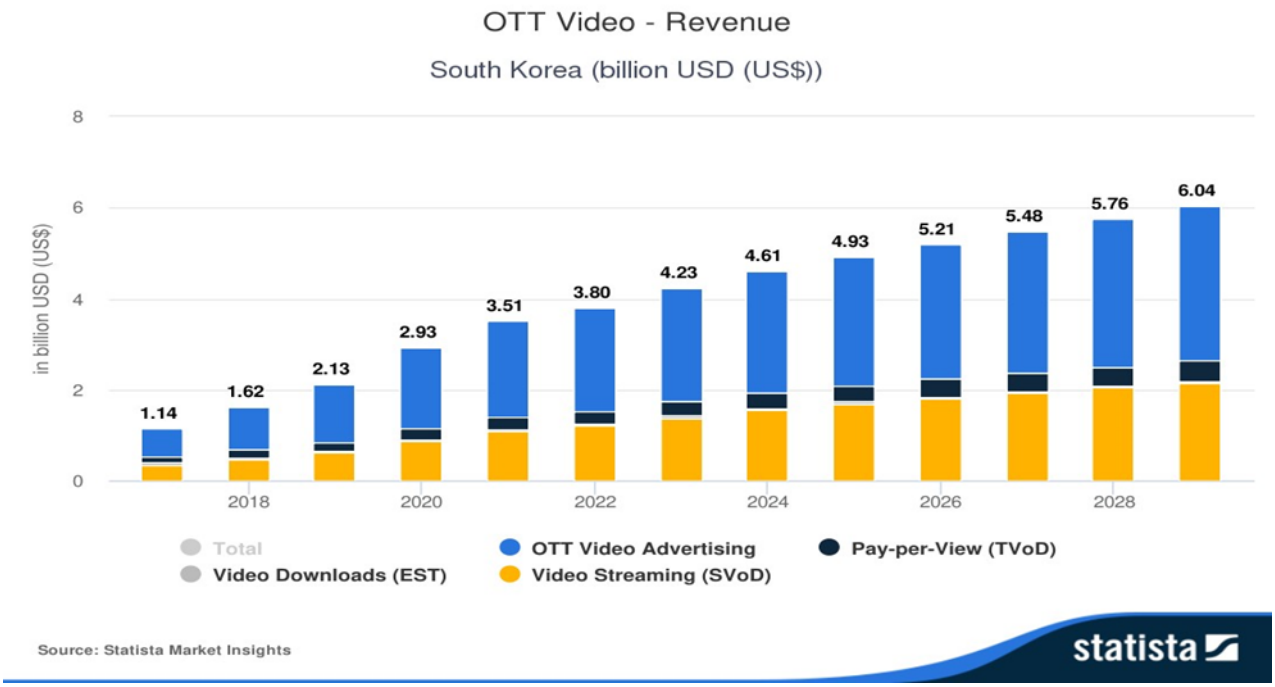
Source: Statista Feb 2024.

3.3.3 Market structure

The South Korean market is characterised by strong advertising supported and payTV services in terms of revenues and consistent growth in OTT services, with some exceptions. South Koreas television sector has some similarity with Australia's. It combines publicly owned public service broadcasters (KBS, EBS) with commercial channels subject to public service requirements (owned by MBC and SBS). The system was redesigned following the transition to democracy during the 1980s, and a large expansion of channels with the launch of satellite in the 1990s. The three largest national television networks are KBS, MBC and SBS. The television channels are protected from political interference by the Foundation for Broadcast Culture which is a funding system similar to the Channel Four corporation in the UK. A 2009 reform began a process of deregulation of television licensing in South Korea and analogue broadcasting ceased in 2012.

As Figure 3-14 indicates, revenues from OTT video advertising revenues have been growing and are expected to continue to grow at a significantly higher pace than SVOD.

Figure 3-14 OTT revenue from streaming video, PPV, downloads and advertising



According to a recent audience survey,[234] YouTube remains the most watched sources of video content in South Korea. The percentage of respondents reporting that they watched YouTube declined from 39.5% in 2019 to 33.7% in 2022 but YouTube remained the service that more respondents reported watching. The second most watched is the SVOD service Netflix, which displaced the home-grown Naver TV by 2020 as the second most viewed service by consumer reporting. The remainder of the market is relatively fragmented and there is a marked trend of displacement of domestic players by global services.

These self-reported figures will have tendency to various forms of bias, in general likely under-reporting service use due to social desirability bias (a common statistical phenomenon – of bias by self reporters which may be introduced by the ways in which respondents wish to be viewed). The amounts based on companies own data displayed in Figure 3-15 below may be considered to be more reliable, but those used in advertising valuation often have incentives to over-report.

[234] Kim, Namdoo. "Analysis of OTT Service/Content Usage Patterns and Trends." *KISDI Premium Report* 2023, no. 04 (August 1, 2023), 20. https://www.kisdi.re.kr/report/view.do?key=m2101113025536&arrMasterId=3934550&masterId=3934550&artId=1157976.

Figure 3-15 Ranking of 10 preferred OTT services 2019- 2022

<Table 7> The most used OTT services for the last 4 years

(Unit: %)

Pos.	2019년		2020년		2021년		2022년	
	Service	%	Service	%	Service	%	Service	%
1위	**YouTube**	39.5	**YouTube**	40.7	**YouTube**	38.2	**YouTube**	33.7
2위	Naver TV	13.4	**Netflix**	13.0	**Netflix**	23.0	**Netflix**	23.1
3위	Facebook	6.9	Naver TV	11.5	Naver TV	6.5	**Tving**	6.6
4위	**Netflix**	5.6	Facebook	6.4	**Wavve**	5.0	**Coupang Play**	5.1
5위	Kakao TV	4.4	Kakao TV	4.1	**Tving**	4.9	**Wavve**	4.7
6위	**Wavve**	4.0	**Wavve**	3.7	Facebook	4.3	Facebook	4.5
7위	Olleh/Seezn	3.6	**Tving**	3.3	U+Mobile TV	2.4	TikTok	3.8
8위	Africa TV	3.3	U+Mobile TV	3.0	Kakao TV	2.4	Disney+	3.3
9위	Telebee	3.2	Africa TV	2.5	**Coupang Play**	2.3	Naver TV (PC ver.)	2.0
10위	**Tving**	2.8	TikTok	2.3	TikTok	2.0	Twitch	1.9

주: 1) For 2019&2020, the sample(13~69 y.o) excluded respondents aged 7~12 (numbers recalculated)
2) Usage of 'Facebook' is limited to video streaming. Since 2022, 'Naver TV' is separated into 'Naver TV(PC ver.)' and 'Naver Now'. 'U+ Mobile TV' includes the monthly movie subscription service on PC.
3) Total number of respondents: 2019 = 1,480; 2020 = 1,485; 2021 = 2,209; 2022 = 2,029 .

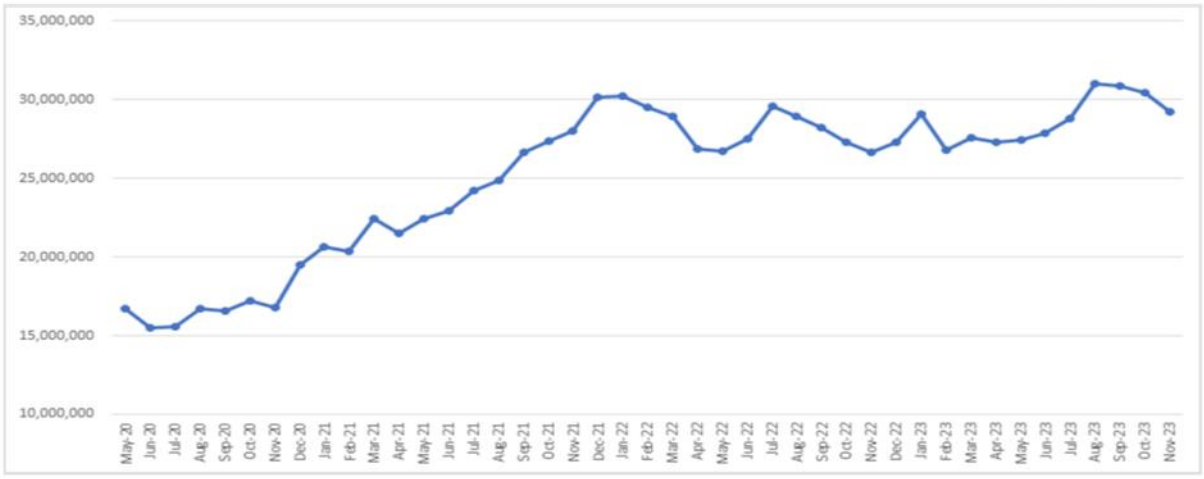
source: Kim, Namdoo. "Analysis of OTT Service/Content Usage Patterns and Trends." KISDI Premium Report 2023, no. 04 (August 1, 2023), 20

The relatively stagnating revenues for SVOD services illustrated in Figure 3-13 above can be explained by fluctuations in monthly users tied to new release dates for content. Paid subscription services are particularly sensitive to content releases and cost of living fluctuations. As Figure 3-16 illustrates, the number of SVOD monthly users has fluctuated depending on new content releases with little growth since 2021. This is despite the drastic increase in overall OTT VOD users. According to the Korea Broadcasting Commission's 'Broadcast Media Usage Behaviour Survey', users reporting that they user OTT VOD service increased from 52% in 2019 to 77% in 2023.

Figure 3-16 Trends in the users of SVOD services 2020-23 in South Korea

[Figure 1] Trends in the combined number of major SVOD monthly users (May 2020 to November 2023)

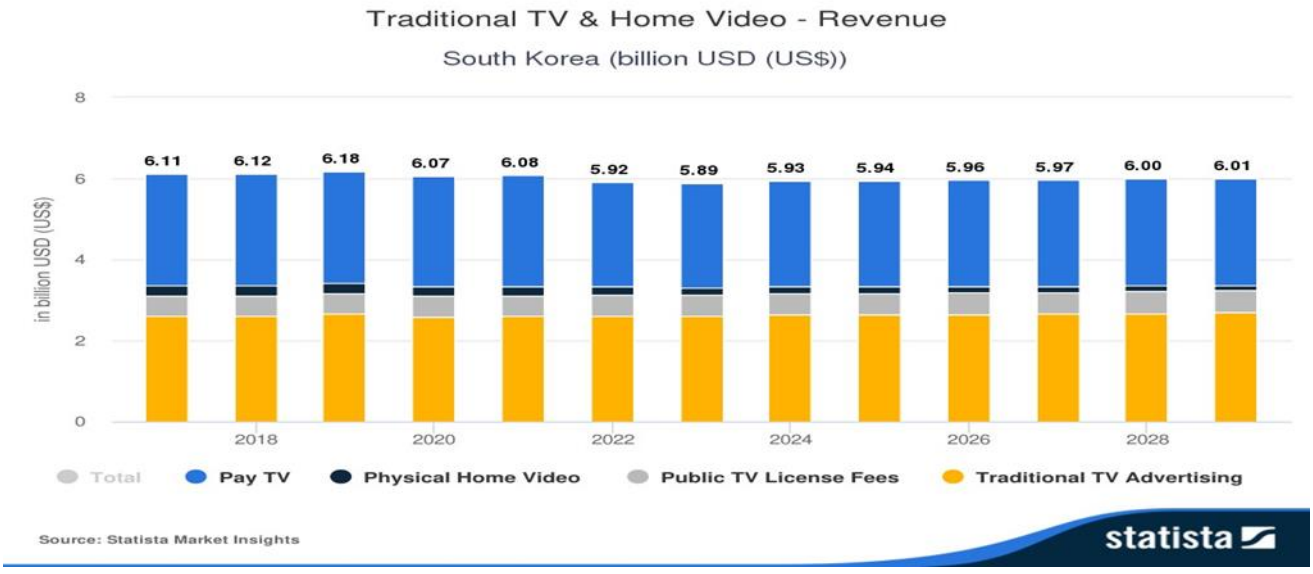
(Unit: person)



Note: The major SVOD services include Netflix, Tving, Wavve, Coupang Play, Disney Plus, Watcha, and Seezn.
Source: Mobile Index (https://www.mobileindex.com/)

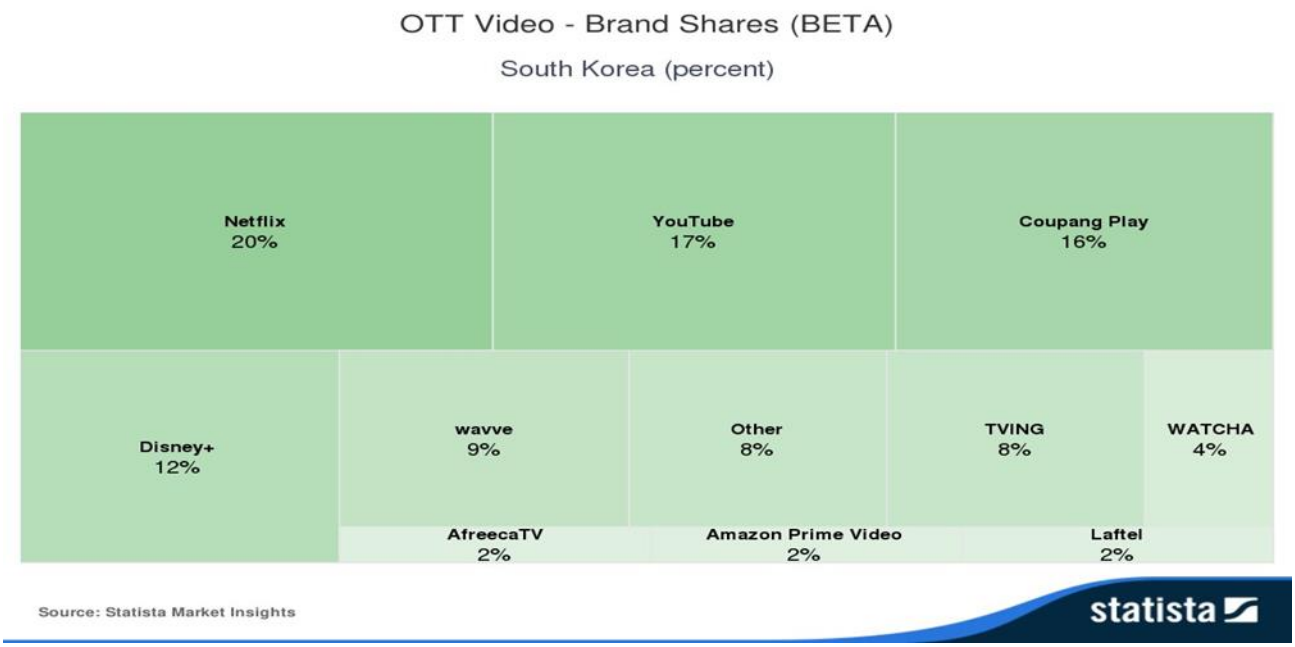
All OTT video sectors are projected rapid growth: to continue to grow in terms of numbers of users at least to the end of the decade, displacing consumer attention and revenues from the traditional TV and home video sector which is expected to recover slightly from a cyclical post-pandemic dip in revenues but, as Figure 3-17 shows, it is unlikely according to industry projections to recover to 2018 levels of revenue.

Figure 3-17 Revenues by revenue type in TV market South Korea



South Korea is an open market in which all the major global players are represented, along with a number of smaller domestic streaming platforms. Consumers can choose between a wide range of business models to access VOD services, including various forms of adverting funded service, along with subscription and free public services, as well as video-sharing platforms with user generated content. Interestingly, the classic subscription model offered by global players such as Amazon Prime and Netflix still earns less overall, and less ARPU than new forms of advertiser-based video on demand services.

Figure 3-18 Brand Shares for OTT services South Korea (BETA implies latest updates)



It is important to note that YouTube is the only video sharing platform included and TikTok is notably absent. South Koreans are not among the most active nationalities on TikTok. Less than 25% of Koreans reported using TikTok in 2022 (Statista) whereas domestic social network Kakao boasted 85.1% penetration of the market. TikTok use in South Korea is increasing however. ByteDance data claimed that potential ad reach (based on user numbers) increased by 1.3million in the year to January 2024.[235] In all South Korean social media users in early 2024 were numbered at 48.34 million or 93% of the total population. According to research by DataReportal, Mobile users were 66.39 Million or 128.3% of the population due to multiple mobile subscriptions.[236]

[235] https://datareportal.com/reports/digital-2024-south-korea?rq=south%20korea

[236] https://datareportal.com/reports/digital-2024-south-korea?rq=south%20korea

According to DataReportal, YouTube's "own data suggests that YouTube's ad reach in early 2024 was equivalent to 85.6 percent of the Republic of Korea's total population at the start of the year. To put those figures in perspective, YouTube ads reached 88.1 percent of South Korea's total internet user base (regardless of age) in January 2024." [237] Tving is the only Korean OTT platform that announced that it will provide an ad-based pricing plan.

The importance of IPTV in comparison with other audiovisual distribution technologies in Korea is reflected in the Figure 3-19 which shows the basic financial structure of the industry between 2021 and 2022. [238]

Figure 3-19 OTT (here IPTV) with other media broadcast operators' financial status- assets, liabilities, capital

(Unit: Hundred million wons)

Type	Assets			Liabilities			Capital		
	2021	2022	Variation	2021	2022	Variation	2021	2022	Variation
DTT	86,349	86,311	△38	22,674	20,979	△1,695	63,675	65,332	1,657
Cable	36,427	35,068	△1,359	17,095	16,580	△515	19,332	18,488	△844
Satellite	11,470	11,600	130	3,697	3,576	△121	7,773	8,024	251
IPTV	535,654	552,844	17,190	291,441	291,698	257	244,212	261,146	16,934
Program Provider	209,635	204,425	△5,210	70,844	70,266	△578	138,791	134,159	△4,632
IPTV Content Provider	42,138	47,016	4,878	21,486	22,581	1,095	20,651	24,435	3,784
Terrestrial Digital Multimedia Broadcasting	190	233	43	40	84	44	150	149	△1
Total	921,863	937,497	15,634	427,279	425,764	△1,515	494,584	511,733	17,149

source: Korea Communications Commission 2023

Infrastructure Access

Although the proportion of mobile devices for OTT service usage is still high, the proportion of usage via TV is steadily increasing. According to the Broadcast Media Usage Behaviour Survey, the proportion of using OTT services through TV increased to 8.5% in 2020, 12.4% in 2021, and 16.2% in 2022. - The usage location of OTT services is significantly higher at 'home' even during

[237] https://datareportal.com/reports/digital-2024-south-korea?rq=south%20korea

[238] SOURCE: "Broadcast business operators' financial status in 2022 <2022년도 방송사업자 재산상황 공표>" *Korea Communications Commission,* June, 2023, p.3. Korea Communications Commission https://kcc.go.kr/user.do;jsessionid=y3JvYG2GEQznAF8dfMPWMosYdmY3GIm8x9S8A1nZ.servlet-aihgcldhome10?mode=view&page=A02060100&dc=&boardId=1027&cp=1&boardSeq=55647

weekdays compared to other places. Korea aims to continue its infrastructure leadership through for example innovative 5G deployment inside buildings.[239]

Market Development Overview

After rapid growth in subscriber numbers between early 2020 and early 2022, the OTT / SVOD market has stabilised in South Korea. There has been better growth among Korean OTT providers such as TVING and Coupang Play and a slight decline in Netflix subscriber numbers, usage rates and overall dominance.

Some local market conditions and data eccentricities make it difficult to quantify OTT revenue as a separate sector. For example, due to the absence of separate entities for Disney Plus and Coupang Play, it is impossible to confirm the revenue of OTT separately. Since Coupang Play is provided to Coupang Wow Members at no additional cost, it is impossible to separately calculate OTT revenue regardless of the presence of separate entities.

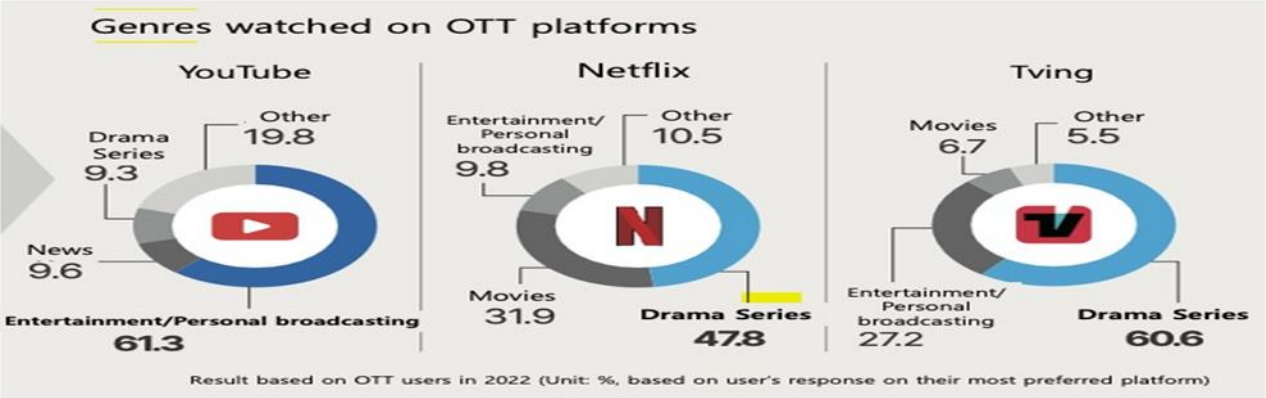
Netflix'.s revenue in 2022 increased by 22.4% compared to the previous year to 773.3 billion won, recording an operating profit of 14.3 billion won (operating profit margin 1.8%). While revenue of domestic operators such as Wavve and TVING Corporation increased, their, profitability worsened, with operating losses exceeding 40% of revenue.

Netflix viewers in South Korea consume high proportions of domestic content in comparison to viewers in other countries in the region. According to Netflix engagement report, as of the first half of 2023, the total viewing time on Netflix (global market) was approximately 93.5 billion hours, with Korean content accounting for about 7.9 billion hours, a significant proportion of 8.4%. - Prior to the release of the Netflix engagement report, Netflix had been weekly releasing the viewing time of the top 10 contents by category. According to this data, Korean content in non-English TV series accounted for nearly half, 46.8%, in the second half of 2021 when "Squid Game" was released. - Since then, Korean content has consistently accounted for over 36% of the viewership time per half-year, and even in the overall TV series category including English-language TV series, it has maintained a high proportion of 12-22%.

[239] https://www.zdnet.com/article/kt-to-expand-deployment-of-5g-inside-buildings/

In terms of genres, survey respondents reported that they used Netflix and Tving for entertainment, movies and drama, whereas YouTube was used for a variety of other genres including news.

Figure 3-20 Genre's watched on main OTT services in South Korea



South Korean viewers are overwhelmingly watching content on mobile devices as can be seen in the reported habits captured by the Communication Commission's recent Broadcast Usage Survey and shown in Figure 3-21 below.

Figure 3-21 Preferences in viewing by device and against genres show largely smartphone in South Korea

<표 4-48> Individual – Most used OTT – First, Second

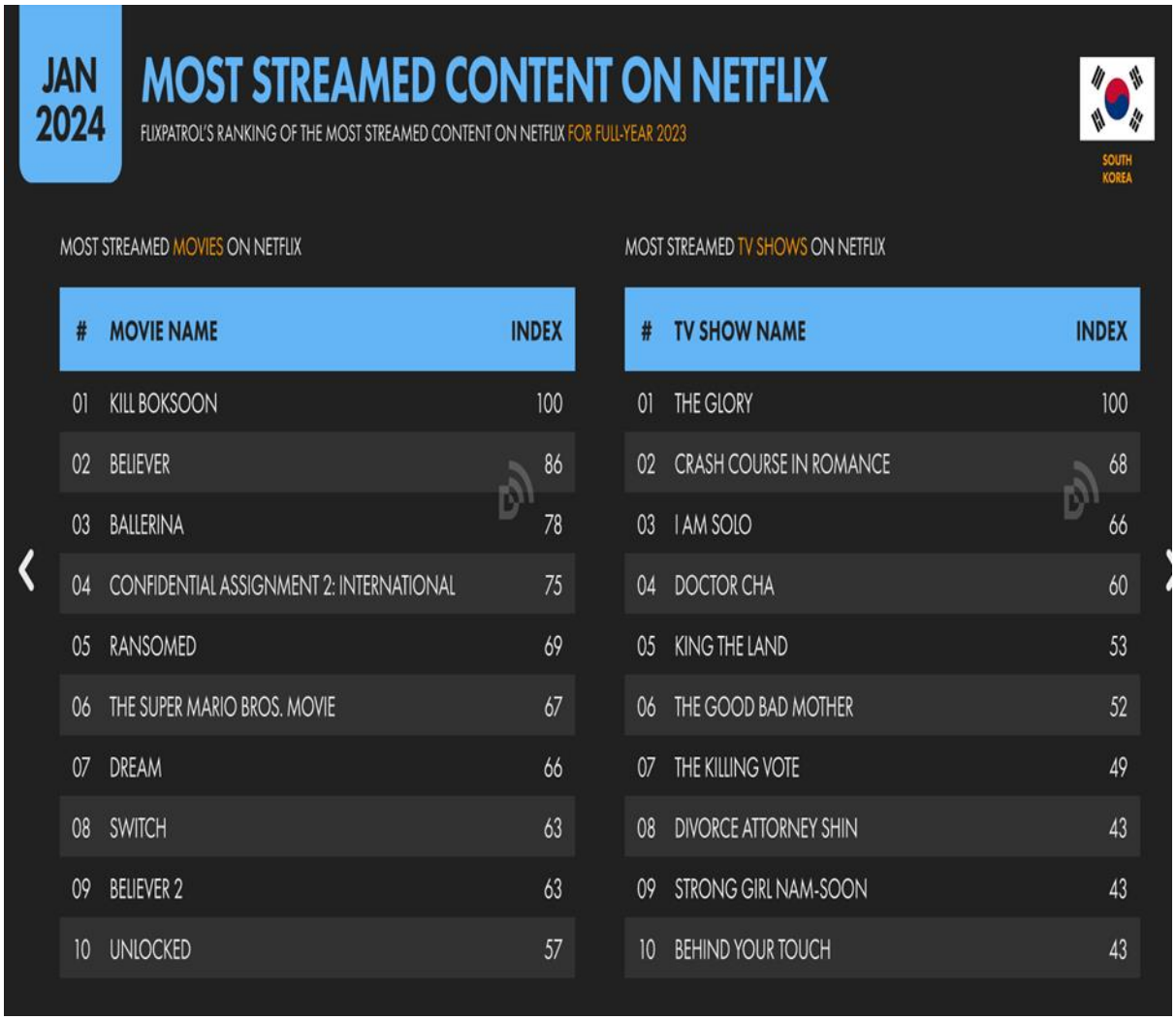
Item		Percentage(%)	
		First	Second
[Genre mostly watched]	Drama series	17.7	25.3
	Entertainment(Personal Broadcasting incl.)	51.5	35.8
	Movies	7.8	22.5
	Cultural programs/Documentaries	3.2	1.3
	Education shows	1.9	1.6
	Animations(Cartoon)	2.6	3.2
	Sports shows	5.8	5.3
	News	7.7	4.0
	Performance(Concerts, theatre, musicals etc.)	1.6	1.2
	Other	0.1	-
[Device mostly used]	Smartphone	88.2	70.2
	Tablet PC	2.7	6.9
	Desktop computer	0.9	2.0
	Laptop	1.8	3.4
	Television Set	6.5	17.5

Base: Individuals' most used OTT (8,487), Individuals' second most used OTT (3,889)

source: Korea Communications Commission: Broadcast Media Usage Behaviour Survey.

It is notable that in the case of South Korea, domestic content has been more successful than foreign produced content even on foreign OTT platforms. The top 10 Films and TV shows contained a number of titles that were huge Korean Hits. In January 2024, all the top 5 most streamed movies on Netflix in South Korea were South Korean.

Figure 3-22 Top Content streamed on Neflix in South Korea in January 2024



source: DataReportal.com. Digital Korea 2024

Development Drivers

The K wave and Television - Korea has been a global success story, with Korean gaming, film, music, television and cartoons all contributing to an export success story with multiple benefits to Korean economy and society. This has enabled the Korean film and television sector to leverage its successes into a series of global financial and critical successes in the OTT VOD sector. The ability of different content and service sectors to create synergies and brands is evident for example in the emergence of sub sectors such as the recently popular 'Webtoons' in which Korea is once

again a global leader. With the development of new and innovative sectors and standards such as metaverse, interactive, converged and 4K services Korea should be well placed to continue this success story, although there are questions in particular about demographic greying and export demand.

3.3.4 Regulatory framework overview

South Korea has a unique relationship with Netflix in particular because Netflix has enabled global reach for Film and TV series and in turn benefitted from generous South Korean subsidies and high quality production. This relationship leads government to publicly commit to special treatment for streaming platforms. The Ministry of Science and ICT said in a seminar in September 2023 that 'the Ministry does not regulate OTTs, and is not planning to', but in the background there are advanced discussions about various forms of regulation. [240]

According to a government official interviewed "policy approaches are needed from the perspective of protecting 'competition' and maintaining the sustainability of the industry. From the perspective of the entire video content industry rather than just the broadcasting industry, the current situation can be seen as the industry growing while undergoing internal restructuring."... "Long term, reforms in the OTT-related regulations may impose greater burdens on domestic operators, thus requiring careful consideration of market competition, the impact on domestic businesses, and trade issues. The government needs to strengthen support for the overall reproduction system, including production personnel and infrastructure, to ensure the industry's stable sustainability. Additionally, to protect platform competition, it is necessary to support the overseas distribution of domestic operators, who are at a disadvantage in terms of economic scale compared to global operators. Netflix is an attractive distribution channel for entering the global market at relatively low transaction costs. However in order to maintain the platform competition system and secure the bargaining power of content providers, it is significant to maintain overseas distribution networks in the medium to long term. The government should support networking through content markets, festivals, etc. and expand exchanges through diplomatic efforts in regions with high demand for Korean content. Collaboration with major operators building overseas market networks should be considered for this purpose."

[240] https://zdnet.co.kr/view/?no=20230918190333

Interviews with former government officials have indicated that some aspects of domestic Korean policymaking have been blocked because they were raised in trade talks with the US. For example policymakers were concerned with the question of how to levy a fair telecommunications fee between US platforms such as Netflix and the telecoms companies. But this was raised in trade talks and did not progress.

3.3.3.1 Market Competition

In December 2022, the KCC (Korea Communications Commission conducted the annual Broadcasting Market Competition Assessment.)[241] The report noted a number of potential problems related to the rapid growth of the OTT video market. These included impact on existing Pay TV operators, including distortion of content markets. No immediate action was deemed necessary.

South Korean stakeholders have begun to discuss OTT regulation more urgently as OTT services' impact on the global and domestic media market have grown. According to a leading expert in South Korea interviewed for this project "OTT needs to be regulated in order to protect fair competition and to control sociocultural effects. In many of the discussions, developed countries' cases have been used for supporting OTT regulation the OTT market has been increasingly competitive especially around content differentiation. Regulators must be wary of hastily introducing competition regulation to the dynamically innovating OTT market. The foreign cases, including the US, EU, the UK, and Japan, hardly seem to be appropriate bases for strengthening OTT regulation. Rather, they were focused more on promoting competition in the domestic media market and enriching the content ecosystem. Therefore, we need to consider revision of the outdated media regulation frameworks instead of fitting OTT under them, and to recognize the priority of securing practical jurisdiction on global service providers before capturing local players into the conventional regulation systems."[242]

KFTC proposed the Online Platform Transaction Fairness Act in Sept 2020. As of early 2024 it remains in draft.[243] The legislation adopts the model of the EU DMA with a process of designation to determine new threshold-based obligations. The proposed Platform Competition Law is expected to be debated during 2024. According to government announcements in early 2024, the

[241]The Broadcasting Market Competition Assessment is conducted annually by the Korea Communications Commission (KCC) according to Article 35-5 of the Broadcasting Act. The results are reported to the National Assembly. See also: https://content.clearygottlieb.com/antitrust/digital-markets-regulation-handbook/south-korea/index.html

[242] https://koreascience.kr/article/JAKO201905960171897.page

[243]https://chambers.com/articles/kftc-proposes-ex-ante-regulation-of-platforms-under-the-platform-competition-promotion-act-5

Law is based on a similar framework to the DMA: designation of dominant platform companies, and a series of prohibited behaviours for those so deemed. Government wants to pass the bill soon, but the US government is raising this in trade negotiations and gave a negative opinion on the Bill. It is unlikely to pass anytime soon, and if it does pass, there would have to be a lot of further market concentration to catch OTT platforms.[244]

3.3.3.2 Content and Creative Industry: the role of government policy in the K-Wave Success Story

South Korea has become well known for its K pop cultural exports and the "Korean wave" of film and audiovisual production including the blockbuster Squid Games. These export successes built on its highly popular online gaming industry which in turn was built on a longer history of world leading telecommunications investment along with a topography and population density that enabled first mover advantages in the field of access to super-fast broadband. This was coupled with an active industrial policy led by central government including sizable investments in creator and incubator spaces and support for startups. (Holroyd 2018).

South Korea has also led initiatives such as in Invest Seoul, the investment branch of the Seoul city government which identified the content sector as a core industry to create high added value and create new industrial markets. By 2018 South Korea was a global content export superpower accounting for 2.8% of the global content market.

The initial spark for the K-wave came from independent music and games creators, but the global success involved active industrial policy across content sectors including film. After the success of K pop within Asia in the 1990s a number of government agencies became involved in content export strategy and the past two decades in particular have seen South Korea launch a huge variety of government led cultural content policies. The Ministry of Science, ICT and Future Planning's Creative Economy Policy Bureau was established in 2013 in order to shape content policy. The Ministry of Culture, Sports and Tourism leads cultural policy and it was this ministry that in 2009 created the Korea Creative Content Agency. This was an umbrella group of government agencies bringing together one coherent national content strategy. This included the founding of Content Korea Lab in 2014 and other 'soft' interventions such as industry award schemes and 'Digital media city' a digital media cluster planned and funded by Seoul's city government. All of

[244] https://www.legal500.com/developments/thought-leadership/kftc-proposes-ex-ante-regulation-of-platforms-under-the-platform-competition-promotion-act/

these various schemes empowered and consolidated the export promotion of what had been more fragmented 'outsider' companies focusing on digital content (in converging games, music and film/TV) as compared with the traditional large integrated 'Chaebol' structures of Korea's traditional corporate landscape. (Holroyd 2018).

Policy continues to focus on the domestic content production sector and expanding Korean streamers' business abroad. On 2024.2.28: The Ministry of Culture, Sports and Tourism, the Korea Creative Content Agency and Korean OTTs signed an MOU for local streamers to expand their service abroad, to cooperate with SMEs, to create a barrier-free environment and to protect Korean IP. The Ministry will provide 3 billion won for the production of content, whose copyright is shared by the production companies and streamers. In July 2023 The Ministry of Culture, Sports and Tourism announced its investment in 27 creative projects (3 billion won each) to be uploaded on Korean OTT platforms The Ministry of Science and ICT put in place the 'Digital Media and Content Industry Innovation and Global Strategy' to support local streamers' global growth and investment in local content production. It thus launched the 'Global OTT Awards' to raise awareness of Korean streamers and looked to promote Korean streamers' localization abroad. [245] Korean government has been proactive in building the skills and talents for future creatives: The Ministry of Culture, Sports and Tourism announced the operation of two graduate schools (specialized in creating OTT content) and invested 480 million won.[246]

Government now wants to create a bill to protect Korean creative IP. The production association doesn't have the power to protect IP globally. Production sector is arguing for more government protection of IP. But it is difficult to pass the bill in the National Assembly for political reasons. Webtoons (online cartoons) originated in the Korean market. Successes of webtoons are related to stories and plots. Many of the successful series of Korean films came from webtoons. For example the Moving movie and MaskGirl[247], Disney+.

[245] See the (Policy documen ??????????????????t).

[246] See government Press release

[247] See: https://gjia.georgetown.edu/2020/05/26/the-korean-wave/ ; EU -SK digital partnershiphttps://digital-strategy.ec.europa.eu/en/news/eu-and-republic-korea-digital-partnership-strengthening-our-economic-resilience ; UK -SK digital partnership https://www.gov.uk/government/publications/uk-republic-of-korea-digital-partnership

3.3.3.3 Protection of Children

Online safety

South Korea has developed new protections for children in the area of data protection introducing more stringent standards for consent that must be adhered to when data on children under 14 is gathered, including a requirement for parental consent in writing. [248]

There remains a separate, self-regulatory system for age classification of video content for on demand video. The Enforcement Decree of the Promotion of the Motion Pictures and Video Products Act (*Article 23 <Video Products Not Required to be Classified>) has been amended in September 2022 to allow OTT services to self-rate their products.[249]

3.3.3.4 Public Service Media

Public Service Broadcasting[250]

The KBS or Korean Broadcasting System started radio broadcasting in 1927 and was reformed into a public broadcaster in 1973. Like other PSM around the world, KBS combines a commitment to democracy with industrial policy goals. One of the strategic priorities for KBS in 2024 is to "improve digital content to enhance competitiveness and drive influence and profitability". [251] KBS is regulated by the Korean Broadcasting Commission, an independent body that applies a quantitative and qualitative assessment to renew the service licenses for a period of 4-5 years.

The funding of KBS has been a controversy under the covenant government which has changed the funding model. Licence fees are compulsory on homes which have a TV set, but not all users of services including online. This has been a political move by the government to exert control over the broadcaster and has met with public criticism for politicising KBS funding.

KBS broadcasts also in DMB which is a standard for sending multimedia signals to mobile phones, laptops and GPS systems. Also known as mobile TV, the standard was launched in 2005 and has not been widely adopted by consumers. The standard has not widely been adopted outside South Korea.

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[248] https://iapp.org/news/a/south-korea-amends-child-data-protection-laws/

[249] List of policy documents, http://www.mcst.go.kr/kor/s_data/ordinance/legislation/legislationView.jsp?pSeq=3151

[250] See: https://link.springer.com/article/10.1007/s11616-021-00644-5

[251] See the KBS website: https://open.kbs.co.kr/eng/

Current policy controversy surrounds whether streamers should contribute to PSM and film, and the role of net neutrality. OTTs are legally defined as value-added telecommunications businesses. As such, unlike broadcasters they are not required to invest 1.5% of their turnover in the public Broadcasting Development Fund. Broadcasting business operators claim that OTTs should contribute as well. The former head of the Korea Communications Commission said he was willing to implement a policy to enforce OTTs' contribution in October 2023. However, he resigned his post because of political scandals in December 2023, and the discussion has not advanced since.

There is a similar discussion about another levy/subsidy scheme: the Cinema Development Fund: The Ministry of Economy and Finance suggested a policy to enforce OTTs' contribution to the fund, following the French model.[252] However, the Ministry of Culture, Sports and Tourism announced that it does not intend to make OTTs contribute to the Cinema Development Fund (2024.1.24).

Net neutrality and online platforms': Disputes between Netflix and SK Broadband have been widely reported around the world. In September 2023, the dispute ended with SKB and Netflix announcing the establishment of a strategic partnership. Twitch's announcement of its shutdown in Korea sparked the debate again, as the CEO wrote that 'network fees in Korea are still 10 times more expensive than in most other countries'. The debates around large platforms' fair share contribution still continues. For instance, the National Assembly still has 8 bills[253] to process, but they will probably be "dead" with the end of the session this May.

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[252] "Funding assessment report 2023 <2023년도 부담금평가 보고서>" *Ministry of Economy and Finance,* January 10, 2024, p.69. Ministry of Economy and Finance https://www.moef.go.kr/com/synap/synapView.do?atchFileId=ATCH_000000000024970&fileSn=1

[253] Telecommunications Business Act. Bill (2020)
https://likms.assembly.go.kr/bill/billDetail.do?billId=PRC_F2C0K1P1C2G7B1A6G4Q9L2G3U9A3P9.
Telecommunications Business Act. Bill (2021).
https://likms.assembly.go.kr/bill/billDetail.do?billId=PRC_T2N1P0U7R1H4H1Q0U0G3N1M7Y8R9I1
Telecommunications Business Act. Bill (2021).
https://likms.assembly.go.kr/bill/billDetail.do?billId=PRC_G2Z1J1G0Z0H6K1U5H1U1Q0C0P9P0F3
Telecommunications Business Act. Bill (2021). https://likms.assembly.go.kr/bill/billDetail.do?billId=PRC_C2L1H1L1R2Y4P1H6A1D0K5U2X8X5T0
Telecommunications Business Act. Bill (2021).
https://likms.assembly.go.kr/bill/billDetail.do?billId=PRC_P2W1Q1Y2M0H2L1I5M1H7L4P3Y6V2D1
Telecommunications Business Act. Bill (2022)
https://likms.assembly.go.kr/bill/billDetail.do?billId=PRC_D2L2K0I3F1L6Y1K5C4M0S1E8U5A9V6
Telecommunications Business Act. Bill (2022).
https://likms.assembly.go.kr/bill/billDetail.do?billId=PRC_O2D2R0E9X0C1P1Y5Q0S6G2Q5P1I6Q6
Telecommunications Business Act. Bill (2023).
https://likms.assembly.go.kr/bill/billDetail.do?billId=PRC_L2J3K0J7J2H7P1Q9O3P3N3O3M0N8J5

Subscription prices: Korean consumers are complaining of the sudden increase in OTTs' subscription prices, and how YouTube discriminates Korean users by not providing student or family memberships. It is known that the Korean government is willing to intervene but no official policy document has yet been released.[254]

News media

One of the peculiarities of the South Korean news market is the highly developed state of online only news portals[255]. The development of these "digital native" services indicate a failure of legacy media to successfully manage the transition and maintain their audiences into the age of on demand. It also reveals that news providers have not been successful in generating legislative responses to protect their position. The proposed Act on Protection of Newspapers, which imposes an obligation on online news service providers to remunerate news publishers is still under discussion.

There has been a recent controversy about digital sovereignty and the national security implications of potential for online distribution of false information or information operations. News portals do not have the statutory independence guarantees that are a feature of the broadcasting and press regimes, and they come under a great deal of informal pressure from government to take down news and information services. Whilst it is true that South Korea's relatively open information ecosystem is open to threats of information operations by Russia, China and North Korea, it is also the case that informal discussions between senior politicians and the platforms and pressure to takedown or deprioritise material on the basis of allegations of information operations without due process is a problem.

3.3.3.5 Infrastructure and distribution

South Korea is well known as having one of the fastest Internet networks in the world. 93% of South Koreans report that they use the Internet at least once a month and access to Internet infrastructure has been supported by government policy for several decades now. Early and effective support for high-speed broadband Internet access during the 1990s has given way to early

254 Korea Communications Commission's announcement of an investigation of YouTube and Netflix (2023.12.21)
Korea Communications Commission issued an order to correct OTT's subscription policies (2023.11.30)
Korea Communications Commission's meeting with Netflix, Tving, Wavve, Disney+ and Coupang Play: discussed Netflix's ban of password-sharing, subscription plans etc. However, the KCC only suggested and did not enforce any changes. (2023.11.23)

255 https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2023/south-korea

introduction of 4G and 5G mobile Internet services. 5G was introduced in April 2019 and by March 2023 had accumulated almost 30 million subscribers. The three main broadband Internet providers are the former state monopoly KT, along with SK Broadband and LG Uplus.

As well as deploying 5G inside buildings the Koreans are moving to 6G. The Koreans are planning AR/VR and 3D but there is no killer content yet driving the market. There will be continuing 5G/6G fibre competition.

3.3.3.6 Effectiveness and sustainability of regulation

International NGOs such as Human Rights Watch, Reporters Without Borders and Article 19 have generally given a positive response to the legislative framework in South Korea over the past decade, in comparison with other countries in the region that are criticised for breaching international law standards. The persistence of criminal defamation rules, government pressure on KBS, and some institutional conflicts of interests that undermine watchdog journalism are criticised but Korea scores well in league tables and has not been recently singled out for criticism by the UN Special Rapporteur on Freedom of Expression.

South Korea has been – literally - a poster child of global digital creativity and innovation for two decades. Three principal factors have driven this success.

- Firstly, public-private telecoms investment together with patterns of legacy infrastructure enabled Korea to emerge as a global leader in broadband infrastructure in the 1990s. This enabled the development of an ecology of innovation and consumer demand, particularly in the gaming, music streaming and audiovisual sectors. Gaming in particular emerged as a strength of Korean production.
- Government policy[256] has played an extremely important role: on one hand industry policy interventions which involved public investment combined with trade promotion, clustering, professional training, tax incentives, production assistance and other forms of industry support have been prompt and also sustained over longer periods of time.
- On the other hand, crucially government has made no attempt to intervene at the level of content or creativity. Creatives have been allowed to play their artistic role in reflecting their societies and the tensions within them, whilst also responding to

[256]Forge, S., Bohlin, E., (2007) Managed Innovation in Korea in telecommunications - Moving towards 4G mobile at a national level– Telematics and Informatics, doi:10.1016/j.tele.2007.10.002, (October)

consumer demand not only in Korea but in a wide range of particularly Asian countries which themselves have a degree of cultural proximity but much less creative freedom.

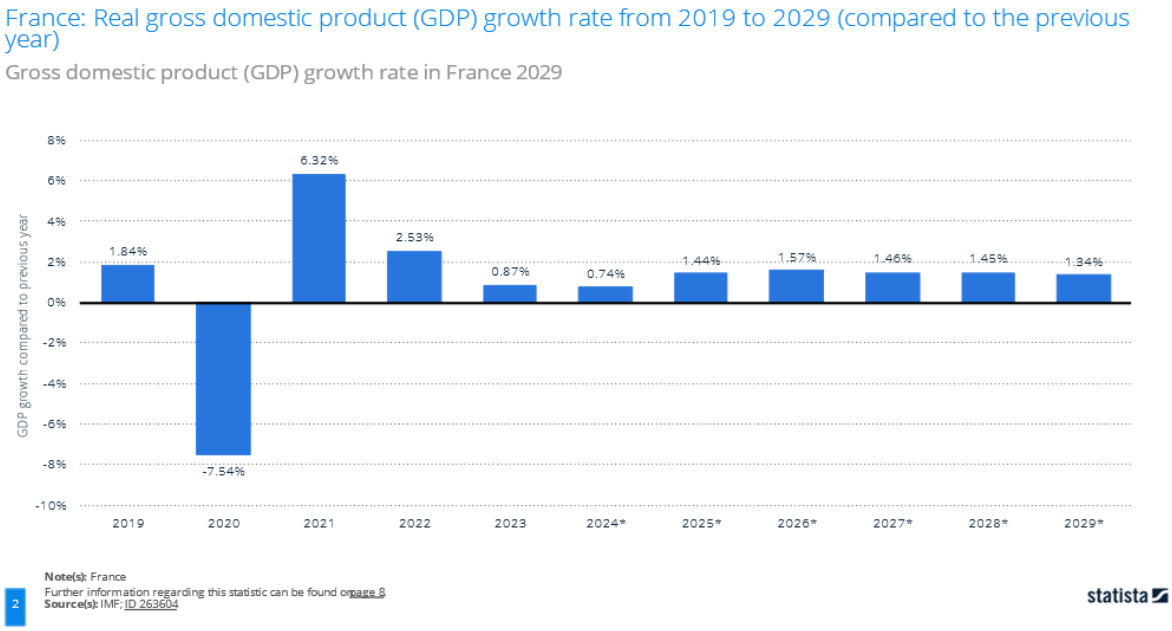
However, there are clouds on the horizon. Many of the innovations and successes of Korea have been driven by younger demographics which tend to be early adopters for example of new converged and on demand services. Demographic changes in Korea mean that the next generation of young creatives and consumers will be less significant in absolute and proportional terms due to lowest birth rates globally, in a population increasingly dominated by retirees.

This is likely to skew social and political dynamics away from the unique culture of innovation and creativity that fostered the Korean wave. Moreover, due to the social foundations, the role of women is a strong factor in the shrinking rate of births and that is unlikely to be reversed in foreseeable generations.

3.4 France

3.4.1 Key economic Trends

Figure 3-23 GDP growth annually over previous year for France



As of mid-2024, France is experiencing several key economic trends:

1) **Moderate Economic Growth**: France's economy is growing at a moderate pace, recovering from the impacts of the COVID-19 pandemic. The growth is supported by

consumer spending, investments, and a robust services sector, although challenges remain in achieving pre-pandemic growth levels. Projected economic growth remains moderate at below 1.5% according to Statista.

2) **Inflation**: Inflation rates have been higher than in previous years, influenced by global supply chain disruptions, increased energy prices, and higher costs of goods and services. The French government and the European Central Bank (ECB) are focused on managing these inflationary pressures.
3) **Labour Market**: The labour market is relatively strong, with unemployment rates declining. However, there are still concerns about youth unemployment, long-term unemployment, and regional disparities in job opportunities. Efforts are ongoing to improve job quality and promote labour market flexibility and inclusivity.
4) **Government Fiscal Policy**: The French government is balancing fiscal consolidation with measures to support economic recovery. This includes targeted spending on infrastructure, green energy, and digital transformation, while also working to reduce the budget deficit and public debt levels.
5) **Housing Market**: The housing market in France is characterized by high property prices, particularly in major cities like Paris. The government is implementing policies to increase housing supply and improve affordability, such as incentives for new construction and regulations on rental markets.
6) **Green Energy Transition**: France is making significant strides in transitioning to renewable energy sources. Investments in wind, solar, and nuclear energy are part of the country's strategy to reduce carbon emissions and achieve its climate goals. The government is also promoting energy efficiency and sustainable practices.
7) **Digital Economy and Innovation**: France is investing heavily in digital transformation and innovation, with a focus on areas like artificial intelligence, cybersecurity, and fintech. These efforts are aimed at enhancing competitiveness and driving economic growth in the digital age and updating of cultural and creative industry policy for the audiovisual sector.
8) **Trade and Exports**: France's export sector is performing well, particularly in aerospace, luxury goods, and agricultural products. However, global trade uncertainties and geopolitical tensions pose risks to export growth. The government is working to diversify trade partners and strengthen international trade relations.

9) **Social Reforms**: The French government is implementing social reforms to address issues such as pension sustainability, labour market flexibility, and social welfare. These reforms aim to enhance economic resilience and social equity.
10) **Tourism Recovery**: The tourism sector, a significant part of the French economy, is recovering from the pandemic's impact. Increased international travel and domestic tourism are contributing to economic growth, although the sector faces challenges related to labour shortages and changing travel preferences.

Overview of the TV and advertising Media situation

- French television channels appear to be maintaining their position in the face of expanding video on demand services and online video-sharing platforms and other competition.
- Linear television remains popular in France still accounting for 67% of video watching time as of 2023.
- Advertising expenditure has shifted more towards online and this is where there has been notable growth, however this has largely been at the expense of print, radio and other advertising vendors while television has been less effected and even had occasional growth.
- France's OTT Video market is booming, with a strong demand for local content and increasing subscriptions to streaming platforms.
- While OTT video reached revenues of $5 billion in 2023, the television and video revenues remained above $12billion and are predicted to remain stable in the coming years. This is due to maintenance of high standards in broadcast video content. The projected revenue in the OTT Video market for France is expected to reach US$5.63bn in 2024.
- Among the various segments, the largest market share is held by Video Streaming (SVoD) with a market volume of US$2.47bn in 2024.
- User penetration is expected to be 103.1% in 2024 and is projected to increase to 116.5% by 2029.
- The average revenue per user (ARPU) in the OTT Video market is projected to amount to US$9.04 in 2024.

3.4.2 Introduction

The country has a strong tradition in TV broadcast, and cable TV infrastructure with 17 DTT free to air channels including news and youth channels, plus subscription and pay per view channels (eg Canal+, Eurosport,TF6, etc). Regional channels have followed. Since 2007, the state has supported TV France Télévisions, formed by merging various existing channels - Antenne 2, France Regions 3, Festival and La Cinqiéme.

Four groups dominate the TV market in France:

- Bouygues- Groupe TF1
- France Televisions - having 6 state owned channels with Arte attracting the largest viewing share (29%)
- RTL – Groupe 6
- Vivendi – Groupe Canal+

with other rival groups NRJ Group, Altice Media and Groupe Amoury.

Funding for state channels owned comes from the French Treasury with commercial advertising, whose content is carefully vetted. New laws on advertising will reduce TV advertising. Satellite TV is also available via the Astra satellite, without subscription but via a paid for viewing card. The main telecommunications companies (Orange, Free, SFR, Bouygues) offer DSL TV services over cable TV and also FTTH fibre, with streaming for which the operator SFR offers packages of up to 200 channels for WBD Cartoon Network, Nickelodeon etc.

For now, DTT use and linear television viewing remain important features in the market, with relatively high percentages of people using both. The commercial broadcaster TF1 is strongest player in the audiovisual market, followed closely in audience share by the two first public service channels of France Télévision.

Investment in infrastructure, especially mobile connectivity has facilitated take-up of OTT video services as well as use of video-sharing platforms and social media. There is a well-developed OTT market with global players dominating, but French BVOD players also notable positioned and FAST services increasing. The take up of OTT services is conditioned by the demographics of the French population as ethnicity and age play a notable role, with France's aging population being an important factor.

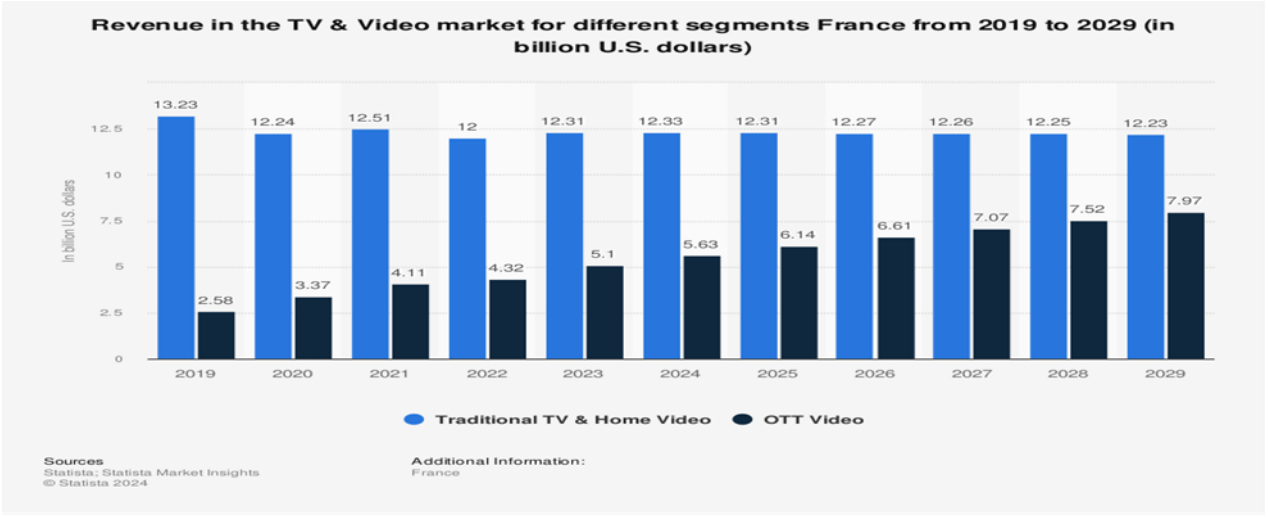
There is a long history of using policy interventions to protect domestic production – quotas to boost demand, investment obligations on distribution channels, and public funding. French

audiovisual media owners, video-sharing platforms and content producers are also major players at the European level.

3.4.3 Market structure

The French market is characterised by strong national broadcasters and a vibrant film and audio-visual production sector. The public service media, the broadcasters, as France Tèlévisions remain popular and has a presence across multiple channels and distribution platforms. Its channels are the second and third most popular behind the market leader, the commercial TF1. Various VOD services are widespread, with Netflix being the most popular pf the SVOD services. France's Vivendi-owned payTV service Canal+ is also highly popular and is one of the top 5 pay TV providers in Europe. Vivendi also owns OTT services and a video-sharing platform. As can be seen in Figure 3-24 traditional television services are projected to maintain their lead over OTT for the next several years in terms of revenues.

Figure 3-24 Respective revenues in TV and Video



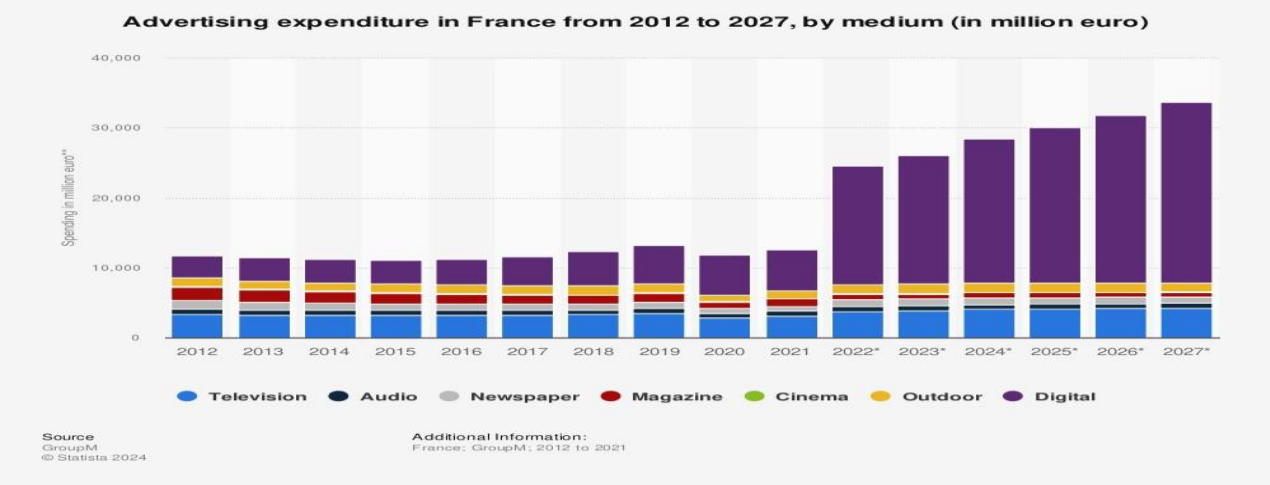
note: Here OTT video refers to SVOD/TVOD/AVoD and revenues refer to advertising revenue, subscription revenue, direct payment revenue. Source: https://www.statista.com/forecasts/1442884/revenue-tv-video-market-for-different-segments-france

The French advertising market is healthy, and according to GroupM, one of the world's largest media agencies, in 2023 it was one of the top ten growth markets (4.2% growth).[257] As can

257 https://www.groupm.com/mid-year-advertising-forecast-2023/

be seen in Figure 3-25 below, the growth in digital has generally not been at the expense of television advertising.

Figure 3-25 Advertising expenditure in France by medium



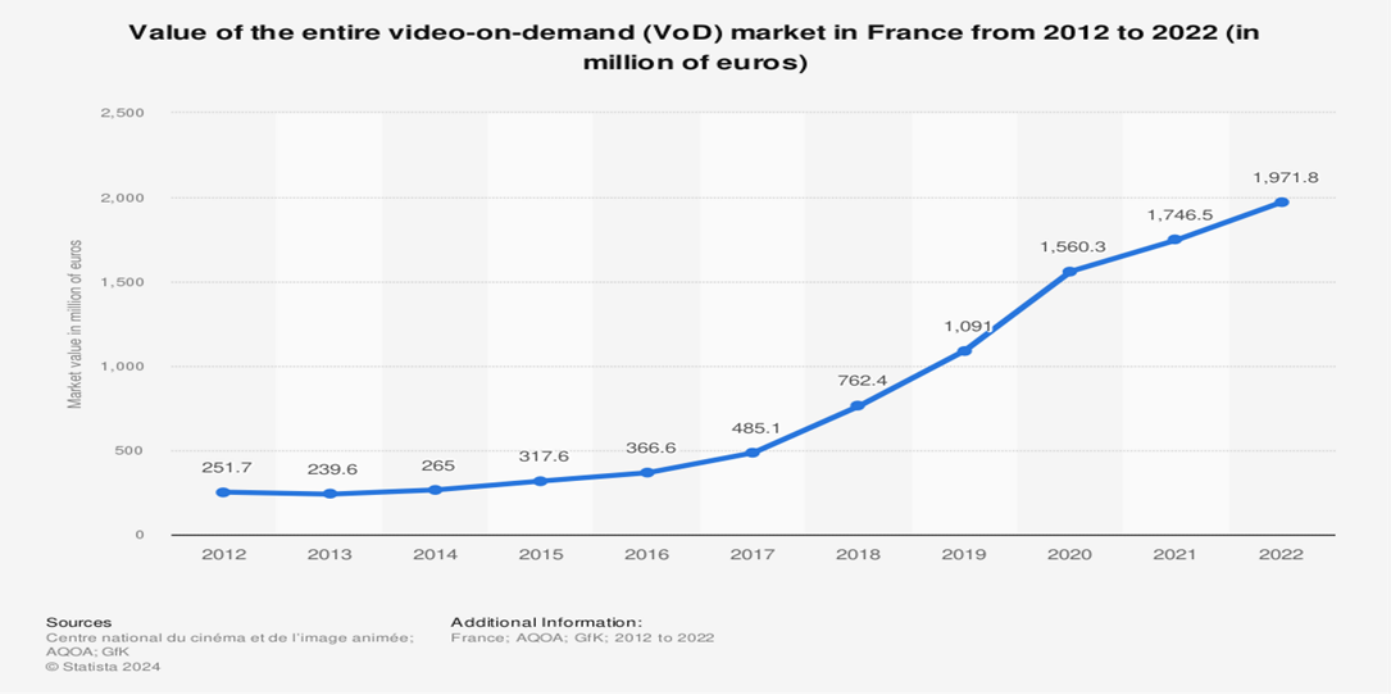
source: GroupM. (June 1, 2022). Advertising expenditure in France from 2012 to 2027, by medium (in million euro) [Graph]. In Statista. Retrieved March 12, 2024, from https://www.statista.com/statistics/387257/advertising-expenditure-in-france-by-medium/

Television advertising has been helped by the removal of regulatory barriers to the expansion of addressable TV advertising, which is now increasingly used in France. Addressable TV advertising refers to when Internet connected smartTVs are used to target advertising according to viewer preference profiles. For non-connected TVs, basic data - the channel, time of day and thus expected audience - can select the general advertising shown, for higher interest and take-up. The ability of television channels to sell programmatically in a manner similar to online advertising has helped the industry.

Structure of OTT video market

The VOD market has been growing steadily in value and is expected to continue to grow, especially with the increasing take-up of FAST services in addition to subscription and BVOD. The overall revenues have increased dramatically in the last several years and are predicted to continue in that way. The value growth in this market is illustrated in Figure 3-26.

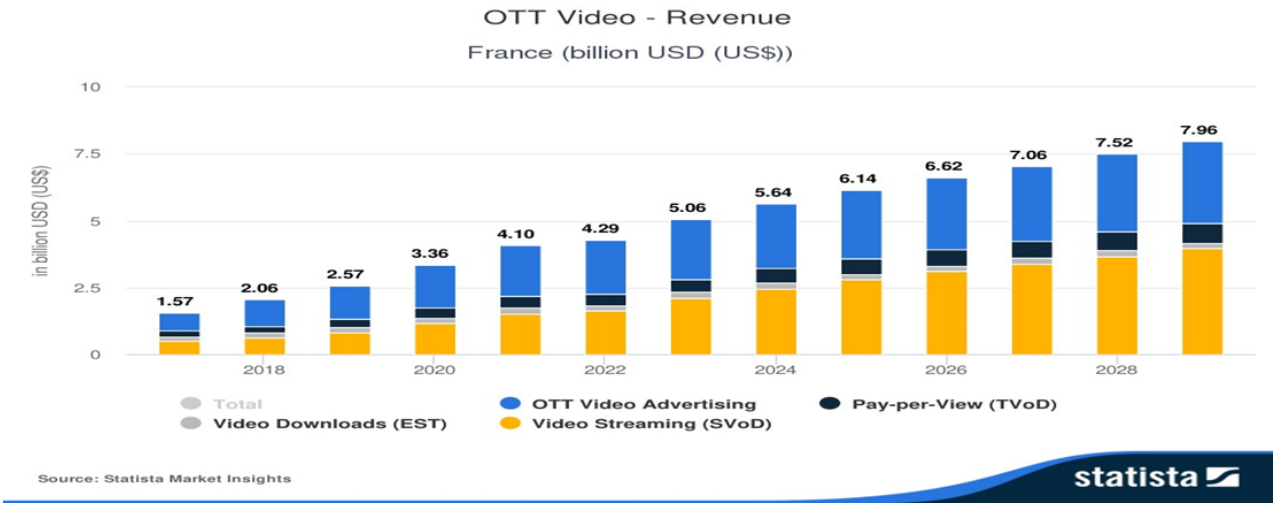
Figure 3-26 Advertising expenditure in France by medium



source: https://www.statista.com/statistics/770726/value-market-video-at-the-request-la-france/

This value is created mainly by revenues from subscription and advertising as can be seen below. The data displayed in Figure 3-27 below indicates that the revenues per user in France remains highest for SVOD, while its free advertising supported (FAST) TV services make the least from their users.

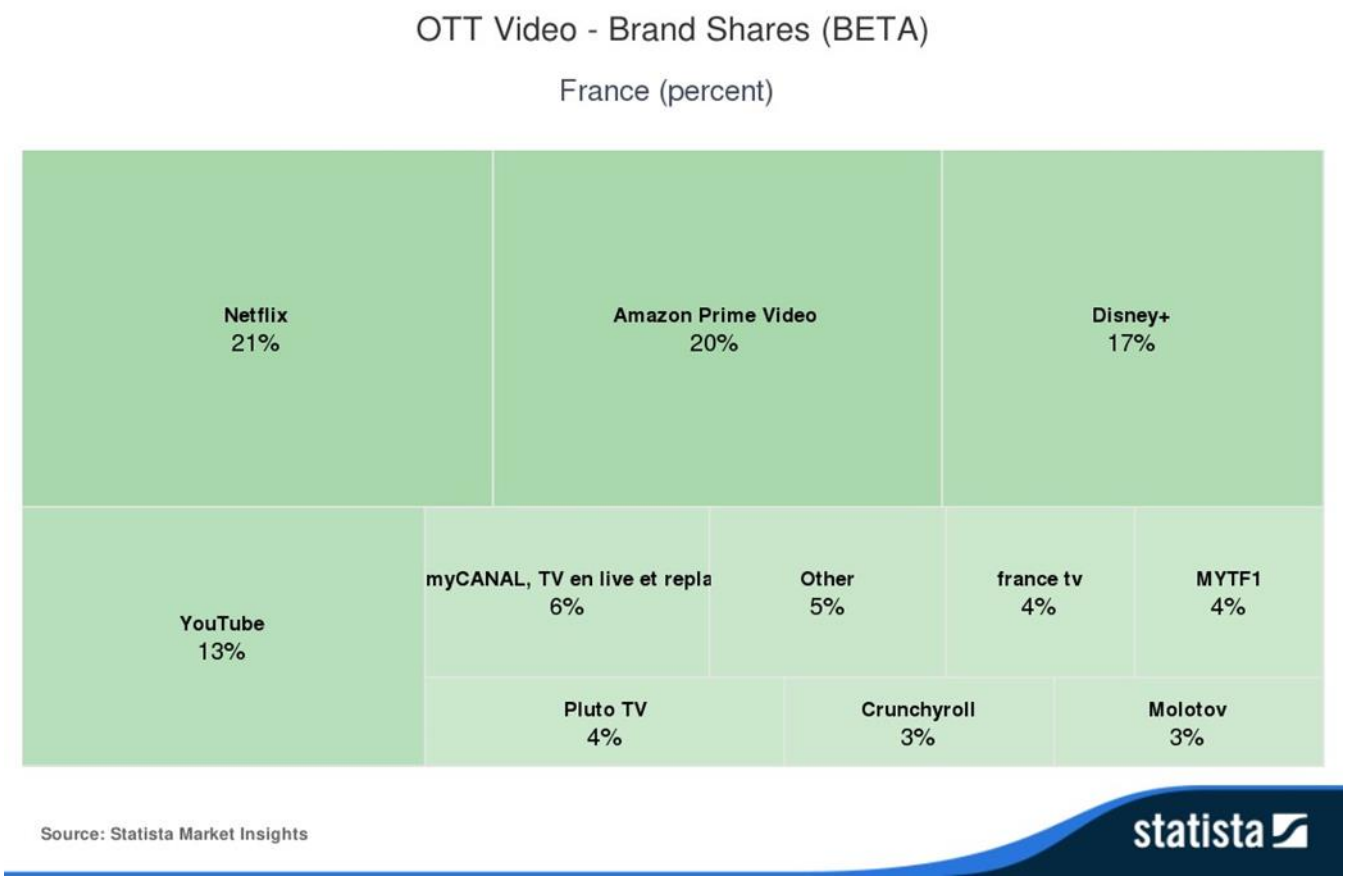
Figure 3-27 The distribution of OTT revenues by type of service recent and projected in France



The dominant players in OTT video are Netflix, Amazon Prime and Disney+, and can be seen in the brand shares illustration in Figure 3-28. Though the biggest foreign SVOD players are ranked top in France as shown below, with domestic mainly BVOD services coming after, most

households report using more than one service including BVOD services. According to its main audience measurement service, "FAST" channels, which are free to users and advertising supported VOD services have experienced significant growth with over 500 channels available in France[258]. In the Figure 10. 6 Brand shares of OTT video services in France 2024, latest figures:-

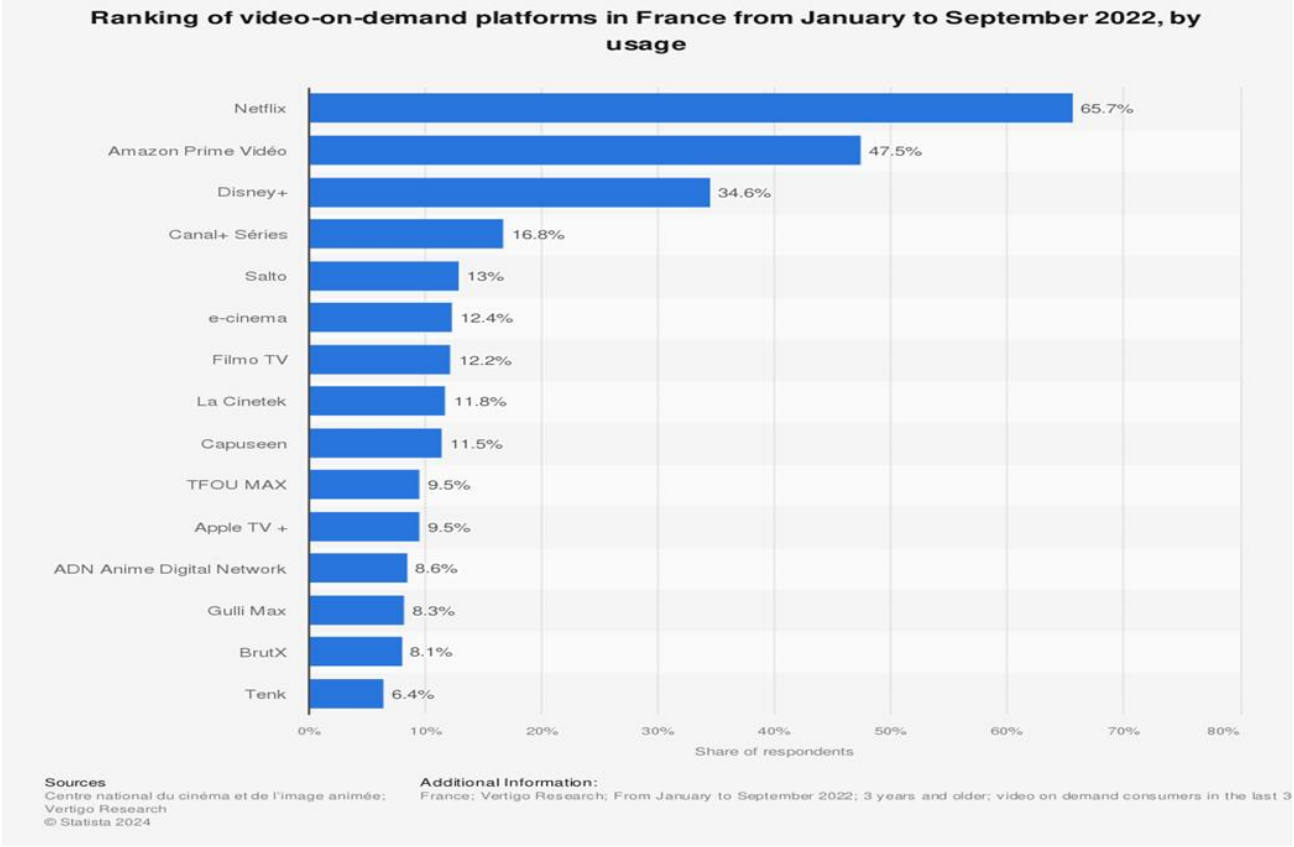
Figure 3-28 Brand shares of OTT video services in France 2024, latest figures



The ranking of VOD services measured by the national centre for cinema and animated image showed that Canal+ VOD service came in fourth behind the top 3 global players. This is illustrated in Figure 3-29 below.

258 https://advanced-television.com/2024/01/24/france-vod-consumption-growing/

Figure 3-29 Ranking of VOD services in France



source: Centre national du cinéma et de l'image animée. (CNC,January 27, 2023). Ranking of video-on-demand platforms in France from January to September 2022, by usage [Graph]. In Statista. Retrieved March 16, 2024, from https://www.statista.com/statistics/779690/v

Development Drivers

France stands out among Europe countries as one where traditional broadcasters have managed to maintain a strong position in the market. Though the global SVOD services are the most popular in France as in the rest of Europe, France also hosts Europe's most successful SVOD service, Canal+, which operates in many other European countries as well. France's audiovisual content production sector remain healthy and attention to French content remains high among French audiences. This may in part be due to the cultural specificities and the general popularity of French production, which has a long history and global recognition. However, it can also be attributed to the strongly protectionist policies of France, namely quotas for European and French works on linear broadcasters and VOD services, investment obligation on services including ones from outside France, an extensive system for funding production and training of creative industry professionals.

3.4.4 Regulatory framework overview

As an EU Member State, France's markets are subject to EU law and governed as part of the European single market. However, France also has a long history of cultural protectionism in broadcasting and audiovisual/film production, which is still reflected in current policy. France has a mix of content quotas on broadcasters and cinemas to ensure demand for French content and various funding schemes and subsidies to support production.

In addition, France has been a policy innovator in the areas of advertising and the protection of minors. Recent laws are aimed levelling the playing field between OTT and broadcast media, protecting consumers from certain kinds of commercial communication, and protecting children from commercial exploitation as well as other online harms.

3.4.4.1 Market Competition

France has been a pioneer in establishing transparency in the advertiser sector, promoting fair competition among media and OTT services that rely on advertising revenue. The Sapin Law passed in 1993 introduced transparency requirements on advertising prices, discounts, and rebates in order to combat misuse primarily by agencies, of the arbitrage system for allocating advertising among media at that time. In 2015 this law was extended to the programmatic advertising system by decree. Decree No. 2017-159 on digital advertising[259] later fully equalised the rules of both offline and online advertising. This approach had a significant effect on the margins that could be extracted by advertising intermediaries to the benefit, primarily of advertisers but indirectly for media, OTT services and content producers that rely on advertising. Making the rules apply equally to all types of media and service was a significant step towards levelling the playing field between audiovisual media services and advertising funded OTT services such as video sharing platforms and social media. Similar provisions have since been incorporated in the EU's Digital Markets Act (DMA) (see case study on the EU).

Since it implemented the EU's **Audiovisual Media Services Directive** (AVMSD), most qualitative rules on commercial communication (advertising) that apply to broadcasters and VOD services also apply to video-sharing platforms. These platforms must also comply with bans on advertising certain products, refrain from advertising alcohol around children's content and engage

259 Decree No. 2017-159 of February 9, 2017 relating to digital advertising services https://www.legifrance.gouv.fr/loda/id/JORFTEXT000034024418

in the self-regulatory systems related to the protection of minors.[260] This helps to close the regulatory gap between audiovisual media services (broadcast and VOD) and video-sharing platforms applying comparable limits on the trade in advertising.

In 2016 the EU adopted the Directive on Copyright in the digital single market, which enshrined what came to be called the press publishers right.[261] The Directive established the grounds through which press publishers could claim compensation from OTT services such as search engines and news aggregating apps for the use of their content. France has led the way in the utilization of this to achieve compensation for its publishers by treating it as a competition issue. In 2021 the French competition authority fined Google €500 million for not negotiating fairly with the French publishers after which Google committed to paying publishers for content and for making available the necessary data to determine if the price being paid was fair.[262]

In another redistributive move, France has been the most ambitious member state to make use of the option to impose investment obligations on on-demand streaming services from outside the country that are used by its citizens.[263] Such cross-border investment obligations were included in the AVMSD in 2018 as an option that member states could implement. Since 2018 foreign VOD services are required to invest 2% of their revenues generated in the country into the French film fund. This rule was simply an expansion of the application of an existing obligation on domestic broadcasters and VOD services to contribute to the fund, which supports film and other audiovisual production in the country.

France has been able to secure further investment commitments of between 20-25% of annual revenues from the most popular SVOD service in the country through a 2021 decree that linked such commitments with preferential access to French content.[264] Under this decree by the end of that year Netflix (“Lupin”), Amazon, Disney Plus and Apple TV Plus had agreed with the French audiovisual media regulator (CSA) to invest 20% of their revenues into French content with 80% of that going to films, series and documentaries that will first be aired on those VoD platforms and the rest on films for cinematic release.[265] VOD services can only include French films in their

260 See French National Summary in the Mapping report on the rules applicable to video-sharing platforms: Focus on commercial communications https://rm.coe.int/mapping-on-video-sharing-platforms-acc-fr/1680aed593

261 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32019L0790#d1e1084-92-1 Art 15 & 16

262 For further explanation see https://www.politico.eu/article/french-competition-authority-greenlights-google-pledges-over-paying-news-publishers/

263 See Kostovska, I., Raats, T., Iordache, C., Domazetovikj, N., Tintel, S., & Komorowski, M. (2022). Investment obligations for VOD providers to contribute to the production of Europeanworks:A2022update. https://www.researchgate.net/profile/IvanaKostovska/publication/363432945_Investment_obligations_for_VOD_providers_to_contribute_to_the_production_of_European_works_A_2022_update/links/631c4743071ea12e3621ccbc/Investment-obligations-for-VOD-providers-to-contribute-to-the-production-of-European-works-A-2022-update.pdf

264 For detail see explanation in English on the French national case in the 2022 report: Investing in European Works: the Obligations on VOD providers https://rm.coe.int/iris-plus-2022en2-financial-obligations-for-vod-services/1680a6889c

265 https://variety.com/2021/film/global/netflix-amazon-disney-plus-apple-tv-plus-avms-france-1235130056/

catalogue 36 month after they have been released in cinemas. In 2022 Netflix was the first to enter an agreement with the French film and authors bodies in the film industry for an additional 4% investment in film in exchange for receiving French films only 6 months after their cinematic release in France.[266] France may be uniquely positioned to take advantage of these investment obligations because of the attractiveness of French content, especially to French audiences, and the importance of French cinematic release to international festivals and awards bodies. These agreements bring the foreign VOD services more in line with the French services, which enter into similar agreements.

3.4.4.2 Content and creative industry

France has used content quotas to ensure demand for and distribution of French content since the middle of the last century, initially applying them to radio and cinemas and later also to television broadcasting once that developed. France was instrumental in ensuring that quotas for European works and independent production were included in the EU's legal framework for the broadcasting and creative sector (see the EU case study). French quotas are higher than those required by EU law, with broadcasters obliged to ensure 60% of transmission time is European works and 40% of that is made up of French language works. The requirements for independent production are divided between expenditure on cinematic works, of which 75% must be spent on independent production, and expenditure on other audiovisual productions, of which 67% must be spent on independent production. For VOD services, French law[267] requires at least 60% of the content catalogue to be European, and at least 40% of these to be original French language productions. These rules represent some of the highest obligations for procuring and distributing European and nationally produced content in Europe.

In addition to those rules aimed at ensuring demand for national content, France has a well-developed system for direct financial support to audiovisual and cinematic production. The French National Centre of Cinema (CNC) was established in 1946 to support film production and has since been expanded to cover all audiovisual production as well as video games. It is funded through a mix of sources including taxes on cinema tickets, levies and the obligatory contributions discussed in the previous section. It is a major contributor to production budgets across the spectrum of content that it supports. In addition, the CNC administers a generous system of tax

266 https://variety.com/2022/film/global/netflix-investment-french-movies-1235187142/ and https://merlin.obs.coe.int/article/9880

267 Décret n° 2021-793 du 22 juin 2021 relatif aux services de médias audiovisuels à la demande, https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000043688681. But for English account see French case referred to in Fn 7.

rebates for French and international productions in France, which has been found to have resulted in significant investments in the industry.[268] Additional public mechanisms support film distribution and promotion, and even relevant education and training. These come under the aegis of the CNC, with support of ARCOM[269], the general AV media regulator formed in 2021 (that also takes in the role of implementing DSA and DMA), and thus OTT platform regulation, as well IPR protection, and freedom of expression, also media piracy, legal framework for developing the media industry, regulation of social networks, and regulate the global platforms (Amazon, Google, Netflix, etc).

3.4.4.3 Protection of Children

The French audiovisual media sector is bound by the provisions related to the protection of minors in the EU's AVMSD. The rules that have been transposed into French law means that linear broadcast services and on-demand streaming services both are required to ensure that minors do not encounter content that might impair their physical, mental or moral development.[270] OTT services that are video-sharing platforms according to the definition in the AVMSD are also required to ensure that minors do not encounter content that might impair them, that warning labels are used, and that no content that would seriously impair a minor is disseminated.[271] This was important for the protection of minors and a step towards parity between audiovisual media services (linear and on-demand) and video-sharing platforms in terms of their obligations.

French policy makers have been trailblazers in protecting children from commercial exploitation in OTT services. In 2020 the "child influencer law" brought minors who work as influencers under contracts with brands or agencies into the same framework as children who work in the entertainment industry.[272] It requires parents to get a licence for their children to engage in such work and to put a portion of the revenue generated into a protected account that the child can access when they are 18. Parents whose children are influencers but not in a contractual relationship still have to abide by limits on the volume of videos and distribute any revenue generated to the child. In 2023 French law makers adopted a law that introduced a "digital age of

268 https://www.filmfrance.net/en/tax-rebate/ and https://deadline.com/2023/07/france-film-tv-game-tax-credits-extra-spending-2017-to-2021-ey-consulting-study-1235443921/

269 Autorité de regulation de la Communications audiovisualee et numérique, ARCOM

270 Law No. 86-1067 of 30 September 1986 on the freedom of communication (Loi Léotard) - Consolidated 18 August 2022 - Art. 15 paragraph 1, 2 and 5

271 Ibid. Article 15

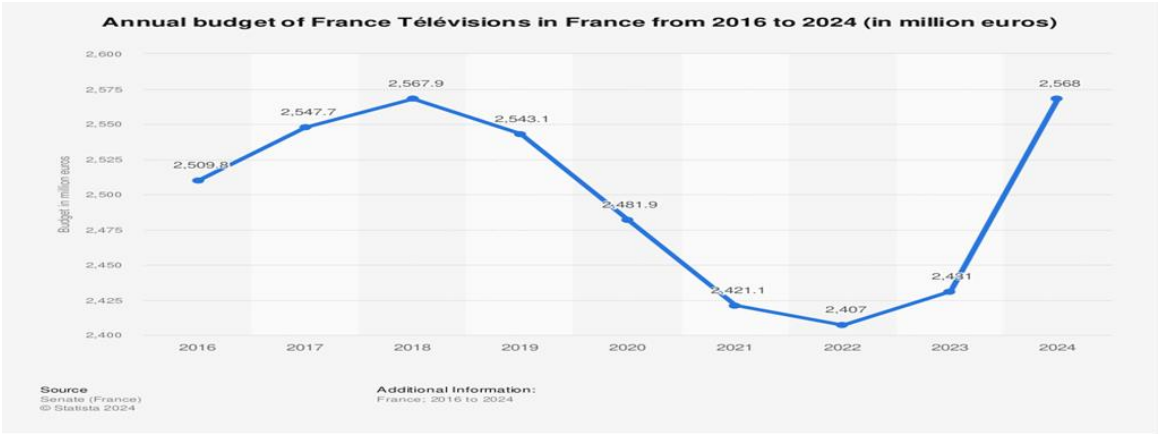
272 Loi n° 2020-1266 du 19 octobre 2020 visant à encadrer l'exploitation commerciale de l'image d'enfants de moins de seize ans sur les plateformes en ligne https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000042439054 for explanation see: https://merlin.obs.coe.int/article/9026

majority" which is set at 15 years old.[273] Providers of "online social network services" may not register users under the age of 15 without securing parental permission and must implement age verification tools. France is the only country in Europe so far to enact specific law on influencer advertising by minors. Though 12 other countries set the age at which minors can consent to the processing of their data by social media and other digital services at 15 or higher, France's approach has been to establish specific obligations on service providers through law.

3.4.4.4 Public Service

France Télévisions (France TV) is France's national public service TV broadcaster. It offers national and regional channels (France 2, France 3 and its 24 regional branches, France 4, France 5, and France Info), and digital platforms (france.tv, francetv.sport, francetv.Slash, Okoo, Lumni and Outre-mer La 1ère). Until August 2022, the public media were funded through a license fee paid by households. This was abolished by an amendment to the country's finance law and replaced with interim funding from the VAT revenue.[274] This decision appears to have made a notable impact on the revenues of the public broadcaster, which have improved considerably since the change as shown in the figure below.

Figure 3-30 Annual revenues of French public broadcaster



source: Senate (France). (November 23, 2023). Annual budget of France Télévisions in France from 2016 to 2024 (in million euros) [Graph]. In Statista. Retrieved March 18, 2024, from Statista[275]

273 Law No. 2023-566 of 7 July 2023 aimed at establishing a digital majority and combating online hate, https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000047799533

274 The amending law is Loi n° 2022-1157 du 16 août 2022 de finances rectificative https://www.legifrance.gouv.fr/download/pdf?id=S6W9hplEgJTWvy0M5B4OGe-nam6aCtsgM2LdqywZyGE= and for explanation in English see https://merlin.obs.coe.int/article/9572

275 https://www.statista.com/statistics/1246886/france-televisions-annual-budget-fra

The direct transfers are due to end at the end of 2024, but the government has indicated that the temporary measure may remain in place longer.[276] France Télévisions seems unhindered by the uncertainty over its funding arrangement and is reported by the European Broadcasting Union (EBU) as preparing ultra-high definition broadcast over the DTT network ahead of the upcoming Olympics.[277]

3.4.4.5 Infrastructure and distribution

France completed digital switchover in November 2011 with free to air provision of 19 national channels and local channels being core to the offering. Areas not covered by the terrestrial signal were connected through free to air arrangements on either of the two formerly pay only satellite services. This was achieved through significant state involvement. The DTT network is still important to the media ecology and widely used. According to the EBU, four out of 10 people in France watch linear channels on terrestrial networks. It now covers 98% of the population, is genuinely free, and allows regional opt-outs.[278]

Switchover allowed for the transfer of significant portions of spectrum to use for mobile telecommunications. By autumn 2020 the French regulator had auctioned spectrum at 700MHz, 2.1GHz and 3.5GHz bands to the four mobile operators for 5G. Within their licenses these operators have obligations to achieve certain levels of coverage by specific dates. An ambitious government policy has resulted in France has been leading in the EU in 5G rollout.[279] This has significant implications for OTT services which benefit greatly from higher bandwidth and capacity on mobile internet provision. One constraint remains the net neutrality rules set at the EU level, which limit the practice of zero-rating agreements for commercial purposes (see section on EU).

Most recently, France has adopted extensive rules, which had to be complied with by December 2023, to ensure the prominence of 'general interest services' across a range of devices and interfaces.[280] Though the initial legal basis for the rules is in law, ARCOM, the French regulator has played a significant role in defining their scope and reach. The list of interfaces must be updated annually by ARCOM, and currently includes connected TVs, virtual assistance, game consoles,

276 https://www.digitaltveurope.com/2023/01/17/french-government-looking-to-vat-financed-pubcaster-option/
277 https://tech.ebu.ch/news/2023/12/france-televisions-pioneering-free-to-air-uhd-in-france
278 Ibid. Options for channels – eg specialist or encrypted may not be selected for DTT broadcast
279https://www.gsma.com/get-involved/gsma-membership/gsma_resources/5g-drives-french-digital-transformation/#:~:text=French%20mobile%20operators%20are%20providing,the%203.4%2D3.8%20GHz%20band.
280 Ledger, M. (2023) Towards Coherent Rules on the Prominence of Media Content on Online Platforms and Digital Devices, CERRE https://cerre.eu/publications/towards-coherent-rules-on-the-prominence-of-media-content-on-online-platforms-and-digital-services/

streaming devices, app stores, and other distribution services. The list of general interest services that must be made prominent initially included only the six public service television and radio channels, but following public consultation was expanded to include all 30 channels available on the DTT network and their associated BVOD services. The regulator recently suggested that these channels unite their on-demand provision under a single app for connected TVs to facilitate prominence measures such as home page visibility and even remote-control direct buttons.[281]

3.4.4.6 Effectiveness and sustainability of regulation

Arguably the biggest constraint on French efforts to protect their audiovisual media and creative industries has been the country's participation in the single market and the EU laws governing this market. However, at the same time France has been a powerful player in the design of the EU legal framework in this area. That is why the European works quotas on audiovisual media services have been part of this framework since 1989, for example. Large French companies have been among those 'European giants' that have been able to make a success of the EU single market and benefit from the removal of barriers to cross border trade. Nevertheless, there are times when French protectionist approaches appear to be at odds with the EU's rules, especially the country-of-origin principle, which is a core element of the EU's common market and under which services are regulated only in the EU Member State in which they originate and not in others were it may be received. At the time of writing, the French prominence rules are being considered by the European Commission and initial reports are that these will be deemed too far reaching in that they apply to cross border services that are not under the jurisdiction of France.

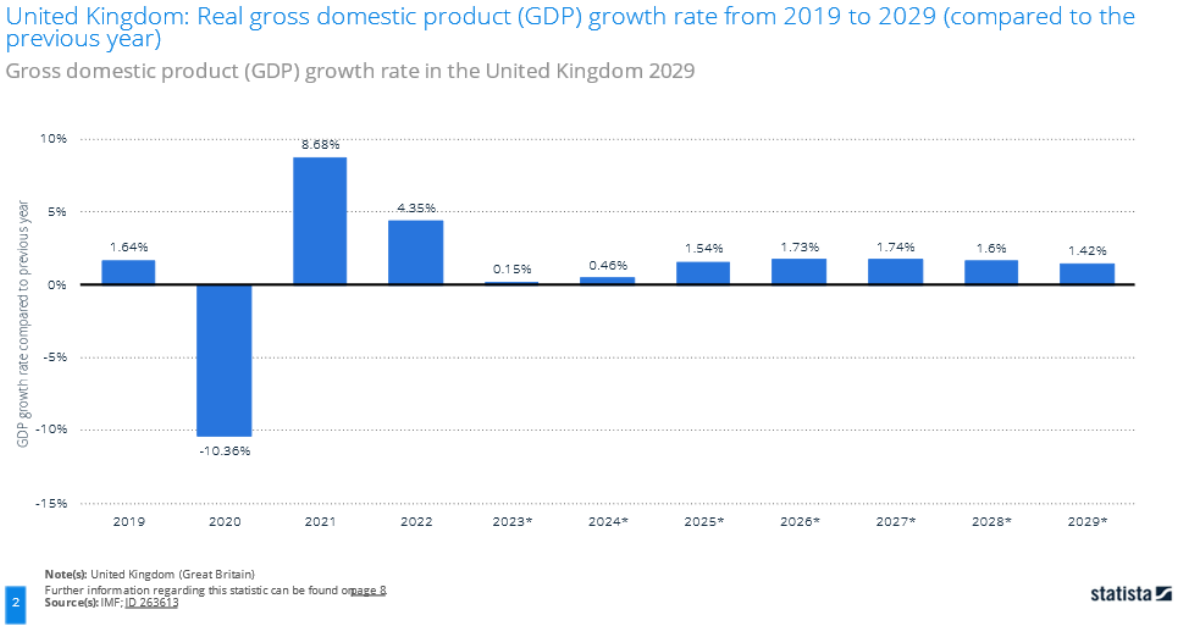
The French competition authority has ensured that news aggregators, search platforms and social media pay to publishers for the rights to disseminate or use their content in a win for French news producers. France has recently adopted far reaching rules on prominence to ensure visibility of French general interest channels, but these may conflict with EU market rules to ensure fair competition and require revision pending consideration by the European Commission. In addition, France has been innovative in the area of advertising by imposing transparency requirements in the trade in advertising and limits on advertising by child influencers. The French approach to interventions both on the demand and on the supply side make for a promising recipe for supporting the national audiovisual sector

281 https://www.broadbandtvnews.com/2024/02/09/arcom-calls-for-french-broadcasters-to-create-freely-francais/

3.5 United Kingdom (UK)

3.5.1 Key economic Trends

Figure 3-31 UK GDP growth projections (Statista, 2023)



As of mid-2024, the United Kingdom is experiencing several key economic trends:

1) **Economic Growth**: The UK economy is growing at a moderate pace, recovering from the impacts of Brexit and the COVID-19 pandemic. Growth is supported by strong consumer spending, increased business investments, and robust services and technology sectors. Growth is expected to continue at a similar moderate to low pace in coming years.
2) **Inflation**: Inflation has been a significant issue, with rates higher than the Bank of England's target. Rising energy prices, supply chain disruptions, and increased costs of goods and services have contributed to the inflationary pressures.
3) **Labour Market**: The labour market is relatively strong, with low unemployment rates. However, there are ongoing challenges such as skills shortages, particularly in sectors like healthcare and construction, and widespread concerns about wage growth not keeping pace with inflation with implications for consumer demand.
4) **Interest Rates and Monetary Policy**: The Bank of England has been raising interest rates to combat inflation. This tightening of monetary policy aims to stabilize prices but also poses challenges for borrowing costs and consumer spending.

5) **Housing Market**: The housing market remains dynamic, with high property prices, particularly in London and the South East. Rising interest rates and affordability issues have started to cool down the market slightly, but demand remains strong.
6) **Brexit Impact**: The UK continues to navigate the economic consequences of Brexit. Trade frictions, changes in regulatory frameworks, and adjustments in labour mobility are ongoing challenges. However, there are also efforts to capitalize on new trade opportunities and regulatory freedoms, including in the AV sector.
7) **Government Fiscal Policy**: The government is focused on fiscal consolidation after substantial pandemic-related spending. Efforts include reducing the budget deficit and managing public debt while continuing to invest in infrastructure, healthcare, and education.
8) **Green Energy Transition**: The UK is making significant investments in renewable energy sources, such as wind and solar power, as part of its commitment to reducing carbon emissions and achieving net-zero targets. The transition to a green economy is a key focus area for public policy.
9) **Trade and Exports**: The UK is working to strengthen trade relations globally, with new trade agreements post-Brexit. While there are opportunities, the UK faces challenges related to trade barriers with the EU and global economic uncertainties.
10) **Digital Economy and Innovation**: The UK is investing heavily in digital transformation, with a focus on areas like fintech, artificial intelligence, and cybersecurity. These efforts aim to drive economic growth and enhance the UK's competitive edge in the global market.
11) **Cost of Living Crisis**: Many households are experiencing a cost of living crisis due to rising prices, particularly in energy and housing. The government has introduced measures to support vulnerable populations, but the issue remains a significant concern.

Summary of the media market in the UK

- The UK media market is well-known for the strong position of its public service broadcaster, the BBC, and its commercial public service channels.
- The Freeview DTT platform remains widely used as of 2023, but OTT services also have high levels of penetration, with SVOD streaming services being very popular.
- The UK’s advertising market has also seen one of the highest shifts of revenue to online and programmatic advertising online and through addressable TV is widespread.

- The UK has recently adopted new digital market regulation and online safety legislation, the effects of which are yet to be seen.

3.5.2 Introduction

A long-term shift to streaming in demand for video

The United Kingdom is experiencing a long-term shift in demand for video services, with a growing number of consumers opting for a variety of streaming platforms over traditional television. Growth in VOD OTT services slowed in 2022, with a return to live TV during the pandemic emergency but the medium-term growth is projected to continue. Subscription churn between rival platforms is on the rise and increasingly connected to content release.

3.5.3 Market structure

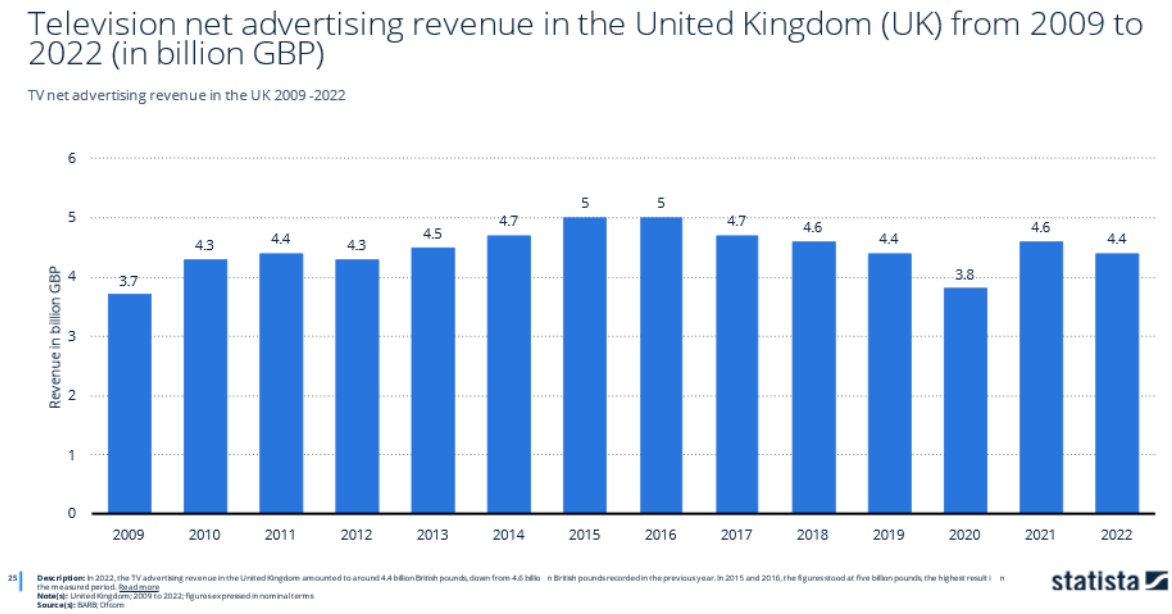
The UK broadcasting system is a mixed public and commercial system with a strong role for the legacy analogue broadcasting channels. These include BBC 1 and 2 and local and national radio services which since rise of commercial competition in the 1960s enjoyed around 30-50% of listening and viewing, and the commercial public service channels ITV, Channel Four and Channel Five and ad funded radio. Whilst the BBC which is funded by a license fee is subject to charter requirements and a programme code which impose strict requirements to provide news, current affairs, other public interest and meet quality and fairness standards, the commercial broadcasters receive no direct public funding but benefit from limited licenced frequencies. As a result as in Australia there is pressure to weaken public service obligations on the commercially funded public service broadcasters. Ofcom has negotiated a number of licence changes to facilitate and the long-term trajectory is for deregulation of commercial television including legacy channels. In recent years the general obligation for example for TV channels to be impartial has been suspended for some tv channels.

Broadcasters' platforms – linear TV channels, TV recordings and their on-demand services – maintained their 60% share of total video viewing from 2021 to 2022, while use of broadcaster

video-on-demand (BVOD) services continued to grow. (Ofcom Media Nations 2023). The projected revenue in the OTT Video market for the United Kingdom is expected to reach $15.86bn in 2024.

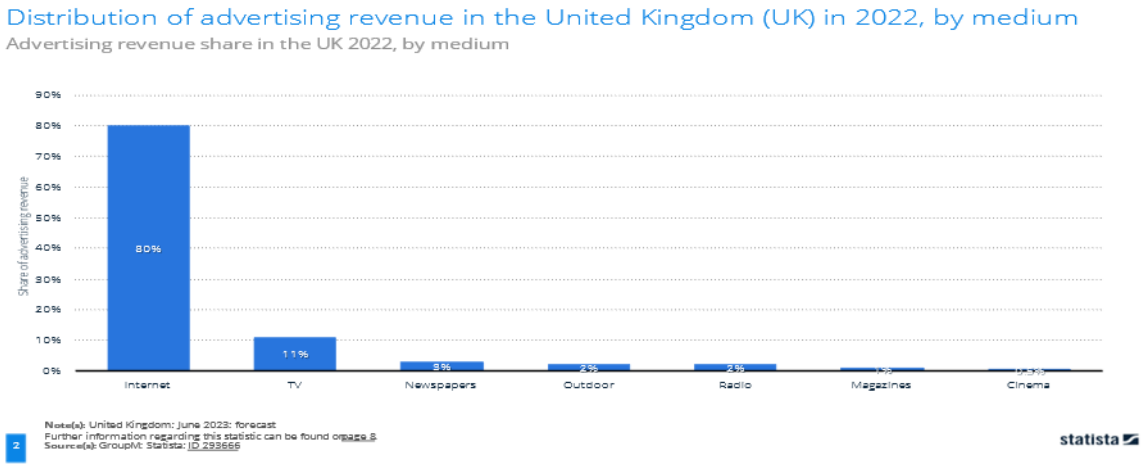
OTT VOD revenue is expected to show an annual growth rate of 3.84% (CAGR 2024-2029), resulting in a projected market volume of US$19.15bn by 2029. As can be seen in Figure 3-32, television advertising revenue has experienced some fluctuations, but is not in any overall decline.

Figure 3-32 UK television advertising revenues



Among the various segments in the OTT Video market, the largest market is OTT Video Advertising, which is forecasted to have a market volume of US$9.62bn in 2024. Looking at the number of users, the OTT Video market in the United Kingdom is projected to have approximately 94.0m users by 2029. This indicates a growing user base and potential market expansion and multiple users per account and accounts per user. User penetration, which refers to the percentage of the population using OTT Video market services, is expected to be 126.1% in 2024.

Figure 3-33 Advertising revenues in the UK by type of medium 2022

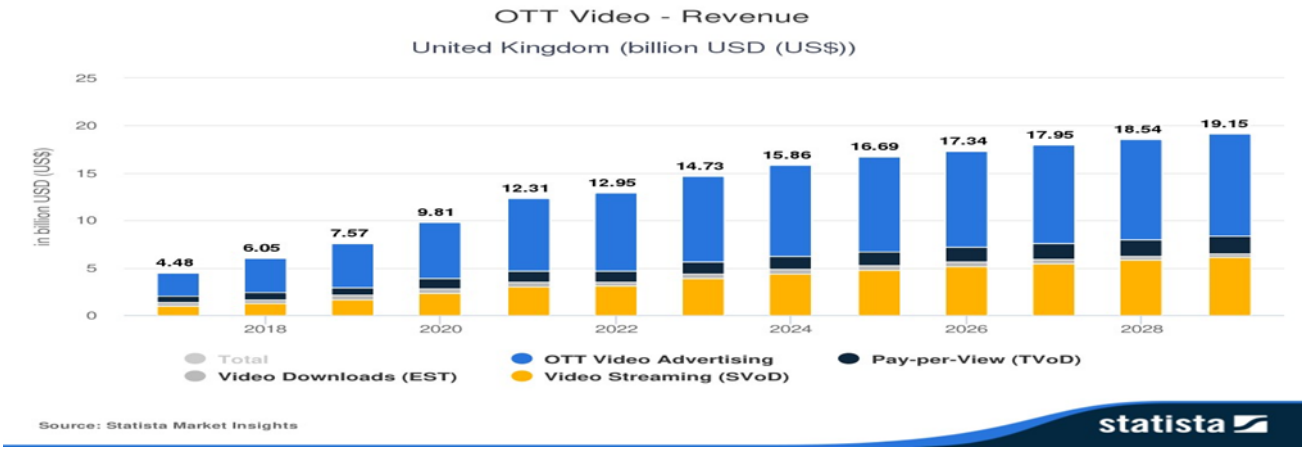


The UK has for decades been a leading economy in E-commerce an early adopter with high levels of internet use. The distribution of advertising revenues illustrated in Figure 3-33 is a response

to that. It has also been ahead of the curve in terms of the migration of advertising revenue from twentieth century media such as broadcasting and the press to the internet. This is reflected in a structural decline in advertising revenue in broadcasting and periodical press media. This is not a story of unending decline however. As Figure 3-32 above shows, TV advertising revenue recovered somewhat during the pandemic, which reflects both the fact that during the emergency viewers returned to live TV, and that the overall 'pie' of audiovisual revenue, and thus potentially available for investment in digital content industries grew significantly over the same period.

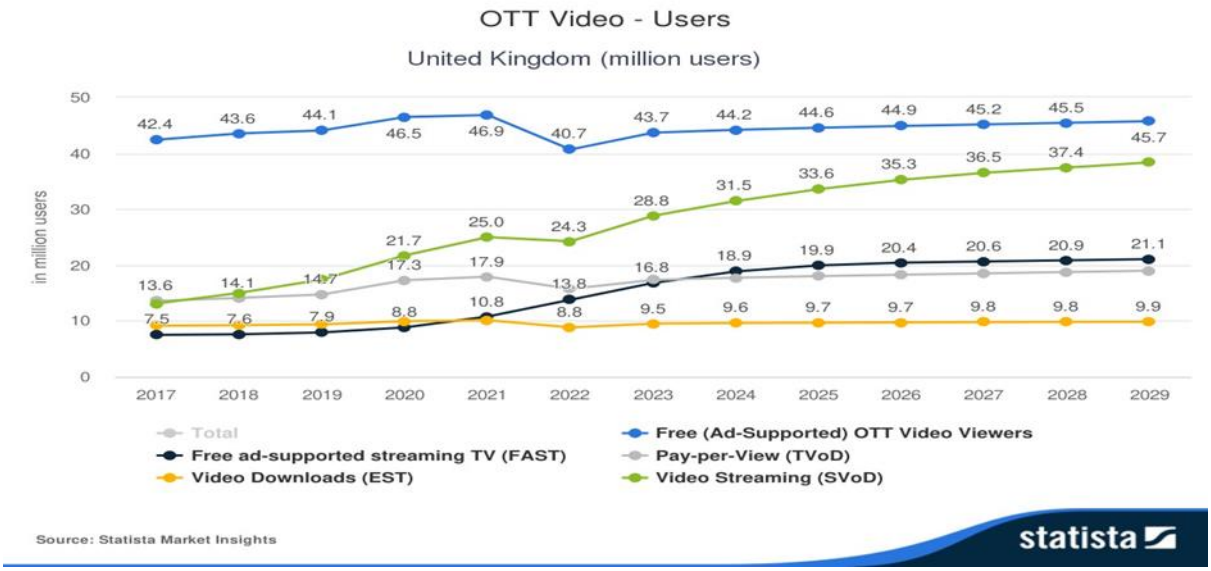
The projections in Figure 3-34 below show that the rapid growth in OTT revenue in the UK is predicted to slow somewhat as the market approaches saturation levels and consumers have multiple subscriptions. Note that license fees (which account for more than $7bn of revenue from the BBC) are not included in these figures.

Figure 3-34 Recent and project OTT VOD revenues in the UK



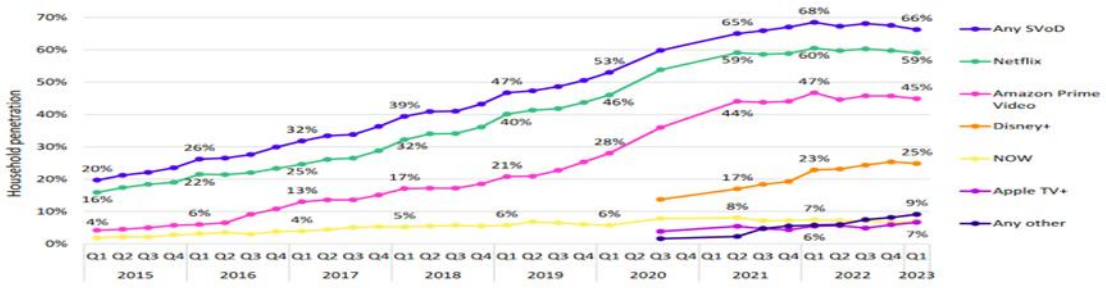
OTT video had a successful business model that enabled multiple business models to persist and succeed. The average revenue per user of OTT video services ranges into the hundreds of dollars per user. The cost of a Netflix subscription ranged from £5 to £18 per month in the UK.

Figure 3-35 Distribution of OTT VOD users by type of service



While Figure 3-36 shows steady growth in SVOD, Ofcom's recent study, showed that those users overwhelmingly use the global SVOD services, Netflix, Amazon Prime and Disney+.

Figure 3-36 SVOD Penetration in the UK by service



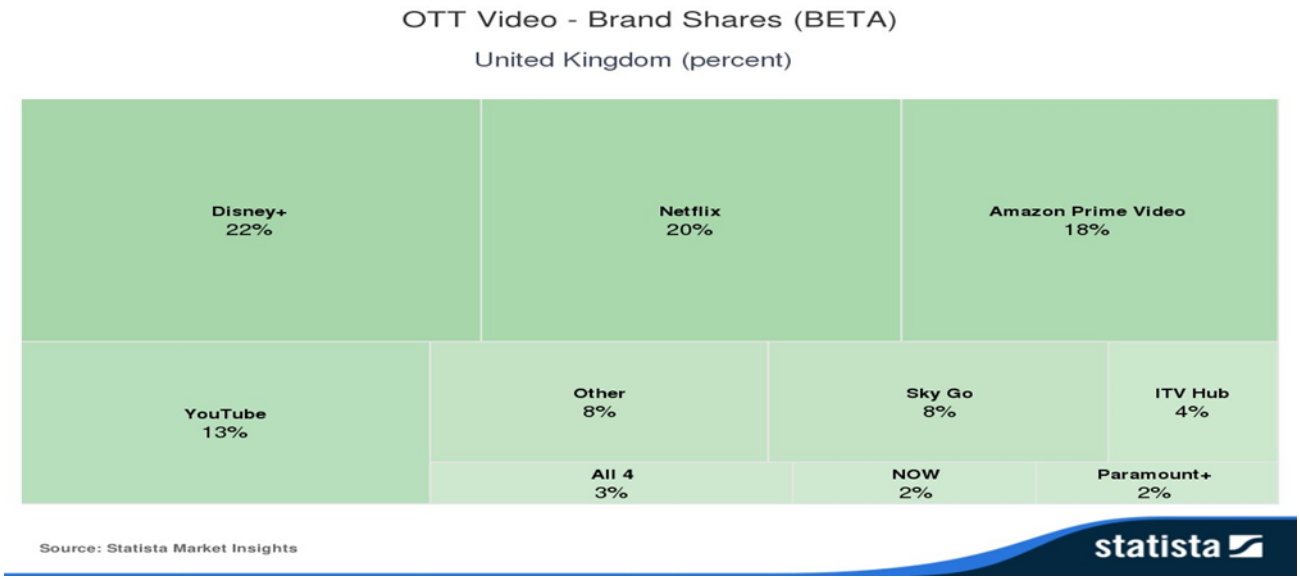
Source: Barb Establishment Survey. Includes paid-for subscriptions and free trials. No data for Q2 2020, Q4 2020, and Q1 2021 due to the suspension of fieldwork due to the Covid-19 pandemic. 'Any other' includes Hayu, Discovery+, Paramount+ and BritBox.

source: Ofcom media Nations Survey 2023[282]

This same dominance of the global VOD players is also evident in the brand share analysis shown in the Figure below, with the video-sharing platform YouTube coming fourth behind the big three SVOD services.

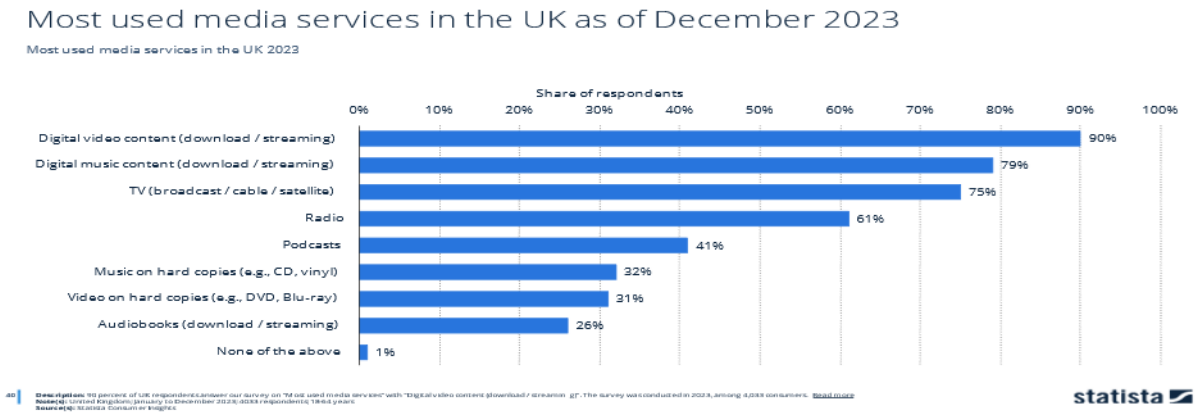
282 https://www.ofcom.org.uk/__data/assets/pdf_file/0029/265376/media-nations-report-2023.pdf

Figure 3-37 Brand shares for OTT video United Kingdom



When UK consumers were asked which media services they used the most, and asked to indicate several, they generally respond that they watch streamed or downloaded video and music content most, followed by broadcast TV, as shown in the Figure below.

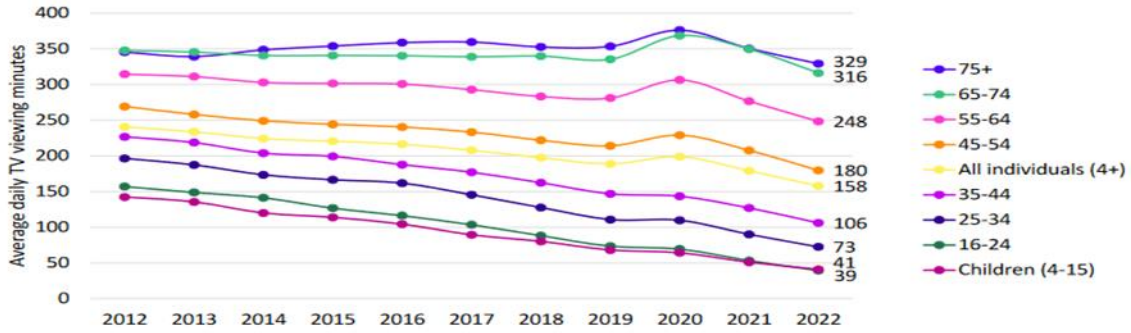
Figure 3-38 Survey responses on most used media services in the UK



The habit of on demand consumption is generally dominant, although TV remains a significant part of this, particularly when it is taken into account that a significant proportion of SVOD and all of BVOD content represents the 'long tail' of broadcast TV content.

The continued, if slowing, increase in use of OTT video services was mirrored by a continued decline in viewing of broadcast television. After a brief return to TV during the Covid 19 Emergency, viewing declines returned to the trend in 2022.

Figure 3-39 Average Daily Minutes of Broadcast TV watched in the UK, by age group 2012-2022

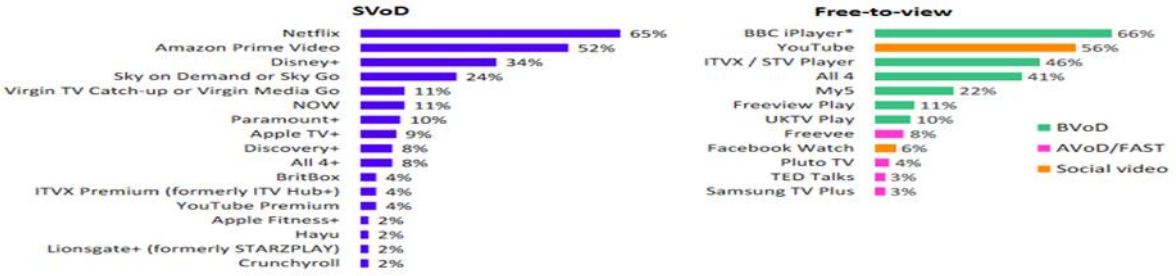


Source: Barb 28-day consolidated, TV sets only.

In the UK, legacy broadcasters have responded to the challenge of streaming by launching BVoD (Broadcaster Video On Demand) services enabling their broadcast programming content to be accessed on demand. In the UK market these tend to be standalone channel branded services, but there are some collaborative archives, such as BritBox which offers a large back catalogue of broadcast archive. The BBC IPlayer is a particularly successful model. According to Ofcom, 14% of all BBC programming content viewing was BVoD.

The same broadcasters have also launched suites of portfolio channels to maintain that audience share. In 2023 the BBC announced that it was leading a consortium of public broadcasters to launch Freely, which offers live television over broadband service, replicating terrestrial television in a free TV service aiming to be available on all smart TV sets in the UK.[283]

Figure 3-40 VOD Services Used to watch programmes, films or other video content, by reach 2023



*Source: Ofcom VoD Survey 2023. Adults/teens aged 13+. Online & CATI. Services used in the past three months: fieldwork conducted 22 February – 9 March 2023. Notes: *Payment of licence fee required to use BBC iPlayer. Free-to-view list excludes some services with hybrid business models (e.g. mixture of ad-supported and transactional content) where free-to-view use cannot be isolated. NOW includes NOW Entertainment, NOW Cinema and NOW Sports.*

source: Ofcom Media Nations 2023.

[283] https://www.bbc.co.uk/mediacentre/2023/uks-leading-psbs-set-to-evolve-free-tv-for-streaming-age

The streamers have disrupted content production in the UK and resulted in a significant inflow of investment and improvements in innovation and quality. According to Ofcom "Netflix released its first original series, House of Cards, in 2013. By 2022, it was spending over £13bn on original and licensed programming each year, including around £1.2bn on original UK productions. Audiences are responding to this increasing choice by watching and listening on-demand in ever increasing numbers. According to Barb, in 2023 two thirds (67%) of households subscribed to a least one video-on-demand service."[284]

In the United Kingdom public service media has traditionally occupied a central role in the audiovisual market. The BBC held a monopoly until the 1950s, and more recently in DTT enjoyed around 30% of television viewing across a suite of publicly funded channels. The public broadcaster has through a variety of strategies maintained a large share of audience in on-demand services. It has launched a number of niche digital television channels, it licences its own programming content for distribution on the major streaming platforms, and also maintains one of the leading streaming apps and most recognised brands in the form of its IPlayer. The BBC has also responded to the rise of on demand audio with its BBC Sounds podcasting services and in 2024 announced that it planned to exploit advertising on some of its on-demand platforms. However, the broadcaster argues that without a major public policy intervention it will be unable to maintain this market position in the medium term, as it struggles to maintain discoverability and prominence for its services.

Development Drivers

UK consumers have been quick to take up on demand services, but behaviour differs markedly across different demographic groups. Survey based research in 2022 found that whilst age was an important variable explaining the likelihood that viewers would heavily use OTT VOD services, other factors such as income and ethnicity were powerful factors. Older and less diverse users tended to be more reluctant adopters of OTT VOD.[285]

3.5.4 Regulatory framework overview

The UK operates a 'competition plus' framework in digital media. Sector regulator Ofcom seeks to promote consumer welfare, innovation and investment through promoting a competitive

[284] https://www.ofcom.org.uk/__data/assets/pdf_file/0030/278625/Media-Bill-Roadmap.pdf

[285] https://ahc.leeds.ac.uk/downloads/download/330/ways-of-watching-categorising-television-viewing-in-an-age-of-streaming-policy-brief-2023

environment in all layers of network and content services. At the same time, Ofcom also enforces authorisations in telecommunications and broadcast licensing obligations in a system that has traditionally featured a strong public regulation. Consumer protection, fundamental rights and public interest protection have been a consistent in postwar promotion of a liberal democratic media system based on Council of Europe Standards media freedom and media pluralism.

The UK is undergoing a major overhaul of its converging broadcasting, competition and telecommunications framework, instituting a new combination of competition, consumer protection and licensing rules. It is doing so at a time when the country is no longer under the jurisdiction of the body of European law and regulations which are required by membership of the EU, but it remains a member of the Council of Europe and as such is subject to Council of Europe standards under the European Convention on Human Rights which broadly reflect UN standards according to General Comment 34 of the Human Rights Council.

3.5.4.1 Market Competition

Following a long process of consultation the Digital Markets, Competition and Consumers Bill completes its long passage through parliament in 2024. Like the EU Digital Markets Act, the UK legislation is based on the idea that digital platforms are hindering competition and therefore innovation and consumer interests. The legislation outlines a process for designating undertakings with ‘strategic market status’ and gives the competition regulator CMA the power to impose conduct requirements on designated undertakings, as well as setting out some new duties and powers that apply to undertakings thus designated.

The new regime updates various pillars of competition regulation including cartels/ market power, and mergers. The most important initial question is which bodies will be designated as having strategic market status and thus subject to the more stringent requirements of the regime. If a service provider is so designated it would be subject to stringent new rules including obligations to share data about service uses with business users. Designation of strategic market status depends on turnover thresholds and service definitions set out in the legislation along with a requirement that the service has significant entrenched market power and strategic significance. Depending on future growth the larger video on demand platforms may meet these requirements and therefore subject to a code of conduct on behaviour that will be published by the CMA subject to consultation.

3.5.4.2 Content and Creative Trade and Industry Policy

In the Audiovisual Sector, the UK has a trade surplus with the rest of the world, and Europe, Asia and other regions, but not with the US. Proactive industrial policy in support of the creative industries has been significant but intermittent in the past decade. The UK supports its domestic and regional content and creation industries through tax breaks, subsidies, procurement through the national public broadcaster and public service and domestic content rules. The government also supports export promotion through bodies such as the Creative Industries Council, and the Creative Industries Trade and Investment Board which was created in 2018 and provision of relevant industry intelligence in the form of the Creative Industries Policy and Evidence Centre. In traditional linear broadcasting, licensees are obliged through a system of quotas to broadcast minimum levels of UK programming content but these do not apply to OTT VOD. There have been various proposals for levies, and regulatory obligations to oblige platforms to support domestic production. These have not been implemented.

Some streamers have increased investment in UK content. Between 2016 and 2021, Netflix increased the number of UK-produced titles offered on the platform. The company provided only four such titles in April 2016. By April 2021, the number of Netflix produced UK titles had risen to 123. Amazon Prime's growth in UK-produced titles has been equally steady but much less rapid, going from five titles in 2016 to 27 in 2021. (Statista).

Although the UK has now left the EU, the AudioVisual Media Services Directive remains in effect through the 2020 Audiovisual Media Services Regulations.[286] These regulations at section 30 require that larger on demand programme service providers must secure that, in each year, on average at least 30% of the programmes included in the service are European works". They also specify that providers "Must ensure the prominence of European works in the service".

AVMS also provides for the application of a number of public interest and child protection rules aiming at preventing harm caused by AVMS and advertising rules (for example limits on advertiser time and product placements) to ensure that on demand services match linear broadcasting standards. Some of these rules also apply to Video sharing platforms and encourage

[286] https://www.legislation.gov.uk/uksi/2020/1062/made

providers to take measures to prevent harm to minors, incitement to violence and other forms of illegal and harmful content.

3.5.4.3 Protection of Children

The Online Safety Act came into effect in 2023. This legislation establishes a Co regulatory scheme to encourage more effective risk assessments and safe design of Internet intermediary and platform services including social media.

The Online Safety Act applies to all services made available over the internet from websites to large online platforms. It covers search services and "user-to-user" services that allow users to post content or interact with each other online. It establishes three categories of services. Category 1 services are the larger user-to-user services, Category 2A are search services and Category 2B are smaller user-to-user messaging services. Thresholds for user number and other features for classification are still to be set.

Providers of search and user-to-user services will have to demonstrate that they proactively design their services to minimise harm. Service providers will need to:

- Assess the risk of harm from illegal content;
- Assess the particular risk of harm to children from harmful content (if children are likely to use the service);
- Take effective steps to manage and mitigate the risks in these assessments – ofcom will publish codes of practice;
- In terms of service, clearly explain how the service will protect users;
- Make it easy for users to report illegal content, and content harmful to children;
- Make it easy for users to complain, including when they think their post has been unfairly removed or account blocked; and
- Consider the importance of protecting freedom of expression and the right to privacy when implementing safety measures.

Source. Paraphrased from Ofcom.

https://www.ofcom.org.uk/online-safety/information-for-industry/guide-for-services/_nocache

Category 1 services will also have to offer more tools for users to control their exposure to risk, provide protections for journalistic content, identify verification mechanisms, enhanced risk

assessments, and additional terms of service.[287] Ofcom has set out its plans for a number of harm-specific codes of conduct, including those related to the protection of children, and these are expected to be finalised and in place in 2025. The codes of conduct are key elements of the enforcement framework. Service providers can be fined up to £18 million or 10 percent of their qualifying worldwide revenue, whichever is greater for failure to comply with the Act. Criminal action can be taken against senior managers who fail to ensure companies follow information requests from Ofcom or enforcement notices in relation to specific child safety duties or to child sexual abuse and exploitation.

Video-Sharing Platforms (VSPs) in the UK have been subject to rules that aim to protect users from harmful videos. With the coming into force of the Online Safety Act in 2023, those rules are repealed, and VSPs, such as YouTube and TikTok fall under the Online Safety Act and will have to conduct risk assessments under the general online safety regime after a transition period ends. In the UK's increasingly converged regulatory system, VoD services will also come under a new Ofcom content code under the (Draft) Media Bill currently under discussion by Parliament. Safety of video on demand services will thus remain a matter for sector regulator Ofcom which handles complaints.

3.5.4.4 Public Service Media

The UK has a developed system with a variety of public service business models in traditional broadcasting and new services. The system as a whole comprises;

- Publicly owned BBC funded through a compulsory license fee and accounting for a significant proportion of all media consumption in TV, Radio and Online
- Publicly owned ad-funded public service media (PSM) such as Channel Four
- Privately owned, ad-funded broadcasters such as channels 3 and 5 subject to detailed licensing requirements for public service.
- Privately owned less regulated services such as News Corporation's Talk TV, increasingly exiting the public service system by moving to an online only business model to avoid legacy broadcasting regulation.

The modernisation of the public service system has proceeded intermittently but issues of funding, political independence and ideological concerns about broadcaster content and control

[287] See further explanation at https://www.ofcom.org.uk/online-safety/illegal-and-harmful-content/additional-duties-for-categorised-online-services/

have undermined the process of reform. There has been a protracted debate about funding the BBC which over a decade of discussion of decriminalisation of the license fee and new models of funding has not been reformed, and a compromised scheme of government control of funding has been allowed to persist.

The Media Bill discussed in Parliament in 2024 sets out a number of provisions to support the BBC and other public service broadcasters including a framework of new rules supporting 'prominence' of public service channels and services on smart TVs, set top boxes and streaming platforms (to be designated by the Secretary of State). These new rules will require a broader range of platforms to carry and display prominently the on-demand apps which public service media distribute public service programming through. The legislation will require the regulator Ofcom to establish new guidance and codes designed to ensure that public service media are more prominently displayed. These new 'prominence' rules, which in some ways resemble those already introduced in Germany under the Interstate Media Treaty will be subject to multiple consultations and government reviews in 2024-5.

3.5.4.5 Infrastructure and distribution

When the UK was in the EU, telecommunications infrastructure policy was determined by the EU telecommunications package of directives which implemented a competition-based approach to telecommunications infrastructure. This underpinned investment in fixed and wireless infrastructure. Problems of rural access to 4G and 5G remain and in some rural areas coverage of superfast broadband based on fibre to the home remains incomplete. For the majority of the population infrastructure access is no longer a significant barrier to deployment of current generation OTT VOD services. The UK implemented the European Electronic Communications Code in UK legislation just before it left the EU in 2020. Thus until the UK passes new legislation that decides to depart from the EU approach, the UK remains aligned with the pro-competition approach of the EU. The UK committed to supporting rollout of full fibre broadband with a new strategy in 2018[288]. This underlined a commitment to accelerating wider access to full fibre broadband through a more dynamic, tailored and active policy that combined implementing access-based approaches such as encouraging access to poles and ducts with public intervention in rural areas where there was no prospect of infrastructure competition.

[288] https://www.ofcom.org.uk/__data/assets/pdf_file/0025/116539/investment-full-fibre-broadband.pdf

3.5.4.6 Effectiveness and sustainability of regulation

The United Kingdom scores consistently relatively high in most indices of press freedom, ranked at 26 in the Reporters Without Borders press freedom league in 2024. Media legislation, and particularly defamation law have been criticised over a long period as undermining the watchdog press. New innovations in Video on Demand and broadcasting have not been criticised, but there have been concerns from human rights bodies such as Article 19 regarding the new Online Safety legislation. Article 19 said that the new approach to online safety raised serious doubts about protection of human rights such as freedom of expression by compromising anonymity and empowering private actors to regulate speech.[289] Because of the long traditions of public interest regulation and relatively independent public service media, attempts to update the previous broadcast model have not been subjected to criticism by media freedom groups.

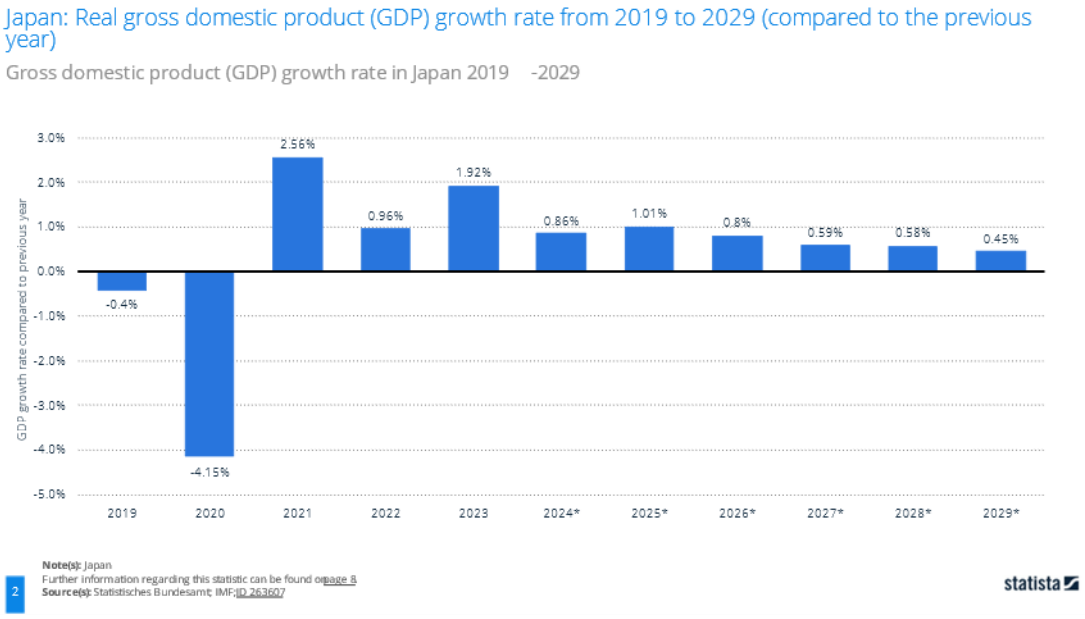
The public services situation in society of the BBC dedicates significant resources and policy innovation to the protection of the culture and traditions of public service broadcasting while seeking to modernise and update public service institutions for the age of on demand digital media. By permitting the BBC and other legacy broadcasters to launch on demand services as well as niche channels, and supporting these services through new innovations such as prominence rules, the UK is seeking through experimentation to maintain the position of the BBC, alongside legacy public service media that support public interest content as well as domestic production across genres. It is unclear whether the UK will be able to maintain its mixed public-private system into the age of on demand, but it seems unlikely that calls for the BBC license fee to be phased out, and for advertising and subscription to fund the BBC, will be successful. Policy innovations have tended to support the evolution of existing public service media institutions into the new services, in order to continue to have some variety of business models, and public service competition for the BBC.

[289] https://www.article19.org/resources/uk-online-safety-bill-serious-threat-to-human-rights-online/

3.6 Japan

3.6.1 Key economic Trends

Figure 3-41 Real gross domestic product (GDP) growth rate from 2019 to 2029



As of mid-2024, Japan is experiencing several key economic trends:

1) **Moderate Economic Growth**: Japan's economy is growing at a moderate pace, driven by recovery from the COVID-19 pandemic and increased domestic consumption. However, growth remains constrained by demographic challenges and global economic uncertainties and is projected to continue to be low.
2) **Inflation**: After a prolonged period of low inflation, Japan is experiencing moderate inflationary pressures. Factors contributing to this include higher energy prices, supply chain disruptions, and increased consumer demand. The Bank of Japan (BOJ) continues to monitor inflation closely.
3) **Ageing Population and Labour Market**: Japan's ageing population is a significant challenge, leading to labour shortages and increased social welfare costs. Efforts to address this include policies to boost labour force participation, particularly among women and older workers, and promoting automation and robotics.
4) **Monetary Policy**: The Bank of Japan maintains an accommodative monetary policy, with low interest rates and quantitative easing measures to support economic growth. However, there is ongoing debate about the effectiveness and sustainability of these policies in the long term.

5) **Public Debt**: Japan has one of the highest public debt levels in the world, primarily due to extensive fiscal stimulus measures over the years. Managing this debt while maintaining economic stability is a critical challenge for the government.
6) **Technological Innovation and Digital Economy**: Japan is heavily investing in technological innovation, particularly in areas like robotics, artificial intelligence, and digital transformation. These investments aim to enhance productivity and drive future economic growth.
7) **Trade and Exports**: Japan's export sector remains strong, particularly in automobiles, electronics, and machinery. However, global trade tensions and supply chain issues pose risks to export performance. Japan is also working to strengthen trade partnerships and diversify export markets.
8) **Energy Transition and Sustainability**: Japan is focusing on transitioning to renewable energy sources and reducing its reliance on fossil fuels. Investments in solar, wind, and hydrogen energy are part of the strategy to achieve carbon neutrality by 2050. Energy security remains a concern, especially in light of geopolitical tensions.
9) **Tourism Recovery**: The tourism sector is recovering from the pandemic's impact, with increasing international and domestic travel. Government initiatives are in place to promote Japan as a tourist destination and support the hospitality industry.
10) **Economic Reforms**: Structural economic reforms are ongoing to address long-standing issues such as labour market rigidity, regulatory barriers, and corporate governance. These reforms aim to enhance competitiveness and support sustainable economic growth.

Summary (from Statista)

- In 2024, the projected revenue in the OTT Video market in Japan is expected to reach US$9.89bn.
- The market is set to experience a steady annual growth rate (CAGR 2024-2029) of 4.83%, resulting in a projected market volume of US$12.52bn by 2029.
- From 2014 to 2023 overall advertising expenditure in Japan grew from ¥6.15 to ¥7.32 trillion, and within that internet advertising grew consistently, while expenditure on television advertising has fallen.[290]

[290] Dentsu (February 2024) 2023 Advertising Expenditures in Japan. https://www.dentsu.co.jp/en/news/item-cms/2024002-0227en_2.pdf

- Among the various segments of OTT video, including ad-free subscriptions, OTT Video Advertising holds the largest market volume, reaching US$5.19bn in 2024.
- Looking specifically at the OTT Video market in Japan, the number of users is projected to reach approximately 125.0m users by 2029.
- The user penetration rate is expected to increase from 91.3% in 2024 to 104.8% by 2029.

In terms of average revenue per user (ARPU), the OTT Video market is projected to amount to US$22.36 in 2024.

3.6.2 Introduction

An overview of the Japan OTT video market and its regulation in context

An aging population impacts speed of transition to OTT:-

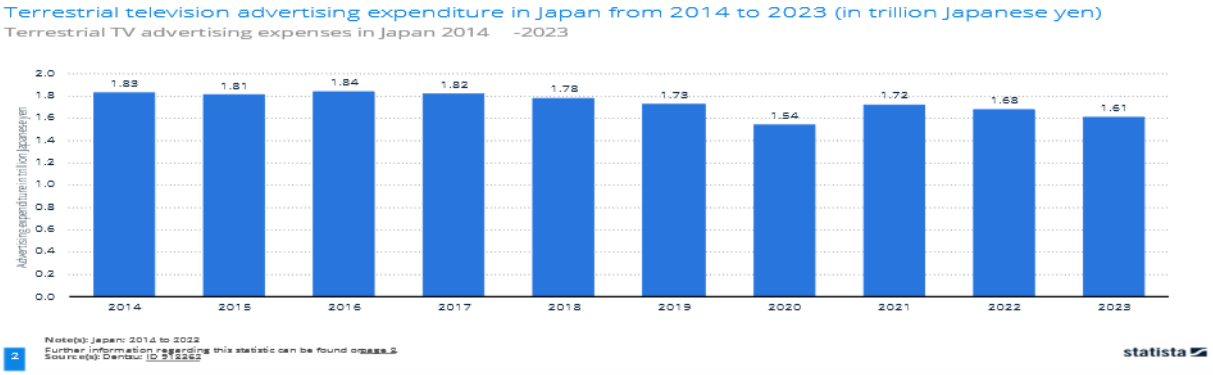
- Traditional regulatory structure separating networks and content
- Well-developed OTT market with dominant global players
- Lack of developed public interest regulation on new platforms
- Competition regulation weak on OTT/ VOD
- Traditional reliance on linguistic and cultural barriers to protect domestic production
- Vulnerability of domestic content production to competition from imports in new environment?
- Japanese content export growth has stalled

3.6.3 Market structure

In Japan of the seven national television networks two are owned by the national public broadcaster NHK and five main mixed genre national commercial stations. These are Tokyo NHK General TV (AK) Tokyo NHK Educational TV NHK) (AB) Tokyo TV Asahi (EX) Tokyo Fuji TV (CX) Tokyo Nippon TV (AX) Tokyo TBS Television) (RX) TV Tokyo (TX). Japan with its large and influential tech manufacturing sector has been a pioneer of technical advancement, leading the way historically in relation to colour, high definition, digital, VR and AR. Switchover from analogue was completed by 2012 and as in other markets accompanied by an expansion of DTT channels that was dominated by a proliferation of channels owned by these dominant companies. With the rise of OTT VOD this pattern was not repeated as consumers were quick to subscribe to global streamers.

Traditionally, advertising has been the main source of revenue for the television industry in Japan, alongside a voluntary license fee for public service broadcaster NHK. Over the past decade there has been a steady decline in the value of the TV advertising market. This is partly explained by macroeconomic stagnation in the wider economy but the rapid growth of the OTT revenue, which includes both subscription and advertising models, shows that there is a structural shift occurring. Overall revenue in audiovisual services is not in decline. As Figure 3-42 shows advertising expenditure on terrestrial television has been in gradual decline since 2014.

Figure 3-42 expenditure on terrestrial television in Japan 2014-2023



Since 2017, as Figure 3-43 indicates some of that can likely be attributed to the growth in advertising revenues going to OTT Video that is advertising funded. Figure 3-42 shows that this is the most rapid growing type of OTT service in Japan in terms of revenues.

Figure 3-43 Increase in OTT revenues in Japan, recent and projected

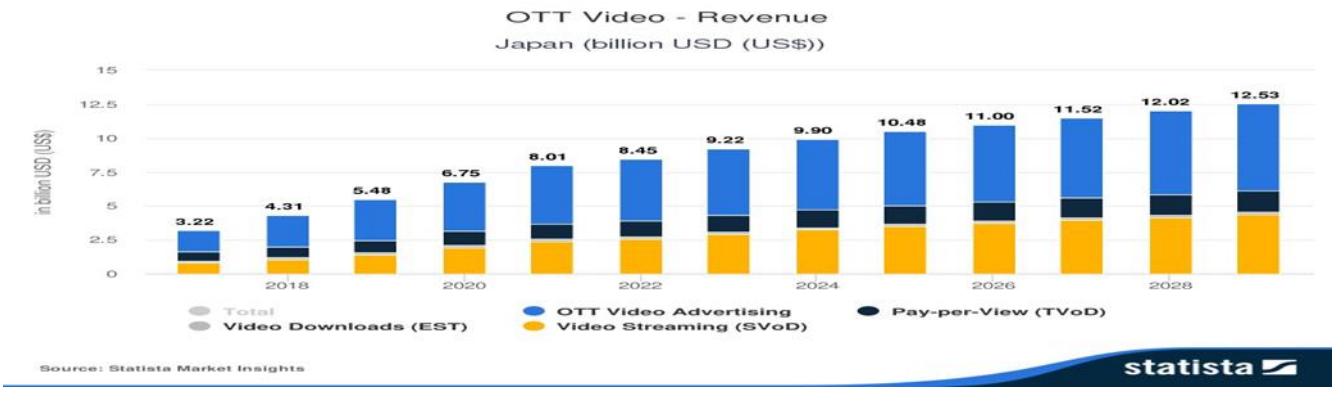
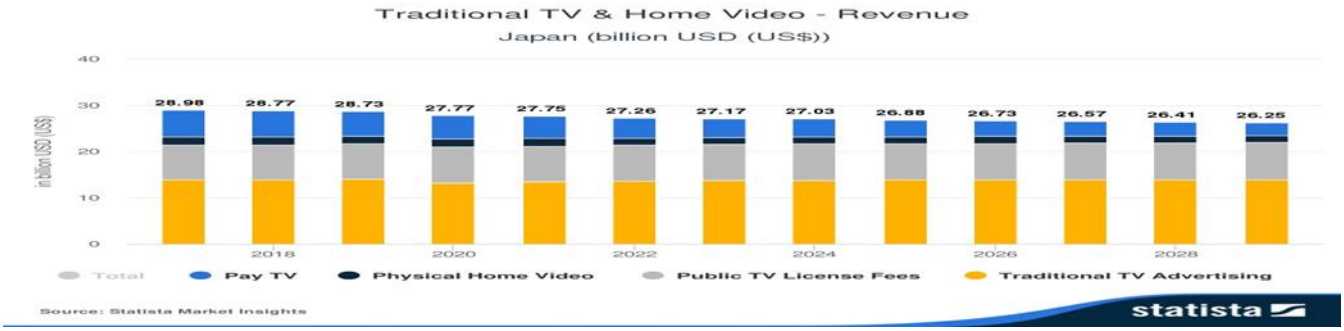


Figure 3-43 and 3.44 show the gradual displacement of traditional broadcasting by OTT video in Japan. But OTT is still a long way from replacing broadcasting in revenue terms.Whilst the overall size of the broadcasting market by revenue is projected to remain roughly double that of OTT at the end of the decade, the rate of growth in OTT video remains high. Broadcasting revenue including pay TV, license fees and traditional television ad revenue declined in real terms between

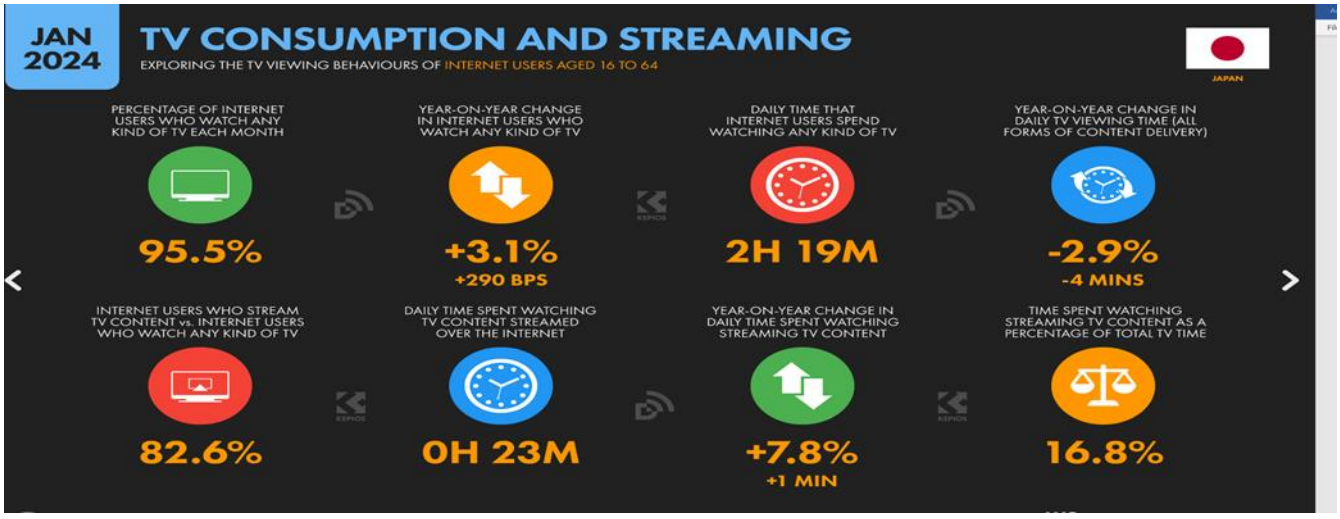
2014 and 2023 from around 29 billion dollars to less than 27 billion. (Figure 3-44), While a steady growth in OTT video revenue was evident.

Figure 3-44 Traditional TV and Home Video Revenue.



Having held stable until 2018, as Figure 3-44 illustrated, expenditure on television advertising has never fully recovered from the Covid-19 year slump, unlike other types, particularly online advertising, which hit a record high in 2023. These trends are confirmed by self-reported consumption data. Data for 2024 showed a decline of 4 minutes in the time spent on daily TV viewing, but an increase of 1 minute in daily time spent watching streaming TV content.

Figure 3-45 Reported consumption of media by type in 2023 in Japan

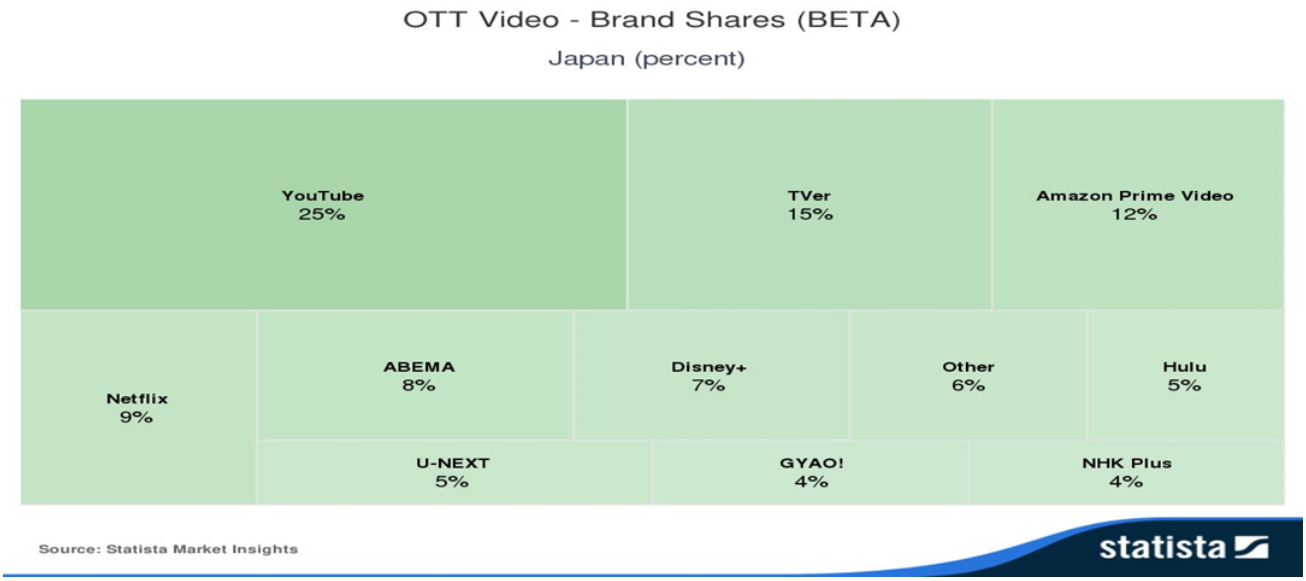


Structure of an evolving market from Broadcast to OTT

In traditional broadcasting, Japan has been characterised by strong domestic production protected by a natural barrier of a strong language and culture that has protected to an extent demand for domestic content. However, this has not been reflected in spontaneous development of a thriving domestic video OTT sector. The range of business models in the Japanese OTT market includes various forms of traditional and digital advertising as well as subscription and pay per view TVOD.

In more detail, the major players in the Japanese market are YouTube, TVer, Amazon Prime Video, Netflix, ABEMA, U-Next, Disney+, GYAO!, Hulu (Japan), and NHK Plus, as can be seen in the brand share analysis in Figure 3-46. The share of total revenue indicates that global / US brands dominate in the Japanese Market, with Amazon, Disney+, Netflix and YouTube accounting for more than half of the total revenue. Smaller domestic on demand services including TVer (15%) and the public broadcasting portal NHK Plus (4%) struggle to compete with the huge content back catalogues and wealth of user-generated content of these global players.

Figure 3-46 Brand share analysis of OTT players in Japan



source: Statista February 2024

"Brand shares" refer to the value share of selected leading brand of the total market size of the selected market in the selected region in the year.

Structure of OTT video market

In the market for long-form video Netflix and Amazon are dominant and Netflix has supremacy due to their huge content library. Japanese OTT video services tend to be offered as standalone services rather than bundled with traditional BC services, though there is some 'zero' rating, effectively bundling of certain OTT VOD services with mobile and broadband contracts.

Public provider NHK does offer on demand OTT video services online but these do not command the same audiences as were commanded by public service broadcasts in the 'golden age' of linear TV. Global players get most of share of revenue and audience but there is a lack of available data. In general there is significantly more foreign produced content available and consumed on demand platforms than was available and consumed in linear broadcasting.

It is important to note that these figures include YouTube but not TikTok. YouTube continued to grow its user base in Japan into 2024. TikTok use is relatively low in Japan though users report high levels of consumption growth particularly among younger users. TikTok reported that TikTok ads reach 24.7% of all adults aged above 18 in early 2024.[291] TikTok reported a potential ad reach of 26.05 Million and the average use of TikTok per month reported by TikTok users was 31 hours and 6 minutes. The social network Line has almost 100 million users in Japan in a population of 120m.[292]

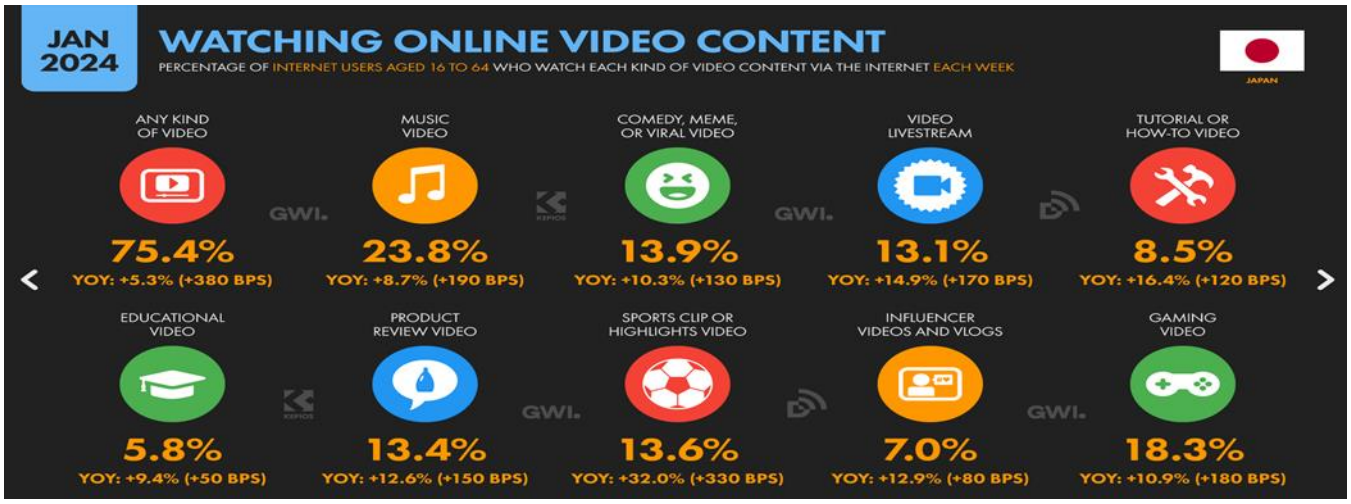
With the exception of gaming, all sectors of media use reported a slight reduction in time spent in the year to 2023 in Japan.This may be due to a post pandemic reduction in media use as populations re-engaged with non-mediated activities.

It is enlightening to examine current and trend data on which kinds of video content internet users reported using in Japan. A wide range of genres were reported, as shown in Figure 3-47, and a significant number reported using sports, comedy and product review videos.

[291] https://datareportal.com/reports/digital-2024-japan

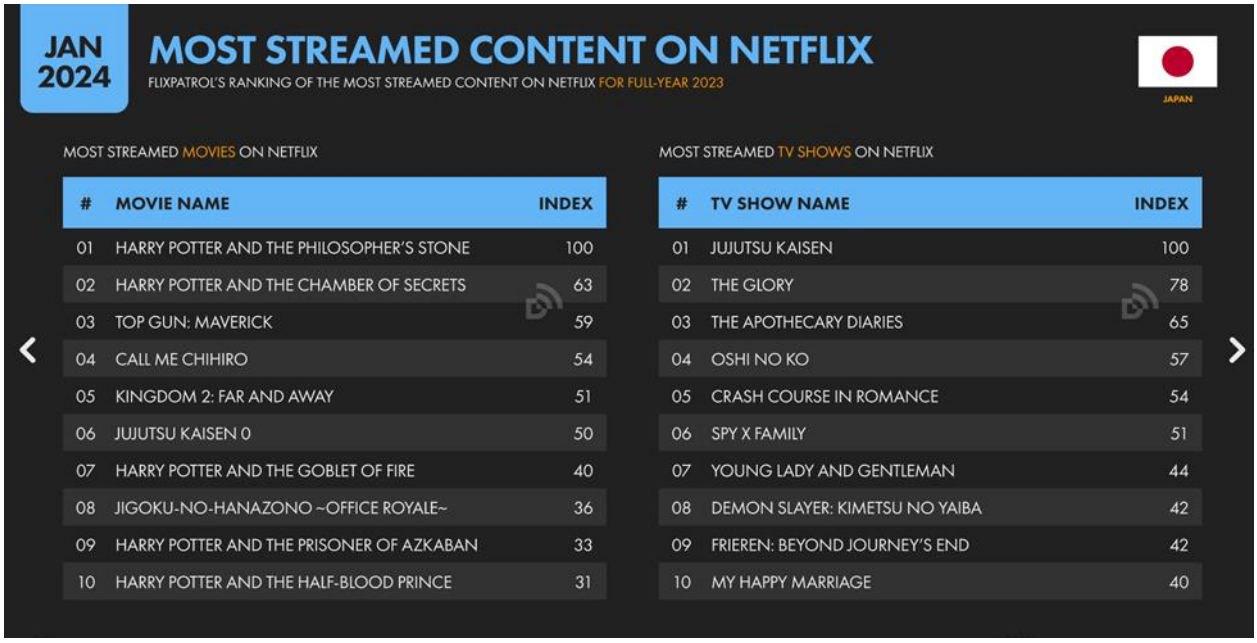
[292] Figures reported in DataReportal.com. Report Digital Japan 2024.

Figure 3-47 What Japanese audiences are watching online



The content that is consumed in Japan on Netflix is more skewed towards foreign content than content viewed on traditional television channels that are subject to licensing requirements. The following figure shows the top 10 most streamed movies and TV shows on Netflix in Japan during 2023. Notably, there are more Harry Potter films than Japanese films in the top 10 streamed films on Netflix. This is notably different than in other countries in Asia, such as South Korea and Malaysia where domestic content remains popular on streaming as well (See South Korea and Malaysian cases)

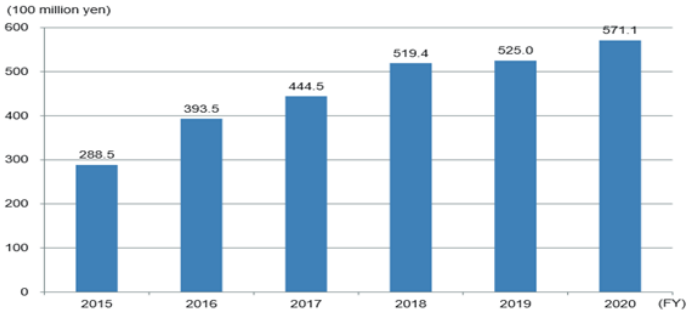
Figure 3-48 Most Streamed Content on Netflix in Japan.



The top streaming content titles in Japan currently in 2024, are all the Harry Potter series. The export of Japanese content in this context has stagnated. As Figure 3-49 illustrates the export

value of Japanese broadcasting content increased notable from 2015 to 2018 and then was relatively stable following that, though there is no available data since the Covid-19 crisis, it would be expected that the interruptions in productions during that period would have a knock on effect on production exports affective the value right after 2020 as well.

Figure 3-49 Changes in the value of Japanese broadcast content



*1 Export value of broadcast content: total of the overseas sales of program broadcasting right, internet distribution right, video/DVD release right, TV formatting/remaking right and merchandizing right
*2 Calculated based on questionnaire surveys of NHK, key private stations, sub key private stations in Osaka, local stations, satellite broadcasters, CATV operators, productions, and others.
*3 After fiscal 2016, there have been changes such as clear inclusion of right to turn into a game in calculation.
(Source) Prepared from MIC, annual "Present Data Analysis on Overseas deployment of broadcast content"[49]

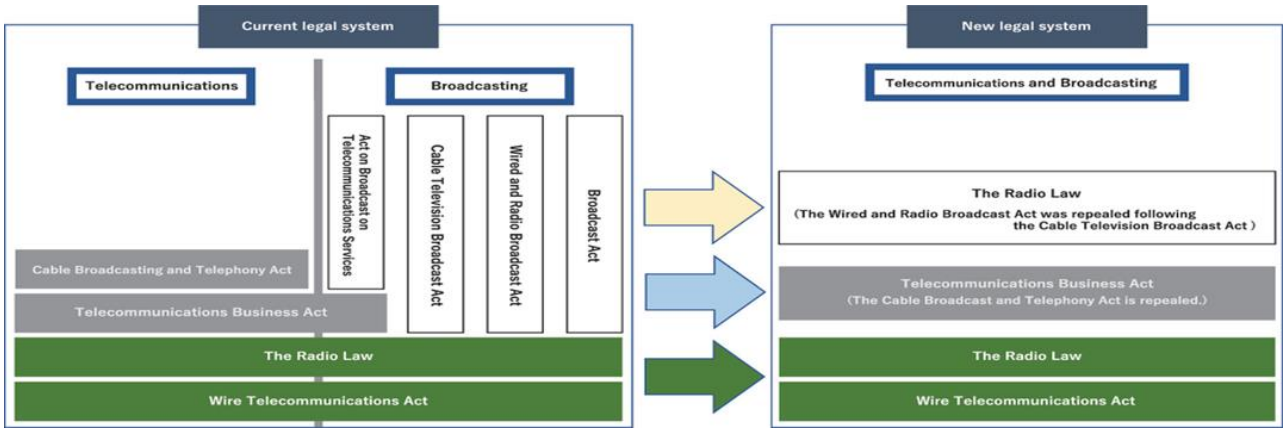
Development Drivers

Strong investment in the public broadcaster NHK and a large domestic market for what has long been a high-quality domestic content production sector have long been drivers of development in the Japanese market. More recently the very high levels of internet penetration and highly digitally skilled population has driven development of OTT services. This is particularly true among younger audiences who appear to have more interest in foreign content delivered by transnational streaming services. Continued maintenance and investment of the DTT network is driven by the need to reach older populations and for the service to be in place in cases of disaster.

3.6.4 Regulatory framework overview

The Japanese regulatory system remains bifurcated into traditional broadcasting and telecommunications sectors despite decades long debates about moving to a 'converged' regulatory system. Such a system illustrated in the figure below has long been discussed, but it is unclear if or when it will be implemented.

Figure 3-50 Proposal for a 'converged' regulatory system.



(Source: From An International Comparison of Simulcasting and Webcasting: From Facilitating Transmission to Communication to the Public. Naoto Kikuchi1 (1) KEIO University Graduate School of Media Design, Minato-ku, Tokyo, Japan)

The MIC Ministry of Internal Affairs and Communication plays important roles in the overall regulatory framework. Their 2020 study group report led to a framework of new obligations for dealing with online content moderation in 2023. [293]

The MIC is the body that has the regulatory authority under relevant laws to grant any permission, licence or approval that is required for any telecoms activity. While there is no specific regulator of social media platforms, the MIC regulates any activity pertaining to telecoms. The competition law authority is the Fair Trade Commission ("FTC"), an independent administrative agency with the authority to prevent unfair trade or market dominance. MIC and FTC jointly issued the "Guidelines for the promotion of competition in the telecommunications business field" (originally issued in November 2001, with the latest revision issued in June 2022), and they collaborate to promote further competition in the telecoms field. Regulation of television broadcasting business primarily consists of (i) the Broadcast Law, and (ii) the Radio Wave Law. There is thus a separate Broadcasting Law and Radio Wave Law. Frequencies are allocated directly by Government (by the MIC). The Broadcast Law[294] which dates back to 1950 sets out the regulatory framework for all broadcasters including NHK. It outlines general provisions aimed at protecting 'healthy democracy'. Hence the general provisions outlined at Article 1:

[293]Useful recent summary: https://iclg.com/practice-areas/telecoms-media-and-internet-laws-and-regulations/japan
[294] https://www.japaneselawtranslation.go.jp/en/laws/view/4509/en

The purpose of this Act is to regulate broadcasting so as to conform to standards for public welfare and to facilitate the sound development of broadcasting in accordance with the following principles:

1) Guaranteeing that broadcasts reach as much of the general public as possible and that the benefits derived from broadcasts are fully realized;
2) Ensuring freedom of expression in broadcasting by guaranteeing impartiality, truth and autonomy; and
3) Enabling broadcasting to contribute to the development of healthy democracy by clarifying the responsibilities of persons involved in broadcasting.

The Broadcast Law sets out principles to regulate broadcast content (i.e., TV programmes). For example, broadcasters, including terrestrial, satellite and cable TV broadcasters must not harm public peace and must take a neutral political position. A broadcaster is required to draw up standards for its television programmes and produce programmes that satisfy such standards. Under the Broadcast Law, any person or entity planning to be a terrestrial-based television broadcaster or a satellite-based television broadcaster is generally required to obtain an authorisation from the MIC. Further to this, any person or entity planning to be other types of broadcasters, including a cable TV broadcaster is required to be registered with the MIC.

Radio Wave Law: The Radio Wave Law regulates the use of radio waves and thus may apply to both telecommunications and broadcasting using radio waves. Under the Radio Wave Law, any person or entity planning to establish a radio station is required to obtain a licence from the MIC, except in cases involving certain specialised radio stations."

There is a separate "Telecommunications Business Law" (TBL) which regulates telecoms businesses TBL has different (lower) standards to the Broadcasting Law. Companies acting as intermediaries of telecoms carriers for certain telecom services (e.g., mobile phone, fibre-to-the-home ("FTTH"), CATV services) are required to adhere to transparency and trading terms standards. Market entry regulations per radio frequency allocation exist for terrestrial and satellite broadcasting. Broadcasting licenses are required to be renewed every five years. Foreign investment in Japanese TV stations is restricted by law by up to 20%. Cable television is registered with the MIC. There are no foreign investment restrictions.

Provisions on television content are set out in Articles 4 and 5 of the Broadcasting Act. In practice, MIC leaves licensing to light touch private self-regulation. According to article 4(1) A

broadcaster must comply with the following when editing domestic broadcast programs or domestic and international broadcast programs:

1) it must not negatively influence public safety or good morals;
2) it must be politically fair;
3) reporting must not distort the facts; and.
4) it must clarify the points at issue from as many angles as possible where there are conflicting opinions concerning an issue.

Article 5 (1) stipulates that a broadcaster must set out standards for editing broadcast programmes per the classification of the broadcast program (i.e., categories such as cultural programs, educational programs, news programs, entertainment programs; the same applies hereinafter) and the target audience of the broadcasts and must edit the broadcast programs per those standards. These do not apply to on demand/ OTT streaming video services.

3.6.4.1 Market Competition

New Japanese legislation to promote digital competition (Act on Improvement of Transparency and Fairness in Trading on Specified Digital Platforms) was passed in 2020 and has been in effect since February 1, 2021. The objective of the Act is to improve transparency and fairness of transactions by regulating the operators of digital platforms that enable consumers to purchase goods, services or rights through the internet. The legislation obliges some digital platform operators to disclose terms and conditions for use of the platforms and to implement measures to promote better understanding of digital transactions. Like the EU's Digital Markets Act, the first stage is designation as an SDP. (Specified Digital Platform). This is based on annual sales thresholds (2-3bn JPY) with different categories of B2B and B2C.This Act is limited to operators with a certain scale of business (e.g., gross sales and number of users), which the Ministry of Economy, Trade and Industry will separately designated. Currently, Amazon Japan G.K. and Google LLC., have been designated as such operators, whilst OTT video platforms are not within scope[295].

SDPs have to disclose terms of use which are regulated to ensure fairness, and self-report each year on their platform and the measures taken. The regime imposes regulated terms of trade on issues such as self-preferencing (favouring own services in search results and recommendations)

[295] See: https://iclg.com/practice-areas/telecoms-media-and-internet-laws-and-regulations/japan

data dominance (leveraging dominance in personal data) ranking transparency (disclosing algorithmic bias) and so on.

Social and video streaming platforms are important but there is a separate market for short form video. This legislation focuses on online market platforms, such as the Apple Store. There have been no discussions about the competitiveness of OTT video platforms as a separate policy concern though there are issues with the content producers' competitive position as regards the platforms.

Some mobile operators do offer zero rating – to include Netflix, Amazon Prime. Softbank, NTT and every mobile provider offers them as a bundle with the mobile subscription. There was a discussion about whether Zero Rating is against net neutrality. But the zero rating was seen a just another service offered by mobile operators.

According to Clifford Chance: "The TFDPA (Act on Improvement of Transparency and Fairness in Trading on Specified Digital Platforms) approach is different from the Digital Services Act and Digital Markets Act, which aim to impose ex ante obligations, speedy enforcement and deterrent sanctions with regard to digital platforms, and contain a list of DOs and DON'Ts (...) The obligations under the TFDPA are relatively light due to the concept of co-regulation and the TFPDA does not include a list of DOs and DON'Ts. It is not clear whether Japan will go in a similar direction to the drafts of the Digital Services Act and Digital Markets Act in the future."[296] (See the Europe case for explanation of the DSA).

In 2021 the Japan Fair Trade Commission released a report that raised concerns about the dominant position of digital platform operators and businesses including publishers. This report set the terms for the new legislative environment and outlined the justification of the transparency and self-regulation based approach of the newly passed legislation.[297]

3.6.4.2 Content and Creative Industry Policy

The Japanese government has championed content investment for example through the 'Cool Japan Fund' a public-private sector partnership launched in 2013 to provide capital and support and international promotion for Japanese cultural products and services. This builds on the previous Digital Japan Creation Project from 2009 which began the process to build a

[296] See: https://www.cliffordchance.com/insights/resources/blogs/talking-tech/en/articles/2021/08/japan-s-digital-platform-regulations.html
[297] https://www.jftc.go.jp/en/pressreleases/yearly-2021/February/210217_3.pdf

government led content promotion policy. In response to the success of South Korea, J-Pop was promoted for example through creation of an artist database, an international Japanese Content festival, and a creative works archive. Japan has also sought to lead regional initiatives for example by sponsoring the Asia Content Business Summit and leading regional policy work for example on anti-piracy. IP enforcement in the Manga-Anime sector in particular has emerged as a key strategic objective.

There are no domestic production quotas in Japanese broadcasting law, nor is there one in streaming. There is a strong domestic production sector and the importance of Japanese language and culture to consumers helps protect Japanese production. There is not a policy debate about developing industry policy for domestic content on new on demand platforms, but a growing awareness that on-demand may threaten demand for domestic content production. Broadcast policy does require broadcast to develop programme policies on the public service remit and report them to the ministry.

3.6.4.3 Protection of Children

Social protections for children from inappropriate contact and content in the OTT / streaming sector rely on the general protections for the internet in general. On demand video do not have specific social protections for children. Under the Act on Development of an Environment that Provides Safe and Secure Internet Use for Young People, telecommunications operators providing internet services to teenagers are required to adopt measures to limit the exposure of teenagers to harmful information – for example, information inducing them to commit a crime, information that stimulates sexual drive, or information containing atrocious descriptions such as murder. No specific law regulates virtual private network ("VPN") services.[298]

Regulation on illegal/harmful contents on the Internet in Japan and abroad (D3-6-4 in White Paper) has focused as elsewhere on the issue of whether internet intermediaries should be held liable for content they host or distribute.[299]. As in other countries there has also been a societal debate about content that is illegal or harmful to adults. For example in 2020, an MIC Study Group on Platform Services conducted hearings of platform operators concerning their measures against defamation. The review group released "urgent recommendations" in August 2020. Based on the

[298] https://iclg.com/practice-areas/telecoms-media-and-internet-laws-and-regulations/japan

[299] See MIC (2022) "Survey Study on the Trends in the Market Environment Surrounding ICT".

recommendations, in September 2020 MIC released a "policy package for dealing with slander on the Internet" In April 2021, in order to facilitate relief of victims MIC promulgated an Act to amend the "Act on the Limitation of Liability for Damages of Specified Telecommunications Service Providers and the Right to Demand Disclosure of Identification Information of the Sender (Provider Liability Limitation Act) (Act No. 137 of November 30, 2001). The amendment includes: (1) establishment of new judicial proceedings (non-contentious proceedings) for early preservation of specific communication logs; and (2) clarification of information at the time of log-in which is subject to disclosure.

The 2022 government review (at 2.3) indicated that harmful and illegal/ slanderous information remained a problem of widespread public concern that may indicate future demand for increased regulation of social media and UGC platforms but not necessary a departure from the self-regulatory model for online streaming.

3.6.4.4 Public Service Media

Japan has a long tradition of significant license-fee funded broadcasting in the form of NHK. However its audience popularity on traditional broadcasting has not been replicated in on demand services and the role of the PSB in on demand OTT video has yet to be agreed at political level. NHK offers an on-demand portal to access its services but does so on a temporary basis pending policy review. [300]

With challenges in the digital space increasing, one can argue that broadcasters, which have been providing accurate information and diverse types of content under the Broadcasting Act, should play more and more significant roles. Recognizing this, "Study Group on the Ideal Broadcasting System in the Digital Age"—a committee of experts organized by the Ministry of Internal Affairs and Communications (MIC)—has published several reports on the future of regulation. NHK is expected to play the leading role, and the "Working Group on Public Broadcasting" was established in the Autumn of 2022 to discuss the ideal status of NHK and its source of revenue and institution that support the public service broadcaster of Japan. The discussion has been divided into four areas: (1) the role of public service broadcaster in the internet

[300] See: Kiyoshi Nakamura https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2118974

On Funding see: https://www.publicmediaalliance.org/publications/99511/

https://www.sciencedirectcom.gate3.library.lse.ac.uk/science/article/pii/S0308596123000344?casa_token=k0J8MjbdIz4AAAAA:EEFMuk7_NuGFINeaHa9Dcs9Rafd6pJOgC9pJZhPPwdIgxlACx23x7Kn9oj7-D24E6lABP6I

age, (2) the range of NHK's remit, focusing on internet-based operations, (3) the rule of competition with private entities (commercial broadcasters and newspapers), and (4) the source of revenue and receiving fee system. Subsequently, in response to the explanation by NHK as the party concerned and the statements made by the Japan Commercial Broadcasters Association and Nihon Shinbun Kyokai (NSK, The Japan Newspaper Publishers & Editors Association) that expressed concerns over the expansion of NHK's internet-based operations, the discussion is deepened and planned to be put together in the summer of 2023.[301]

There is no regulation of PSM prominence or discussion of it in Japan. NHK are not actively lobbying for this, partly because they do not have a permanent streaming service yet.

There is a current discussion on broadcasting policy standards being applied to OTT services in Japan, but in an atmosphere of intense lobbying against the public broadcaster, proponents of future public services media, PSM, are in a more defensive mode in Japan, discussing questions such as whether NHK should have to provide online streaming service. Currently, NHK provides on demand services but only as a trial service offer, and this has been linked to the debate about the license fee. If NHK is going to offer permanent streaming service this will increase license fee. NHK do not have a must-provide obligation whereby they have to provide channels to Netflix etc.

There is also an ongoing debate about whether terrestrial broadcasting in general is still necessary given the rise of OTT services. There is a discussion about DTT switch off. The ministry does not have a position. This is an open question. There is a study group of the ministry involving experts and stakeholders. Terrestrial broadcasters do want to keep their frequencies but increasingly argue that they are not economic given the multiple expensive content requirements. There is no specified child protection rule for online streaming services. However there is a general rule in the law for child protection on the internet so streamers have to comply with that.

DTT is important, and like other aspects of the broadcasting landscape, is regulated with the public interest and service in mind. The "Broadcasting Act exists to protect democracy by ensuring the right to know. This is a huge role for the broadcasters. The ministry subsidises the broadcaster for some productions, and the equipment. There is some public funding of infrastructure for example in funding access for difficult to reach communities. There is however

[301] see The NHK Monthly Report on Broadcast Research, 2023/08/01, Vol.73(8), pp.2-32

strong pushback to DTT switchoff: DTT is seen as an important communications technology for disaster information which is a big issue in Japan.

3.6.4.5 Infrastructure and Distribution

There is a USO in the Telecoms Act and this was updated to include Broadband. The Broadcasting Act does oblige NHK to make its content universally available on the territory of Japan. Digital Divide has been an issue in Japan which is an ageing society. Older people do not necessarily use the online contents. There are inequalities of access.

Japanese policymakers take pride in their long-term perspective. The 50 year review of communications and IT policy was published in 2022. [302] According to this report, the underlying demographic changes including population ageing, declining birth-rate and declining population will temper but not reverse the underlying trends of growth in access to broadband infrastructure and migration to new platforms.

3.6.4.6 Effectiveness and Sustainability of Regulation

Public service broadcasting regulation in Japan was singled out for criticism by the UN Special Rapporteur on Freedom of Expression in 2017[303]. The role of the Ministry in broadcasting licensing and supervision of NHK in particular was criticised for "undue restrictions on media freedom and independence" which are exacerbated by "comments made by government officials in off-the-record sessions with media". The lack of regulatory independence thus creates a tendency to brittleness in a system that requires a high degree of independence from government given its role in enforcing and monitoring Broadcasting Act standards of neutrality of broadcast news.

Japan has historically not enforced content quotas. Though it has a strong system of public investment through the public broadcaster NHK, it has mainly relied on strong domestic demand for distinctively Japanese content. A large domestic market has supported a successful and critically acclaimed domestic content production sector in niche areas of animated film for example. In an era of more globalised content distribution, and rapidly increasing content budgets and quality however, there are indications that Japanese cultural autarky is being undermined, and the

[302] https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2022/chapter-2.pdf

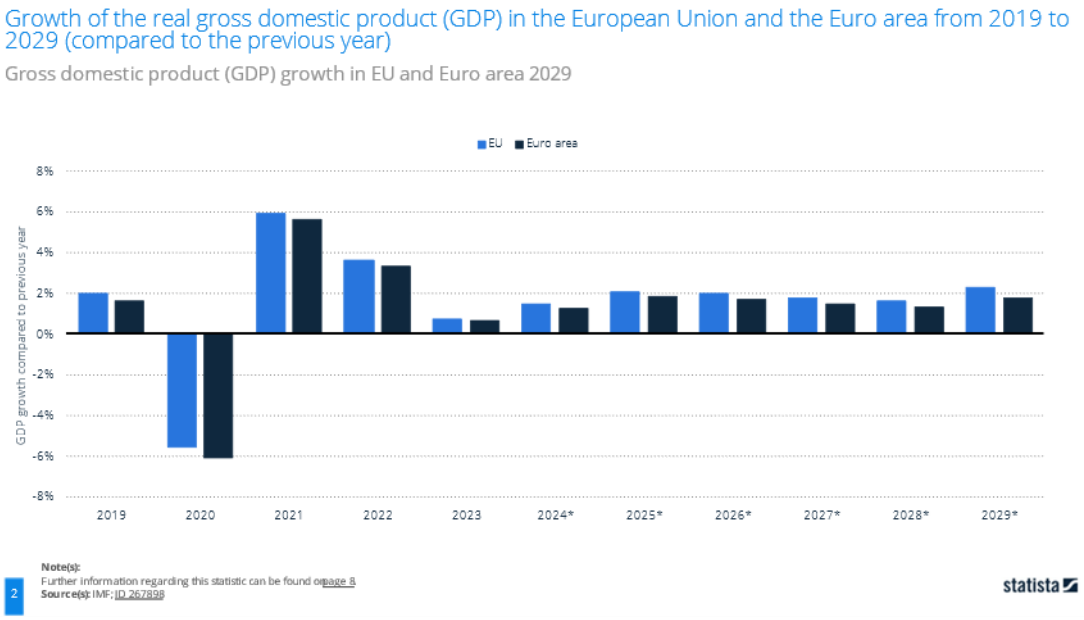
[303] http://hrn.or.jp/wpHN/wp-content/uploads/2017/05/A_HRC_35_22_Add.5_E.pdf

transition to OTT video distribution, where Japanese audiovisual content is less consumed, is a big part of this trend. The policy response from the Japanese government has been to support domestic content production sectors, but the government has not taken more radical steps such as imposing levies or domestic production quotas on the video streaming platforms.

3.7 The European Union

3.7.1 Key economic Trends

Figure 3-51 Growth of the real gross domestic product (GDP) in the European Union and the Euro area from 2019 to 2029



As of mid-2024, the European Union (EU) is experiencing several key economic trends:

1) Economic Growth: The EU economy is growing at a moderate pace, recovering from the COVID-19 pandemic and adjusting to new geopolitical realities. Growth is driven by consumer spending, investment, and robust performance in key sectors like manufacturing and services. In the EU and the Euro area the growth trend of around 2% is projected to continue.
2) Inflation: Inflation has been relatively high across the EU, influenced by rising energy prices, supply chain disruptions, and increased costs of goods and services. The European Central Bank (ECB) is closely monitoring inflation and adjusting monetary policy accordingly.

3) Monetary Policy: The ECB has been gradually raising interest rates to combat inflation, moving away from the ultra-low rates that were in place during the pandemic. This shift aims to stabilize prices but also impacts borrowing costs and economic growth.
4) Labour Market: The labour market is strong, with low unemployment rates across many member states. However, there are ongoing challenges such as skills shortages, youth unemployment, and regional disparities in job opportunities. Efforts are being made to improve labour mobility and skills development.
5) Green Energy Transition: The EU is heavily focused on transitioning to renewable energy sources as part of its Green Deal. Significant investments are being made in wind, solar, and hydrogen energy to reduce carbon emissions and achieve climate targets. The shift to a green economy is a central component of the EU's long-term strategy.
6) Digital Transformation: The EU is investing in digital infrastructure and innovation, with a focus on areas such as artificial intelligence, cybersecurity, and digital services. These investments aim to enhance the digital economy and boost competitiveness.
7) Trade and Supply Chains: The EU is working to strengthen its global trade relations and diversify supply chains to reduce dependence on single sources, particularly in strategic sectors like semiconductors and raw materials. Geopolitical tensions and trade disruptions remain challenges.
8) Public Debt and Fiscal Policy: Many EU member states are dealing with high levels of public debt following extensive pandemic-related spending. The EU is balancing fiscal consolidation with continued support for economic recovery, including investments in infrastructure and social programs.
9) Social Policies and Inclusion: There is a strong focus on social policies to address inequality and promote social inclusion. Initiatives include improving access to education and healthcare, reducing poverty, and ensuring fair working conditions.
10) Geopolitical Uncertainty: The EU faces geopolitical uncertainties, particularly related to the ongoing conflict in Ukraine and tensions with Russia. These issues impact energy security, trade, and overall economic stability. The EU is working to enhance its strategic autonomy and resilience.

These trends highlight the EU's efforts to navigate a complex economic landscape, balancing recovery, sustainability, and resilience in the face of global challenges. The policies and initiatives implemented at both the EU and member state levels will be crucial in shaping the future economic trajectory of the region.

Summary

- The total EU audiovisual market was worth approximately €97bn in 2022 with the largest contributors to that being European conglomerates and public service media.
- The wider European advertising market grew slightly between 2021 and 2022, still showing signs of post-Covid recovery, however this was driven by grown in online ad spending while TV, Radio and Print all showed small declines.
- EU audiovisual media services are investing heavily in addressable and programmatic advertising option, which allow broadcasters to sell targeting advertising based on data collected by smartTVs and set-top boxes through programmatic trading systems. Combined with OTT and other programmatic online advertising, this has led to ever growing share of advertising being programmatically traded with 84% revenue estimated to be generated through programmatic advertising by 2028.
- Overall the Video-on-Demand market in the EU-27 is projected to reach a revenue of US$20.79bn by 2024. Among the various segments, SVoD dominates the market with a volume of US$13.88bn in 2024

3.7.2 Introduction

The EU is unique case in that within its unified audiovisual media production and distribution market there remain distinct national markets. On the one hand there are no barriers to trade within the bloc meaning there is free cross border delivery of services as well as movement of capital and workers. On the other hand national markets are bound by linguistic and cultural borders as well as by national media and cultural policy. Media policy is the domain of Member States except in relation to the functioning of the single market, therefore there is great variation among them.

3.7.3 Market structure

In 1989 the European Union removed barriers to the free distribution of television channels within Europe. Nevertheless, it remains largely a market fragmented into nationally or linguistically defined markets. The removals of trade and foreign ownership restrictions has enabled several large conglomerated to emerge that have holdings in multiple EU Member States. The largest are Vivendi, based in France, RTL from Luxembourg, ProSeibenSat1 from Germany, and Mediaset and Italian company that also operates Mediaset in Spain and recently became MediaforEurope and acquired a significant stake in ProSeibenSat1 as well. A large number of smaller media conglomerates with holding across multiple countries also exist.

The EU operates the European By Satellite (EbS) services as an institutional broadcaster with a live linear broadcast online and on Satellite, however this is not widely known of our used. The EU is home to several very strong member state public broadcasters, with free-to-air channels received across many countries, such as France Télévisions, Italy's RAI and Germany's ZDF.

One of the aims of EU policy towards this market since 1989 has been to enable 'European giants' in the industry to benefit from access to the full market and therefore compete better with US companies (see policy discussion below). This has been to some degree successful and a key feature in the EU market is the strong position of a few large commercial media companies that have expanded well beyond the national borders in which they began. The EU's top media companies listed in Table 3-1 are all conglomerates operating in multiple member states and on various distribution platforms and services.

Table 3-1 EU's top media companies (in rank order)

Company	Country	Relevant types of services*
Vivendi	France	FTA Television, payTV, BVOD, production, radio, video-sharing platform
RTL	Luxembourg	FTA Television, payTV, BVOD, production, radio, advertising intermediaries
Proseibensat1 Media	Germany	FTA Television, payTV, BVOD, SVOD, production, advertising intermediaries
MFE-MediaforEurope (formerly Mediaset)	Italy	FTA Television, payTV, BVOD, production, advertising intermediaries

note: *All these have additional holdings in other markets and extensive portfolios, so these represent those media conglomerates most relevant to this report.

source: author based on Statista ranking (https://www.statista.com/companies/ranking/6/top-100-media-companies) and company websites

These major European Conglomerates, and many smaller ones, have achieved unprecedented scale within Europe and make huge contributions to European audiovisual media

production and distribution, which was worth almost €97bn in 2022.[304] They remain small in comparison to US conglomerates and have not yet achieved that kind of global reach, yet they are heavily integrated in content production as well and are frequent partners to US companies in film and audiovisual content production.[305]

Another key feature of the EU market is the presence of public service media, however with vast differences in the position of public channels in the market. In countries such as Denmark, Germany and France the public channels still command very high audience shares, whereas in the smaller Member States in the East and South the audience numbers and budgets for public media can be very low. The average across Europe remains relatively stable nevertheless.

The EU is a large advertising market in which advertisers frequently plan and spend across multiple Member States with single campaigns and make extensive use of targeted and programmatic options. It is estimated that the ad spending across the EU will amount to a bit more than a quarter of that in the US in 2024, making it one of the biggest in the world.[306] The wider European market has grown since 2020 largely recovering to pre-Covid levels, but most of the growth comes from online advertising. Television, Radio and print all experienced small declines.[307] One of the biggest growth areas is retail advertising in e-commerce and Amazon has become the third largest player in the online advertising market, following Google (YouTube and Search) and Meta (video-sharing and social media platforms).

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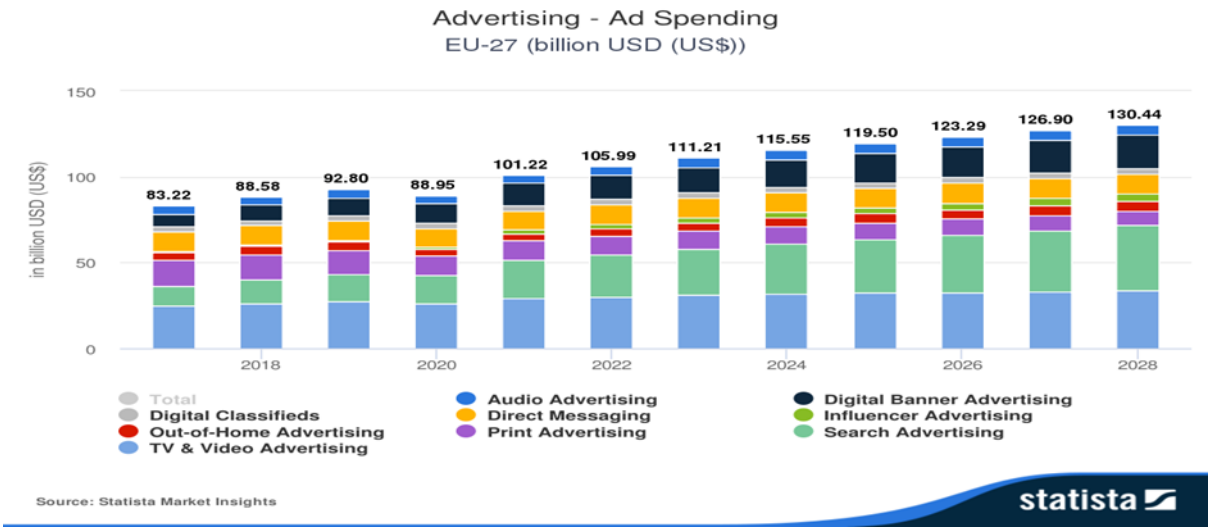
[304] European Audiovisual Observatory 2023/24 Yearbook on Key Trends

[305] Weir, C. (2021) *European Conglomerates and the Contemporary European Audiovisual Industries: Transforming the Industrial Landscape Amid the Arrival of SVOD Platforms, a High-End Television Boom, and the COVID-19 Crisis* DOI 10.13140/RG.2.2.25894.45126

[306] Advertising - EU-27. (n.d.). Retrieved March 26, 2024, from https://www.statista.com/outlook/amo/advertising/eu-27

[307] European Audiovisual Observatory 2023/24 Yearbook on Key Trends

Figure 3-52 Advertising expenditure by type in the EU



source: Statista, Advertising - EU-27. (n.d.). Retrieved March 26, 2024, from https://www.statista.com/outlook/amo/advertising/eu-27

The shift in advertising spending to digital banner, search and influencer advertising can be seen in Figure 3-51 above. Broadcasters have responded to the shift to digital by investing in platforms that provide addressable and programmatic multi-country options. These capitalise on the greater scale and cater to advertisers' interest in targeting. The EBX trading platform, for example is a joint venture that offers programmatic and managed targeted advertising on the BVOD services of major commercial broadcasters from Italy, Spain, France, Germany and the UK.[308] Another trading platform, RTL_AdAlliance led by Germany's RTL include both commercial and public service broadcasters as well as some press publishers offering a variety of advertising options across the EU on TV, BVOD and various online services.[309]

The OTT Market structure in the EU

While they may have started out in the business of linear broadcasting the European conglomerates are now fully cross-platform with their OTT services. Even many national broadcasters in small Member States operate successful BVOD, 'catch-up', or other OTT services. Therefore, despite the popularity of Netflix, Disney+, Amazon Prime and other US-based global

[308] Mediaset, MediasetEspania, Proseibensat1, TF1, and Channel4 are included. https://ebx.tv/
[309] For a full list see: https://rtl-adalliance.com/brands

streaming services, the EU's broadcasters have a notable presence in the OTT market as well. In Germany, for example the SVOD market is dominated by local services Maxdome and Joyn.[310]

As can be seen in Figure 3-52, the total VOD market in the EU is projected to reach a revenue of US$20.80bn by 2024, and SVOD dominates the market with an expected volume of US$13.88bn in 2024.[311] The SVOD market in the EU is strongest in the Scandinavian countries where households typically have at least two subscriptions to SVOD services.[312] Viewing time is another measure of popularity and use.

Figure 3-53 Revenues for VOD services in the EU



source: Video-on-Demand - EU-27. (n.d.). Retrieved March 25, 2024, from

https://www.statista.com/outlook/dmo/digital-media/video-on-demand/eu-27.

A recent study by the European Audiovisual Observatory (EAO) in 9 EU Member States found that 85% of viewing time was made up of the top three SVOD services, Netflix, Amazon Prime and Disney+.[313] However it also found SVOD catalogues to contain well over the required 30% of European works and viewers to be spending 30% of their viewing time on European works (including UK works at 9%).

[310] https://www.statista.com/outlook/dmo/digital-media/video-on-demand/eu-27#revenue
[311] Ibid.
[312] European Audiovisual Observatory 2023/24 Yearbook on Key Trends
[313] European Audiovsial Observatory (2024) SVOD Usage in the EU https://rm.coe.int/svod-usage-report-in-the-eu-2023-december-2023-c-grece-and-j-a-tran/1680af0850

Development Drivers

The EU has diverse and dynamic audiovisual production industry, with broadcasters being the main drivers of this production. According to the European Audiovisual Observatory, over half of the fiction titles produced in Europe in 2022 were commissioned by public service broadcasters (55%), followed by private broadcasters (32%) and global streamers (12%).[314] The percentage of Global streamers' investment in European productions has increased significantly since 2020. They released 186 original European fiction titles in 2022 (all formats), compared to 137 in 2021, with Netflix contributing 62% of these in 2022. This may be in part due to changes in the regulatory framework aimed at increasing their contribution. EU wide quotas for European works and independent productions have also helped drive investment for decades and maintain demand for European content and services at least in the larger language markets. The EU market remains fragments with development differing greatly across the member states.

3.7.4 Regulatory framework overview

The EU regulatory framework is mainly made up of:

- Regulations and Acts, which have direct application across the EU,
- Directives, which have to be transposed into Member State law and aim to harmonise national level law
- Delegated Act, which are issued by the European Commission to give further detail on EU Law,
- Guidance, which can come from the European Commission to aid the implementation of law

The competences of the EU are limited in the area of media and confined to covering what is necessary for the smooth functioning of the single market including, competition rules, standardization, and consumer protection.

3.7.4.1 Market Competition

Ensuring free and fair competition is a core element in the EU framework. In addition to the Treaty level rules and basic economic regulations related to fair trading, the EU has sector specific regulation and targeted horizontal legislation affecting the audiovisual media sector.

[314] European Audiovisual Observatory 2023/24 Yearbook of Key Trends page

The **Audiovisual Media Services Directive** (AVMSD) is the core piece of EU legislation in the sector. It is the successor to the 1989 Television without Frontiers Directive, which first removed the barriers to cross border trade in television services and set minimum standards for the industry to encourage fair competition and effective consumer protection. In 2018 the AVMSD was revised with the specific aim of levelling the playing field between audiovisual media services (linear and on-demand) and video-sharing platforms, such as YouTube, Facebook, and TikTok. The revision brought the video-sharing platforms into the scope of the Directive expressly because they compete for the same audiences and advertisers as the television and VOD services. It tried to even out the rules by making them responsible for complying with the advertising standards, for protecting audiences from illegal content and protecting minors from harmful content.

In 2022, the EU adopted a horizontal law aimed at ensuring more fair competition in digital markets, which also has potential to redress imbalances in the audiovisual and advertising markets. Under this Digital Markets Act (DMA) **online platforms have been designated as "gatekeepers"** with specific obligations to prevent them from abusing their dominance in that role. The DMA requires app stores and operating systems be opened up for third parties. It also requires crucial levels of transparency, switching and opt out options for consumers, and has specific provisions aimed at levelling the imbalance in the advertising ecosystem. The DMA gives the sellers of advertising and the buyers of advertising the ability to access the data held by the gatekeeper about the trade that was otherwise not accessible. This is an important step as advertising in the EU has moved so significantly to programmatic advertising that is traded through gatekeeper platforms. Being able to know the prices offered and achieved in a programmatic auction and the targeting requests and effects data is important for the broadcasters, AVOD and other advertising funded media to be able to effectively compete.[315]

3.7.4.2 Content and Creative Industry

The EU's Framework to encourage content production and distribution is essentially two pronged. Since 1989, the television and then linear audiovisual media services in the EU have been required to ensure that at least 50% of their broadcast time consists of European works and 10% of their time or production budgets is devoted to independently produced works. The aim of these was to ensure demand for European content from the main investors in content production, and to try to encourage more cross-border trade in programmes. These aims were both industrial and

[315] See chapter on advertising data transparency here: https://cerre.eu/publications/effective-and-proportionate-implementation-of-the-dma-3/

cultural, intending to protect European production from US competition and to promote European culture in all its diversity. Some Member States chose to have even higher quotas (see case study on France), but none can go lower. With the 2018 revision to the AVMSD, additional quotas were placed on VOD services. All types of on-demand services must ensure that 30% of their catalogues are made up of European works. Given that transposition of the 2018 revisions to the AVMSD was quite delayed these rules for VOD services have been in effect since 2020 or most services, which may have contributed to the increased investments in European content by the major SVOD players mentioned above.

The second element mimics the national level film funds that exist in most countries to support the production and distribution of audiovisual content. What is now the EU's Creative Europe MEDIA Programme began in 1991 with multi-year funding for production grants, production loans, promotion support and training for the film and audiovisual industry.[316] The current funding is through 2027. The MEDIA programme is a major source of funding for professionally produced audiovisual content, especially when done through cross-border collaboration.

3.7.4.3 Protection of Children

The AVMSD contains the core standards for the protection of minors on audiovisual media services and video-sharing platforms. These services are required to prevent minors from encountering content that may impair their physical, mental or moral development. Audiovisual media services are expected to make use of content ratings, notifications, timing to prevent minors accessing potentially harmful content. Video-sharing platforms are expected to use age assurance mechanisms, content rating and flagging, and content organisation and moderation tools. The Directive's provisions on advertising also prohibit advertising that exploits the inexperience of minors, exploits their trust in adults, or portrays them engaged in dangerous activity. All services are further expected to engage with codes of conduct on advertising to children and on advertising of unhealthy food and drink. These rules were extended to video-sharing platforms with the revision of 2018, which also banned video-sharing platforms from using the personal data of minors for advertising and required them to take measures against child sexual abuse material (CSAM).

In 2022 the EU adopted the Digital Services Act (DSA), which is a horizontal law covering a large array of digital services. It is essentially consumer protection legislation, but also aims to

[316] For more information https://culture.ec.europa.eu/creative-europe/creative-europe-media-strand

prevent harm to wider society, beyond the immediate users of the services. The DSA extends the requirement to protect minors, including their privacy, security and safety, to all services in scope. It also widely prohibits advertising to minors based on profiling (targeted advertising). It sets out clear expectations for how services will combat illegal content, including CSAM, through a variety of measures such as cooperation with trusted flaggers and automated means. Very large online platforms and search engines are subject to additional requirements to mitigate the risks of negative effects on the rights of the child through age verification tools, parental tools, specific reporting channels and other means. The DSA came fully into effective in February 2024, so the results of these increased regulatory requirements have not yet been fully observed.

3.7.4.4 Public Service Media

The Treaty governing the EU contain a general prohibition on what is called "state aid", or any advantage given selectively by the state, in order to protect fair competition. There can be exceptions to this if called for in order to ensure a well-functioning economy. Public service media falls under a blanket exemption set up in a Protocol to the Amsterdam Treaty in 1997. This protocol, which has been further clarified by communications from the European Commission, allows for state aid for public service broadcasting as long as it is paired with a clear public remit outlining the public purposes. Member States are therefore allowed to use public funds, arrange license fee mechanisms, provide free spectrum or other resources, or support public service media in other ways without contravening the EU's state aid rules. Public service media in Member States is funding through a variety of means. Some are active in the advertising market while others are completely reliant on budget transfers or license fee payments. Subscription models also exist.

3.7.4.5 Infrastructure and distribution - the EECC

The EU's Electronic Communications Code[317] (EECC) is designed to ensure the good functioning of the electronic communications market, while the allocation of spectrum is a matter for Member States. The Code covers telecommunications and internet service provision and includes universal service provisions. This Code, which was adopted in 2018 to update the previous telecommunication package of directives, was also intended to encourage the development of 5G. The EU's involvement in spectrum allocation was arguably greatest during the time of the switchover from analogue to digital terrestrial broadcasting. The EU presented a collective lobby in

[317] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1547633333762&uri=CELEX%3A32018L1972

the ITU negotiations over frequencies and in 2005 the European Commission set a deadline of 2012 for switchover in all Member States.[318]

There are two ways in which EU level policy on distribution helps the position of the audiovisual media services in Member States. Firstly, the EU's 2015 Open Internet Directive[319] requires providers of internet access services to treat all traffic equally. This "net neutrality" requirement helps restrain the use of zero-rating contracts and other preferential deals between major OTT players and internet service providers. Under a zero-rating contract, a company such as Netflix or Facebook can pay the internet service provider to have its service not count against the consumer's data limit. This means their service can still be used even if the consumer has reached their data limit which is particularly relevant in mobile. This put smaller OTT providers, such as BVOD or start-ups, at a disadvantage in reaching consumers. The bounds of allowable traffic management nevertheless were being continually stretched until September 2021, when the Court of Justice of the EU ruled on three cases related to arrangements with German internet service providers that clearly zero-rating practices are incompatible with EU law, namely the Open Internet Directive.[320] Since then the pan-EU body of electronic communications regulators updates its guidance[321] on traffic management to reflect this ruling and limited the advantages that rich global OTT players can gain by buying special treatment from internet service providers.

Secondly, the EU has a long history of allowing, or even encouraging, Member States to implement "must carry" rules to ensure that audiovisual media services of general interest (usually the major and local broadcasters) are included in the offering of multi-channel distributors. This originated in earlier laws on satellite and cable services and on universal service. The 2015 Electronic Communications Code mentioned above, made "must carry" applicable to any services that carry radio or television broadcasting such as cable, IPTV, satellite and DTT. Member States can impose these obligations to ensure that its public and other important media are accessible to the public. The Code also states that any corollary services such as for sign language interpretation or other accessibility tools and data associated with the programme is also carried.

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[318] See https://eur-lex.europa.eu/EN/legal-content/summary/switchover-from-analogue-to-digital-broadcasting.html

[319] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32015R2120

[320] For a clear explanation see https://edri.org/our-work/cjeu-in-surprise-judgment-zero-rating-is-illegal-under-eu-law/

[321] https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-the-implementation-of-the-open-internet-regulation-0

Complementary to the "must carry" rules, in the 2018 revision of the AVMSD, the EU included a provision expressly sating that Member States may institute rules to ensure the appropriate prominence of audiovisual media services of general interest, which was intended to help protect media pluralism, freedom of speech and cultural diversity. It is currently not clear what exactly is covered by appropriate prominence rules. Some states have opted for wide reaching ones (see case of France) while others restrict prominence requirements to obligations on the allocation primary slots in electronic programme guides.[322] There is more to learn from how prominence rules will be designed and implemented in the coming years.

3.7.4.6 Effectiveness and sustainability of regulation

Several of the policy innovations made at the EU level are relatively new and have yet to play out fully. Though the revisions to the AVMSD were adopted in 2018, the effectiveness of the Directive in terms of levelling the playing field among services and cracking down on video-sharing platforms has yet to be seen because of how long it took Ireland to reorganise its regulatory body and put in place the appropriate national law. Ireland is the country of origin for Google, Meta and other large global companies operating video-sharing platforms and therefore responsible for enforcement. Nevertheless, there was evidence that bringing video-sharing platforms into scope had an effect before enforcement was fully operational with several services already implementing some of the expected measures by 2020.[323] There is insufficient evidence as to whether this has improved any imbalances in the market among the competing services, but it does indicate improvements in consumer protection.

The DSA has only been fully in effect since February 2024 and the DMA since March 2024, however for the very large platforms affected by these laws the European Commission is the responsible regulator. Based on the DSA, the Commission has already launched an investigation into TikTok related to the protection of minors and other issues, and it launched enforcement proceedings against X(Twitter) related to the dissemination of illegal content, deceptive design and insufficient data access. The Commission also launched DMA non-compliance investigations into Alphabet (Google), Meta and Apple on 25 March, of which Meta's relates to consumer choice over

[322] For detailed discussion of EU prominence rules see Ledger, M. (2023) Towards Coherent Rules on the Prominence of Media Content on Online Platforms and Digital Devices https://cerre.eu/publications/towards-coherent-rules-on-the-prominence-of-media-content-on-online-platforms-and-digital-services/

[323] Broughton Micova, S and Kostovksa, I. (2021) Chapter 2 - Video-Sharing Platforms in Study on the implementation of the new provisions in the revised audiovisual media services directive (AVMSD) https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=73303

profiling and ad-based services.[324] Though this shows a readiness to enforce the legislation, there may be freedom of expression concerns about the Commission taking a very heavy handed and content-driven approach to enforcing the DSA.

The EU's competencies may be restricted in the area of media regulation, but its policies toward the market for audiovisual media production and distribution have pushed the limits of those competencies. The EU market is large and far from failing, though still far behind the US.

The extent of the shift from linear and free-to-air to OTT services, both VOD and video-sharing platforms is evident, but varies across the Union. The EU Single Market has enabled some large conglomerates to develop that are now active across multiple Member State Markets and working together to compete better in the advertising market against the giants of OTT and online advertising.

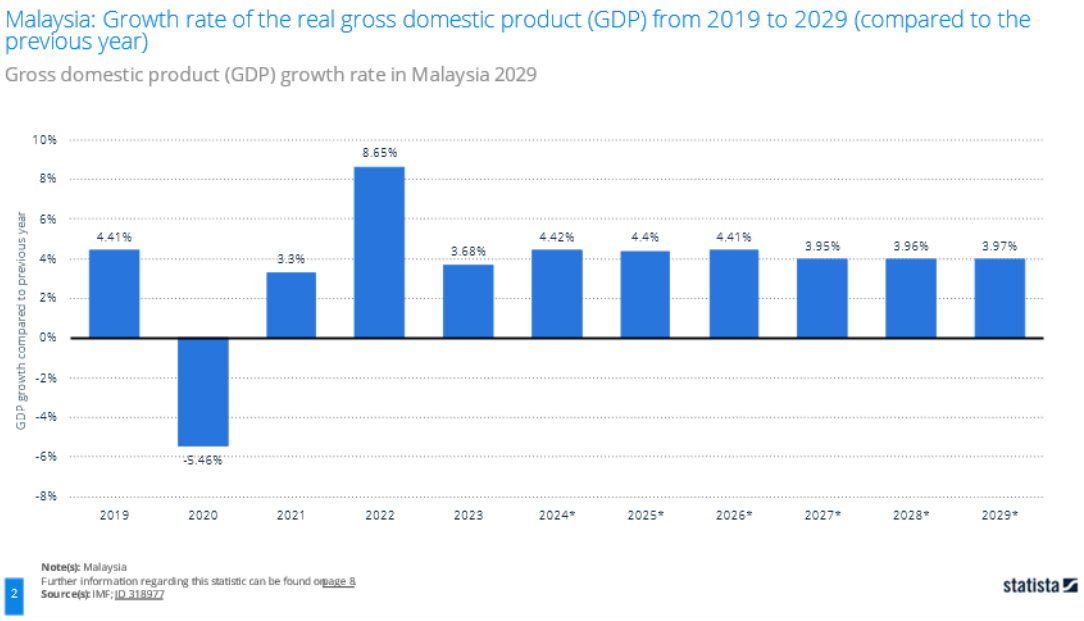
Shaped by the varied interests and pressures from the Member States, EU law has sought to enable free competition and most recently has focused on levelling the playing field between legacy audiovisual players and the newer, often global, players. The effects of many of these efforts is yet to be seen. Two apparent successes so far are the imposition of quotas for European Works on SVOD services and the farther reaching ban on the zero-rating arrangements that had mainly been benefiting the global OTT players.

[324] https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1689

3.8 Malaysia

3.8.1 Key economic Trends

Figure 3-54 Growth rate of the real gross domestic product (GDP) from 2019 to 2029



As of mid-2024, Malaysia is experiencing several key economic trends:

1) Economic Growth: Malaysia's economy is growing at a steady pace, driven by strong domestic demand, exports, and investments. The growth, which is projected to continue at around 4% is supported by recovery in the services sector, manufacturing, and increased private consumption.
2) Inflation: Inflation rates have been relatively moderate, although there are concerns about rising costs of living. Factors such as global supply chain disruptions, higher energy prices, and food prices are contributing to inflationary pressures.
3) Labour Market: The labour market in Malaysia is showing improvement with declining unemployment rates. However, challenges remain, including youth unemployment and underemployment. There is also a focus on improving labour productivity and skills development.
4) Monetary Policy: Bank Negara Malaysia (BNM) has maintained an accommodative monetary policy to support economic growth. Interest rates are kept low to encourage borrowing and investment, although there is vigilance regarding inflationary trends.
5) Trade and Exports: Malaysia's export sector remains strong, particularly in electronics, palm oil, and petroleum products. The country benefits from robust demand from key

trading partners like China, the United States, and the ASEAN region. However, global trade uncertainties and competition pose risks.

6) Digital Economy and Innovation: Malaysia is investing in its digital economy, with a focus on enhancing digital infrastructure, promoting e-commerce, and fostering innovation in technology sectors. This includes initiatives to support startups and boost digital skills among the workforce.
7) Green Energy Transition: Malaysia is working towards diversifying its energy mix and increasing the share of renewable energy. Investments in solar and hydropower projects are part of the strategy to reduce reliance on fossil fuels and address climate change.
8) Government Fiscal Policy: The Malaysian government is focused on fiscal consolidation while supporting economic recovery. Efforts include managing public debt, optimizing public spending, and implementing targeted stimulus measures to support vulnerable sectors and populations.
9) Infrastructure Development: Significant investments are being made in infrastructure projects, including transportation, housing, and public utilities. These projects aim to boost economic growth, create jobs, and improve living standards.
10) Tourism Recovery: The tourism sector, a significant part of Malaysia's economy, is recovering from the impact of the pandemic. Increased international and domestic tourism is contributing to economic growth, with efforts to promote Malaysia as a key tourist destination.
11) Social Policies and Inclusivity: There is a focus on social policies to address income inequality, improve healthcare and education, and ensure inclusive growth. Initiatives include social safety nets, affordable housing programs, and efforts to reduce poverty.

Summary

- Malaysia has already high levels of connectivity and in continuing to invest in affordable access.
- Free and PayTV Satellite and the DTT service are still widely used by Malaysian households. The providers of linear audiovisual media services also have OTT services, so the DTT package is also available through an app and the satellite PayTV services also do streaming.
- Malaysia is experiencing a surge in OTT video consumption due to the growing popularity of local streaming platforms with penetration of OTT video services at over 83% in 2024.

Malaysia's market gave rise to one of the region's major VOD services, Iflix, which is now owned by Tencent.

- Stringent decency rules and constraints on advertising on licensed audiovisual media services contribute to an uneven playing field in which unlicensed, particularly foreign services, such as global video-sharing platforms, have an advantage.
- A combination of direct investment from state-owned broadcasters, the Malaysian film funds, as well as language requirements on licensed services help support domestic content production. There is a solid and growing interest in Malaysian content across OTT and linear services.

3.8.2 Introduction

The Malaysian media market is characterised by the enduring importance of TV, especially PayTV and high levels of mobile penetration as well. Two major commercial TV channel owners, Astro and MediaPrima are also major content producers. OTT services are strong and growing in popularity, at least partly driven by the success of local VOD services. The providers of linear audiovisual media services also have OTT streaming and/or VoD services. Consumer connectivity, both in terms of access and connectivity has been a government priority for the last couple of years with 5G rollout and satellite options for rural areas having received support.

The Malaysian market players face competition from global and regional OTT services, particularly global video-sharing platforms, and VOD services, Netflix, Viu, and IQIYI.

The Malaysian market players have been adapting by operating across distribution platforms, for example Astro, which has the most popular PayTV service with satellite and IPTV options also has an OTT streaming service tailored to mobile, while MediaPrima also provides an OTT streaming service and even the DTT provider MYTV launched an OTT version in 2022 enabling free to air access to its 16 TV and 11 radio channels. These adaptations by the traditional broadcasting players and the success of Malaysia's home-grown OTT players such as Iflix and hybrid models such as SukeTV have been enabled by the country's high levels of mobile connectivity, the role of Telekom Malaysia, and the lack of restrictions on zero-rating. Government encouragement of micropayment systems linked to mobile phones has also helped support growth in domestic OTT services. Customers are able to pay directly from their mobile phones for services that rely on small payments and watch them on those same devices.

3.8.3 Market structure

As of 2022, linear television was still found to be holding strong in Malaysia with 79% of the public saying they watched any terrestrial channels and 60% having watched any of the Astro PayTV channels, while 72% had watched streaming.[325] News and live sports are important drivers for linear TV audiences. In 2022 over half the population was watching the news of MediaPrima's TV3 channel more than 3 times per week, and events such as the Men's Football World Cup garnering significant audiences for RTM.[326]

Malaysia's Television market is dominated by two main commercial players, Media Prima, whose official name is Sistem Televisyen Malaysia Berhad, and Astro TV. Media Prima's flagship channel TV3 is broadcast free to air on the DTT network and is part of cable, IPTV and satellite base packages. Media Prima also has three other linear channels acquired through multiple acquisitions over several years. TV3 is by far the most popular source of news, in particular.

Astro's family of channels are offered in its payTV services, which began as satellite services and have also included IPTV since 2013. Until 2017, Astro was the only licensed payTV services until 2017 and has five channels. Astro's 24 hour news channel, Astro Awani is the second most popular and the overall popularity of Astro's channels is likely behind Malaysia having the highest penetration of payTV in SouthEast Asia.

Malaysia also has state-run television channels. Radio Television Malaysia (RTM), which is run directly by the Ministry of Communications and Multimedia, operates TV1 and TV3. The Department for Islamic Development operates the Islamic channel, Alhijrah. All of These are also available on free-to-air DTT and in other packages.

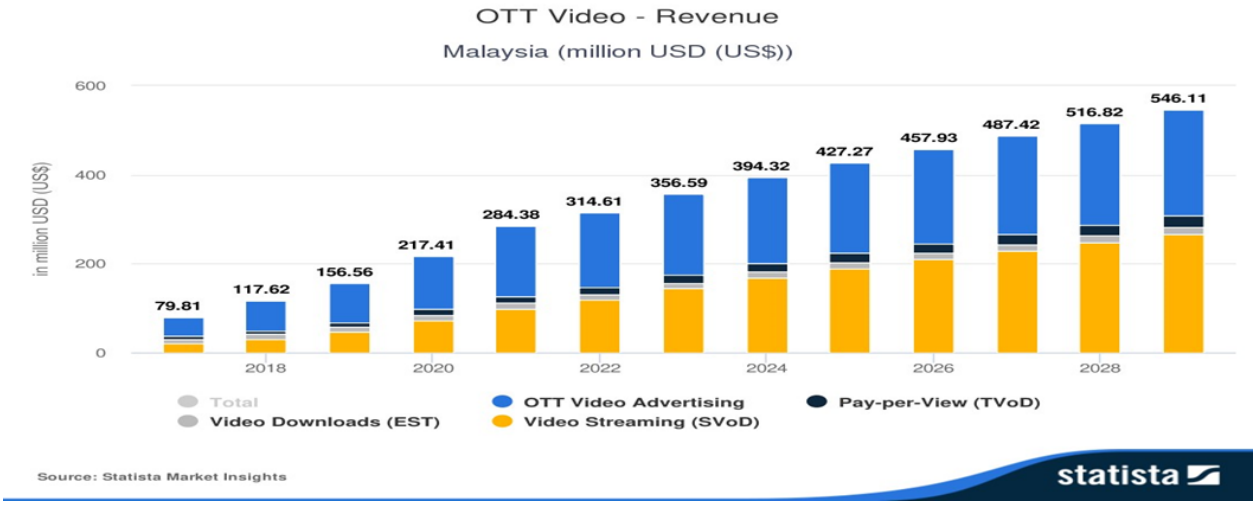
At the same time, OTT services offering a variety of VOD services are growing in popularity. The OTT Video market in Malaysia is projected to reach a revenue of US$394.32m in 2024, and then grow at an annual rate of 6.73% from 2024 to 2029.[327] Part of the reason Malaysia is experiencing a surge in OTT video consumption is due to the growing popularity of local streaming platforms, some of which are provided by traditional broadcasters.

[325] MCMC Industry Performance Report 2022, page 68

[326] MCMC Industry Performance Report 2022, page 68-69

[327] Statista 2024

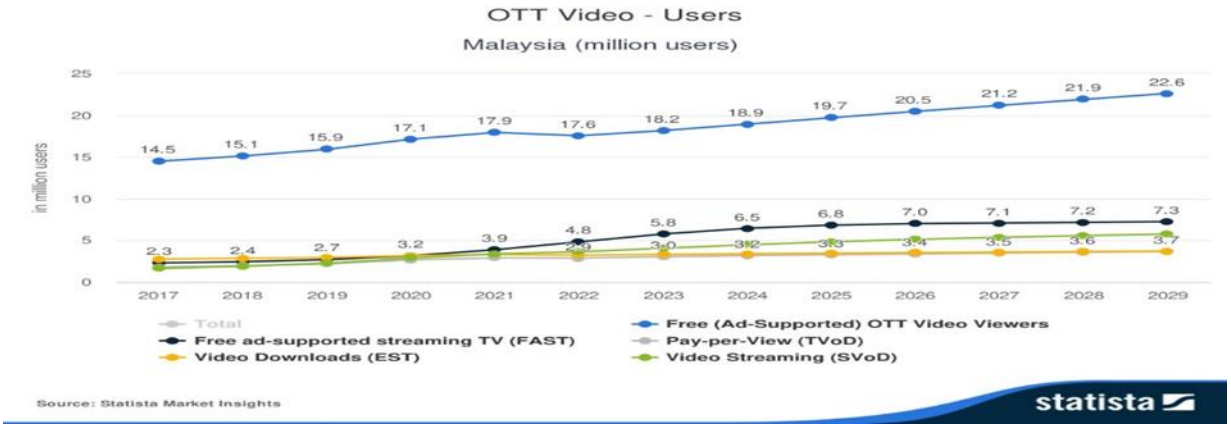
Figure 3-55 OTT Video Revenues Malaysia



As can be seen in Figure 3-55 above, the OTT market is largely split between SVOD and AVOD. The SVOD market is relatively pluralistic. Although Netflix holds the strongest position (33%), as of 2022 Malaysia's own Iflix had a 22% share and HongKong's Viu had 21%.[328]

The advertising market has largely recovered since the Covid-19 pandemic and is an important driver of success for Malaysian services. This effect can be seen in Figure 3-56 below, which shows that advertising supported OTT video services that are free to consumers, and may have zero-rating contracts with internet service providers, are growing more consistently than SVOD and TVOD services.

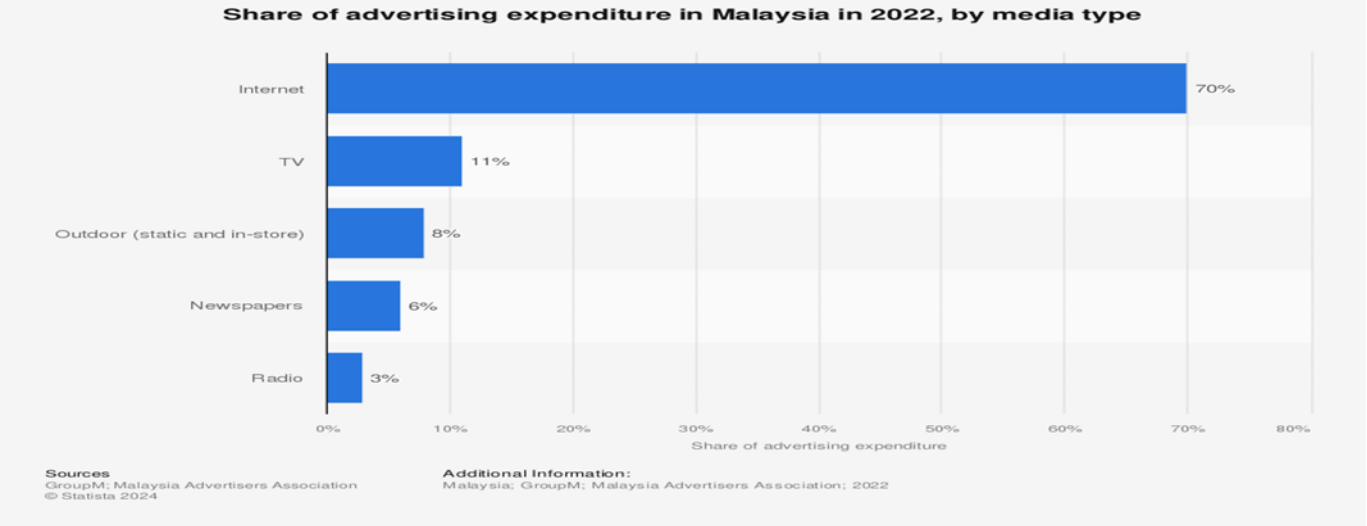
Figure 3-56 Numbers of users of OTT Video Services by type in Malaysia



[328] MCMC Industry Performance Report 2022, page 76

Linear television remains important for advertisers but is small compared to the expenditure on digital as can be seen in Figure 3-57 below.

Figure 3-57 Share of advertising expenditure by type in Malaysia 2022



Source: Malaysia Advertisers Association. (July 6, 2023). Share of advertising expenditure in Malaysia in 2022, by media type [Graph]. In Statista. Retrieved April 18, 2024, from

https://www.statista.com/statistics/1012759/advertising-expenditure-share-by-media-

With most of the linear services also present online with their own OTT services and a kind of hybrid distribution arrangement, the line between TV and digital is likely blurred. A new free to air service was launched in 2022. SukeTV, which is carried by MYTV on DTT and its mobile app as well as on YouTube and social media, specialises in shopping, entertainment and advertising launched in March 2022 and has already captured 7% share of the market.[329] As SukeTV is highly advertising focused, this might change the imbalance between online advertising spending and broadcast advertising spending somewhat, though it is too early to confirm any effects in the market.

Content production is dominated by MediaPrima, the state broadcaster RTM, and Astro, with MediaPrima being the main investor in domestic content. In recent years, transnational co-productions and partnerships with OTT players have facilitated productions that were successfully exported as well as contributing to domestic audiovisual production.[330] Malaysia also has at least

[329] SukeTV.com and Statista 2024

[330] MCMC Industry Performance Report 2022, page 74

6 independent production studios that produce Malaysian content and work on international productions and that are actively promoted by the government as partners for co-productions.[331]

Development Drivers

Astro and Media Prima have been the commercial drivers of the Malaysian market for decades and are the engines of the country's content production sector. Investment by government and state-owned enterprises, namely Telekom Malaysia have played a notable role in the expansion of delivery networks such as DTT and IPTV. The high level of broadband penetration has contributed to the take up of OTT services and domestic and foreign streaming services have been able to capitalise on agreements with internet service providers for zero-rating and service bundling.

3.8.4 Regulatory framework overview

The core of the regulatory framework is the 1998 Communications and Multimedia Act (CMA),[332] which governs the licensing of 'content application services.' The definition of content applications services (CAS) is such that anything carrying content on the internet, airwaves, cable or other electronic means can be considered in scope. This gives relative flexibility to the regulator, the Malaysian Communications and Multimedia Commission (MCMC). The Content Code,[333] which is maintained by a self-regulatory forum, governs the standards for licensed services and there is a separate regime of censorship governed by the Film Censorship Act of 2002.[334] Advertising standards are governed by the Advertising Standards Code, which is enforced by the self-regulatory body Advertising Standards Malaysia.[335]

3.8.4.1 Market competition

The advertising market is governed by a self-regulatory system that establishes a relatively level playing field across domestic players in terms of qualitative standards. However, there are other rules that puts licensed advertising-reliant services at somewhat of a disadvantage in relation

[331] https://filminmalaysia.com/local-industries/studios/

[332] MCMC is also responsible for the administration of the Postal Services Act 2012 and the Digital Signature Act 1997. MCMC also has some powers under the Strategic Trade Act 2010 which relate to the control the export of sensitive technology and materials in order to combat terrorism, nuclear proliferation, and the spread of weapons of mass destruction.

[333] https://contentforum.my/download-content-code/

[334] http://www.commonlii.org/my/legis/consol_act/fca2002173/

[335] https://asa.org.my/

to non-licensed, especially foreign, services. Licensed linear broadcast services must dedicate two minutes of every hour to government public service announcements within their limited advertising slots, which, given that advertising time per hour is regulated, significantly limits the amount of advertising inventory they can offer. They are further constrained by the Made in Malaysia (MIM) requirements that 70% of all advertising must be produced in Malaysia.[336] This makes advertising on other services more attractive to transnational advertisers who want to re-purpose content used in other markets.

One constraint on domestic services has been the strict decency requirements in Malaysia that are not applied to foreign OTT players. Domestic services are required to edit, sometimes significantly, films and programmes to remove content that violates the decency rules. There is currently some discussion about extending the rules to foreign services, but already compliance with the rules has been made part of the bundling or package arrangements that foreign OTT service have with the internet supplier or mobile operator.

Piracy was a major problem in Malaysia, that has been decreasing notably possibly due to a recent development that also have encouraged growth in TVOD. Micropayment options that ease payment of small amounts through phone bills has made it easier for consumers to make micropayments for discrete content and subscriptions. This was part of a government policy called the Malaysian Digital Master Plan that encouraged development in this direction and specifically encouraged technology for digital micropayments across many sectors.

3.8.4.2 Content and creative industry

Local production is stimulated by direct support to independent production, commissioning and direct investment by state-funded media, and indirectly by the language requirements placed on licensed services. The Ministry of Communications and Multimedia supports two institutions that fund and otherwise support local production, the National Film Development Fund (FINAS) and the Malaysian Digital Economy Corporation (MDEC). These institutions provide grants, distribution support and other business facilitation to local content producers. There has been a particular effort to promote transnational co-production, especially in the region. The country signed a co-

[336] https://www.finas.gov.my/en/services/licensing-application-of-mim-certificate/

production treaty with Australia in 2019 that went into force in 2021 and covers feature films as well as television series, documentaries and single episode programmes.[337]

There are not explicit quotas for local content, but the requirements for content in local languages stimulates some demand. There is also a growing natural demand for domestic content that has been attributed in part by changes in the education system in Malaysia which has emphasised local languages much more than in the past.

3.8.4.3 Protection of children

The protection of minors on content application services is covered by the Content Code and tied to (in)decency rules. The Content Code's provisions section 2 contain detailed rules on indecent, obscene, violent, offensive and menacing content that already make content on Malaysian services relatively free from content that in other countries would be considered harmful to minors.[338] In addition, the Code contains specific provisions further limiting any depictions of violence or what it calls "imitable acts", which include activities that would be dangerous if done by young audiences.

There are also strict provisions in the Advertising Code regarding advertising to minors and the use of minors in advertising. However, there are not yet laws in place to address online harms, which the government has publicly announced as a top priority. In September 2023, the MCMC announced it had been in discussions with major online platforms, providers of video-sharing and social media, and was prioritising addressing online harms, including the protection of minors, in the near future while looking to the EU and Australia for examples.[339]

3.8.4.4 Public (state) Media - RTM

Malaysia has a state-owned broadcaster, Radio Television Malaysia (RTM) that is managed directly by the Ministry of Communications and Multimedia. Its budget comes partially from the state and partially from advertising, however it has been reported that income from advertising goes into the state budget[340]. This is possible because RTM is not functionally independent from the government and is even co-located with the Ministry. RTM has 6 television channels and many

[337] https://www.filminmalaysia.com/incentives/co-production-treaty/

[338] https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Content-Code-2022.pdf

[339] https://insightplus.bakermckenzie.com/bm/technology-media-telecommunications_1/malaysia-mcmc-addressing-online-harm-imbalanced-media-and-ai

[340] https://statemediamonitor.com/2023/10/radio-television-malaysia-rtm/

more radio channels as well as its own OTT streaming service. RTM plays an important role still for the broadcast of major events, in particular sports, and in the production of drama.

There is also a government owned Islamic channel, TV Alhijrah, that also funded by the state budget. TV Alhijrah is operated by a functionally separate corporation, but this corporation is run by the Department of Islamic Development. RTM and TV Alhijrah represent the biggest state intervention in the media market, though figures for the annual budgets for either of the services was not available.

3.8.4.5 Infrastructure and distribution

There has been a clear policy focus on expanding digital infrastructure in Malaysia. The digital switchover in terrestrial broadcasting was supported by significant government investment into decoders for low income households. Even though satellite (pay and free) and IPTV are widely used, the DTT provider MYTV has been able to maintain itself, very likely thanks to this government support. MYTV has since been able to branch into a mobile app and was the platform chosen for the launch of SukeTV mentioned above.

The relatively dominant position of the state-owned Telekom Malaysia in IPTV provision through its Unifi brand gives it a strong negotiating position in relation to OTT services. There are no net neutrality rules to prevent zero-rating contracts or transactional traffic management. This allows OTT services to enter into agreements with mobile or fixed internet providers to ensure their services are not counted against consumers' data limits. Such agreements also can include joint advertising and promotion with the internet provider and/or default positions on interfaces or pre-installation. As of 2022, 38% of consumers reported getting their streaming services bundled with their home broadband or mobile contracts ad opposed to purchasing them separately.[341]

The Malaysian Internet Exchange was set up in 2006 on the initiative of MCMC as a way of maintaining sovereignty.[342] It is a not-for-profit institution to which internet service providers belong and supports them with cybersecurity and backbone internet issues. According to MyIX demand for bandwidth in the country increased five-fold between 2020, when it began tracking, and 2023.[343] Most recently the government is working with Starlink satellite technology to ensure connectivity

[341] MCMC Industry Performance Report 2022, page 77

[342] https://myix.my/

[343] https://www.digitalnewsasia.com/digital-economy/myix-reports-record-surge-malaysian-internet-bandwidth-demand

in rural areas. It is also encouraging the rollout of 5G technology for mobile communication and internet to help meet the increased demand.

3.8.4.6 Effectiveness and sustainability

Government intervention in the market is high in Malaysia, from the state-owned broadcasters and censorship to the direct investments in 5G, Satellite internet, and DTT. The government support for connectivity and infrastructure seem to have helped develop a healthy consumer market for OTT services, which has benefited local players in the market as well as foreign services.

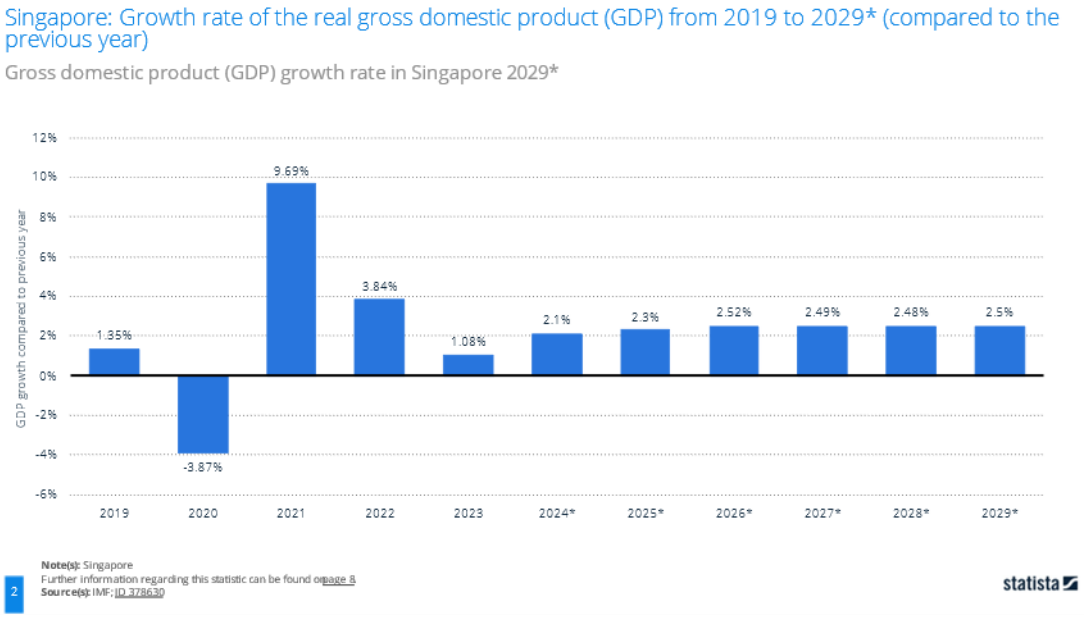
Those FTA and PayTV services on DTT and Satellite that are the engines of Malaysian content production remain highly popular, but importantly have not been limited in any way in expanding into OTT services themselves. The Malaysian regulatory framework, including that of the state-owned media, does not inhibit them and the lack of net neutrality rules has made it possible for them to arrange preferential access to consumers through network providers.

There is evidence that policy initiatives related to domestic languages in education and digitalisation of payments and micropayments have also been helpful to encouraging consumer interest in and take-up of Malaysian content and services. Nevertheless, there are some issues that make the competition between Malaysian audiovisual media and foreign OTT players uneven. Firstly, the conservative decency rules and content standards that are imposed on licensed Malaysian services mean that the same programmes and films may be differently delivered to audiences. Secondly, the Malaysian production requirements for advertising and the fact that allocated advertising time on linear services is further limited by obligatory government announcements contribute to the shift of advertising expenditure to OTT and other online advertising options.

3.9 Additional note: Singapore

Key economic Trends

Figure 3-58 Growth rate of the real gross domestic product (GDP) from 2019 to 2029



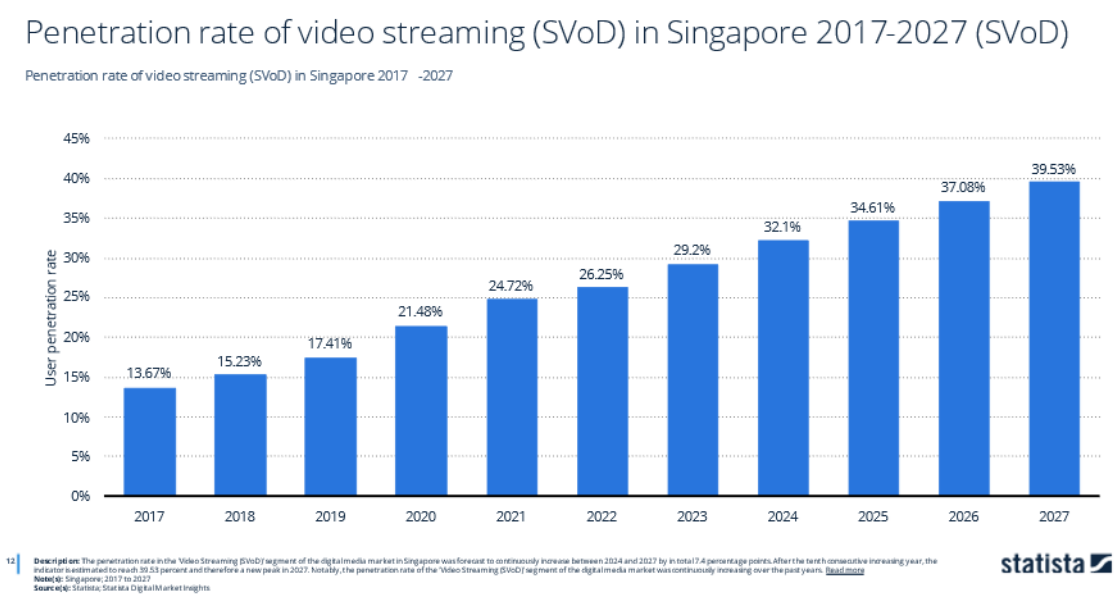
General Economic Trends As of mid-2024, Singapore is experiencing several key economic developments

1) **Robust Economic Growth**: Singapore's economy is growing at a steady pace, driven by strong performance in the manufacturing, finance, and technology sectors. The country has recovered well from the COVID-19 pandemic, with increased consumer spending and business investments. Following the Covid shock the long term projected trend is around 3% GDP growth.
2) **Inflation**: Inflation in Singapore has been moderate but noticeable, primarily due to global supply chain disruptions and higher energy prices. The government is closely monitoring inflation to ensure it remains within manageable levels.
3) **Labour Market**: The labour market is strong, with low unemployment rates and a high demand for skilled labour. However, there are challenges such as wage growth not keeping pace with inflation and a need for continual upskilling of the workforce to meet the demands of a rapidly evolving economy.
4) **Monetary Policy**: The Monetary Authority of Singapore (MAS) continues to use the exchange rate as the primary tool for monetary policy, maintaining a modest and gradual appreciation of the Singapore dollar to manage inflation and support economic growth.

5) **Digital Economy and Innovation**: Singapore is heavily investing in its digital economy, focusing on areas like artificial intelligence, fintech, and cybersecurity. The government promotes digital transformation across all sectors, aiming to make Singapore a global tech hub.
6) **Green Energy Transition**: There is a significant push towards sustainability and green energy. Singapore is investing in renewable energy sources, such as solar power, and implementing policies to reduce carbon emissions and promote energy efficiency.
7) **Trade and Exports**: As a global trade hub, Singapore continues to benefit from strong trade relations and a robust export sector. Key exports include electronics, chemicals, and pharmaceuticals. However, global trade tensions and supply chain disruptions pose risks.
8) **Financial Services**: Singapore remains a leading financial centre in Asia, with growth in banking, insurance, and asset management. The country is also positioning itself as a leader in sustainable finance and green bonds.
9) **Government Fiscal Policy**: The government maintains a prudent fiscal policy, balancing between supporting economic growth and ensuring long-term fiscal sustainability. Significant investments are made in infrastructure, healthcare, and education, with a focus on enhancing social safety nets.
10) **Tourism and Hospitality**: The tourism sector is recovering well from the pandemic, with increasing international arrivals and robust domestic tourism. Efforts are underway to promote Singapore as a premier destination for business and leisure travel.
11) **Ageing Population**: Singapore faces challenges related to its ageing population, with low birth rates impacting labour force participation and increasing healthcare costs. The government is implementing policies to encourage higher birth rates, support older workers, and enhance healthcare services.

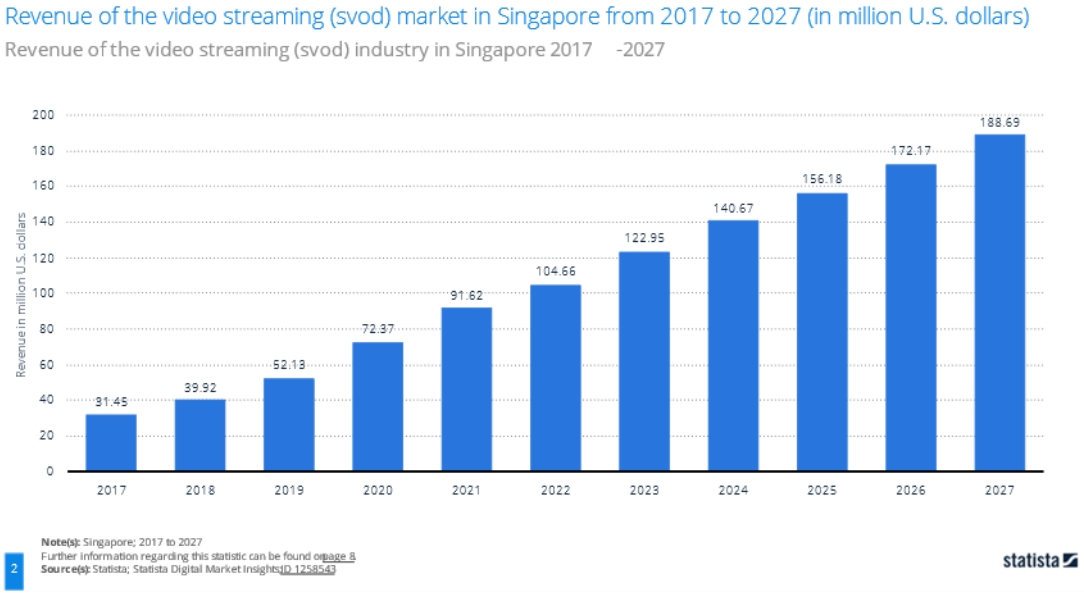
As a densely populated wealthy country with a highly developed broadband infrastructure, Singapore is well placed to generate strong growth in the OTT video sector. However, penetration rate remains relatively low at around one third of households currently. Public service (linear) broadcasting still has a strong tradition.

Figure 3-59 Penetration rate of video streaming (SVoD) in Singapore 2017 - 2027



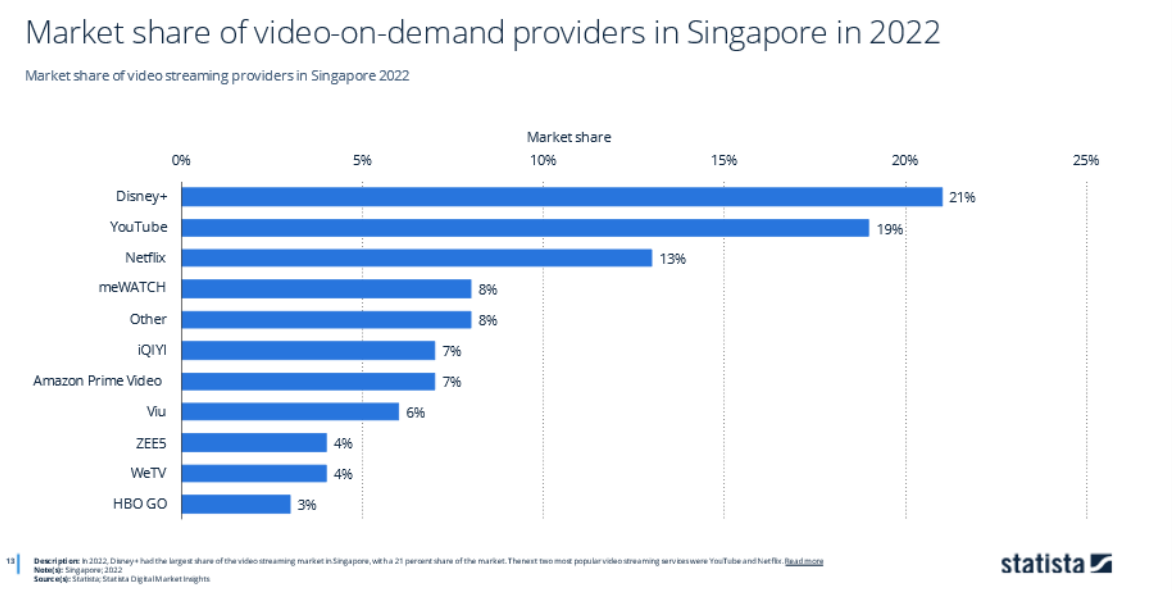
The video stream revenues are forecast to rise around 30% 2024- 2027.

Figure 3-60 Revenue of the video streaming (SVoD) market in Singapore from 2017 to 2027



Singapore's major streaming providers are as follows, with the USA leading.

Figure 3-61 Market share of VoD providers in Singapore in 2022



In comparison to the other countries studied, domestic SVOD is relatively under developed. Instead, Disney+ is particularly popular in Singapore (so typically a children's market) as is YouTube.

Singapore's Approach to Regulation of OTT and online safety.

According to Singapore's Infocomm Media Development Authority, IMDA adopts a co-regulatory approach with the OTT and VOID industry and does not pre-vet programmes of VOD and OTT service providers. VOD and OTT service providers are subjected to the Content Code for Over-the-Top, Video-on-Demand and Niche Services (638.48KB). These include due impartiality rules for "programmes dealing with public policy", and require service providers to provide secular programming and exercise due caution and discretion with regard to racial, ethnic and religious divisions of Singaporean society. In comparison with other countries' approaches to OTT VOD content, Singapore's approach is therefore more interventionist: whilst the code claims to be constitutionally co-regulatory, and claims to be based on a principles based approach rather than exhaustive definitions and standards, the code is issued and reviewed by the regulator the IMDA and sanctions are available under relevant legislation (The Broadcasting Act).

Protection from Online Falsehoods and Manipulation Act (POFMA).

Singapore, a state that has achieved high levels of economic growth and distributed the benefits of it to a higher proportion of the population to other countries studied, passed a controversial 'fake news law' in 2021. The legislation process has been controversial because the

small country, which had been criticised for an autocratic approach to the media, gave a key role to government ministers in determining what constitutes mis and dis information.

According to Singaporean legal analysis[344]:

"POFMA prohibits the communication of false statements of fact in Singapore. Under POFMA, a "false statement of fact" is defined as a false or misleading statement which a reasonable person would consider to be a representation of fact. A Minister of any government agency may assert, in his or her judgement, that a particular statement is a falsehood. However, it is the court that will make the final decision on whether a statement is false or not, after assessing all the evidence put forward by the parties. In particular, under section 7 of the POFMA, a person must not commit any acts, whether in or outside of Singapore, to communicate a statement which that person knows or has reason to believe that it is a falsehood, and the communication of that falsehood in Singapore is likely to: Be prejudicial to Singapore's security; Be prejudicial to public health, public safety, public tranquillity or public finances; Be prejudicial to the friendly relations of Singapore with other countries; Influence the outcome of a presidential election, general election, by-election or referendum; Incite feelings of enmity, hatred or ill-will between different groups of persons; or Diminish public confidence in the government. Individuals in breach of section 7 will be liable to a fine up to S$50,000 and/or a term of imprisonment up to 5 years. For non-individuals (e.g. online media platforms run by tech companies), a fine of up to $S500,000 will be imposed. Alternatively, where a fake online account or bot is used to spread such falsehoods, offenders who are individuals will be liable to a fine up to S$100,000 and/or a term of imprisonment up to 10 years. For non-individuals, a fine up to S$1 million will be imposed."

These policy innovations in Singapore with regard to so-called 'fake news' and this information have been widely criticised for failing to meet international standards as regards freedom of expression and media freedom. Ironically, given that its aim is to regulate online speech that would "diminish public confidence in the government" the reaction to the law around the world has severely undermined the global reputation of the Government of Singapore.

[344] https://singaporelegaladvice.com/law-articles/singapore-fake-news-protection-online-falsehoods-manipulation/

3.10 Lessons from overseas markets

3.10.1 Market structure

There are commonalities and divergences among the seven national markets studied. One universal feature is that there has been a rapid and unidirectional shift from legacy broadcasting services to OTT VOD and video-sharing platforms. This is visible in various measures of audience behaviour, and a range of revenue indicators, including overall revenue, advertising revenue, pay TV subscriptions, and average revenue per user. In all the markets studied this shift of audience was approaching a tipping point, whereby audience share and revenue for OTT VOD services will exceed those for traditional television services if it doesn't already. Advertising expenditures have massively shifted to OTT services, though efforts to compete with targeted (addressable) and programmatic options of their own can be seen among major broadcasters in several markets.

In this context, the addition of various new business models for subscription and on- demand video represents an extension of competition and consumer choice, but there are signals that a future in which more audiovisual consumption is concentrated in the hands of a small number of platforms could create competition questions at various stages in the value chain: in advertising market, in the production sector, and in the market for consumer subscriptions. In this context a number of questions of policy and regulation arise, which may require future reforms in order to promote competition and the viewer interest.

The new technologies offer big new opportunities and threats to domestic creative and public service sectors. On one hand global distribution platforms have invested heavily in a wide range of global markets and offer easy and rapid global distribution opportunities, and increased production budgets. On the other hand, global OTT platforms with huge libraries of high-quality content, localised and subtitled at rapidly decreasing cost also threaten traditional media that are still the main investors in that domestic production sector. In all markets studied, domestic content tended to be consumed less on the global platforms, though it is difficult to identify the mechanism which explains this effect; it may simply be that consumers seeking domestic content navigate via traditional television or domestic OTT on demand services, or that the larger production budgets correlates with higher perceived quality of OTT drama.

As well as trade and industrial policy concerns with the balance of trade in audio-visual services, a number of public policy and social policy concerns arise. Overlapping with trade concerns are traditional concerns with the importance of a sustainable news and information sector in a democracy, as well as the cultural and educational benefits of domestic production particularly

in drama. A wide range of public policy concerns related to traditional "public service" ideas, as legacy public service systems all updated for the age of on demand. Resolving these issues requires new thinking not only in relation to competition, industrial policy and trade, but in relation to such issues as child protection and the prominence of public interest content.

Sources of Finance

In most of the countries we studied, the sources of finance ultimately funding AV production were undergoing a major structural shift. Historically, TV revenues in all the countries studied were based overwhelmingly on linear advertising models, together with a significant revenue stream of license fees or public finance for public service media. During the early phase of the rise of OTT VOD services, particularly in higher income countries such as Korea, Australia France and the UK, which were the earlier adopters, subscriptions provided the majority of VOD income during this initial phase. During a later phase, and particularly in lower income countries, advertising funding is increasingly providing a greater proportion of revenue.

The share of people who use ad-supported video on demand (ADVOD) services in Japan for example increased from 47.1% to 59% between 2016 and 2023. When there are pressures on consumer budgets, consumers are preferring cheaper subscriptions for VOD providers even if these come with 6-12 minutes of ads per hour.[345] There are strong incentives for VOD providers to offer a combination of SVOD and AVOD. In the current and future models, addressable advertising, and various forms of interactive data gathering will create valuable sources of new data and advertising revenue for those able to control the platform.

Business model evolution. globally

Traditional business models have quickly evolved in response to the challenge of OTT video.

- Commercial TV providers have launched OTT on demand services either leveraging their own brands and promotion opportunities or in collaboration with other legacy TV services
- Public service providers have launched their own streamers and collaborated with others
- Companies have (in some cases successfully) lobbied for regulated prominence of these services.

[345] https://www2.deloitte.com/us/en/insights/industry/technology/technology-media-and-telecom-predictions/2023/avod-trends.html

- Producer/commissioners of content have sought more co-production and foreign/global investment, including in collaboration with the global streamers in order to increase quality to meet stiffer global competition in content.
- The entry of new OTT players has resulted in more overall revenue and therefore potential for investment in creative cultural AV production.

Online Safety Acts are in place in Australia (2021) and the UK (2023). The Australian legislation repealed schedules 5 and 7 of the Broadcasting Services Act which had since 1992 given the Australian communications regulator ACMA powers to regulate internet content in addition to its traditional broadcasting role. In the UK, a similar scheme was not legislated until 2023. The Online Safety Act empowers Ofcom to develop codes and standards to ensure that online platforms and other intermediaries do more to ensure that their products and services are safe, particularly for children. Both countries now operate a scheme that combines codes and standards developed by the platforms in intermediaries, with regulatory oversight to ensure that these codes are monitored and enforced.

In the case of the UK, video on demand providers are subject to both the existing code on Video Sharing Platforms, and also the Online Safety Act. Where there is already a code in place, this tends to have more stringent standards than the OSA and these are not removed by the OSA. In the UK for instance video sharing platforms are subject to a specific Ofcom code and Ofcom monitoring to ensure appropriate labelling and age verification.[346] In time Ofcom predicts that the OSA will replace the previously existing VOD regime with a general online safety regime. In May 2024 Ofcom announced a consultation on the codes of conduct that would protect children online. [347] The codes reflected the definitions in the legislation that distinguished whether a service was a user to user or a search service.

National streaming platform. None of the markets studies has a 'national streaming platform' as such if that is intended as a wholly publicly or government owned streaming platform for national audio-visual content from more than one broadcaster. There are multiple examples of platforms that are owned and maintained by public service broadcasters, or consortia that include such broadcasters or other publicly owned entities. Public service broadcasters in France, Australia, the United Kingdom and Japan – countries in which the public service media, PSM constitutes one

[346] https://www.ofcom.org.uk/__data/assets/pdf_file/0020/273224/vsp-child-safety-report.pdf

[347] https://www.ofcom.org.uk/__data/assets/pdf_file/0028/284491/proposed-codes-at-a-glance.pdf

of the most important and largest television providers, have provided catch-up and on-demand services which have enabled them to maintain their audience share and reach even as audiences have migrated onto on-demand platforms.

Interesting new models for video on demand have emerged in this space. Some of these are directed at achieving more effective audience reach and share for public service media whilst others how directed at increasing revenues – as the streamers move from streaming subscriptions (SVOD) to advertising supported VOD (AVOD). Brit box for example is a collaboration between UK broadcasters seeking to access global audiences for UK content, whether that is commissioned by the BBC, channel four or five, or any other broadcaster. In general we are witnessing in these countries where there are significant public service players that the PSM as independent bodies have taken the initiative in developing an on-demand offering, and in many cases collaborate between public service media. As an example ARTE is a public service broadcaster which is co-owned between German legacy public service broadcasters ARD and ZDF, together with legacy French PSM that offers its programmes over multiple platforms including smart TV and smartphone apps, a website, podcasts and traditional broadcast.

New business models are emerging such as Freely discussed elsewhere in this report, which is a collaboration between legacy UK broadcasters BBC, ITV, 4 and 5 and as an OTT service requires only Wi-Fi. Another new model comes from Malaysia where the operator of the DTT network, MYTV launched a national streaming service with an app that offers access to the channels available on its linear service. MYTV is owned by a private company, Altel Holdings, but enjoyed significant support from the government to encourage the take up of DTT by the population and ensure coverage. The endurance of MYTV is evidenced by the fact that it recently had a new linear channel added to its offering. While not technically a national public streaming service, MYTV's streaming app, which launched in 2022, offers the state-owned channels as well as some others both live and on demand.

In summary:

- The current shift to OTT is not temporary or Covid-related but universal
- Shift of audiences to OTT services disseminating user-generated content is also universal. (the popularity of YouTube, TikTok, Twitch etc unferlines this) This is leading to shifts in digital and interactive advertising revenues to these services, and so away from broadcasters and professional content producers. The advertising density on shared video services is the highest of all OTT channels

- Increasingly targeted and programmatic advertising options on advertising funded OTT (FAST – Free Advertising Supported TV) services is also pulling ad spend away from broadcasting and other media
- Early dominance of global OTTs is universal, but in all markets there are significant domestic players in particular BVOD (Broadcaster Video on Demand).
- Domestic content less consumed on OTT services
- Many markets have used policy to protect domestic production

3.10.2 Development Drivers

Consumer desire for convenience, choice and quality and the audiovisual media services sector is powerful and has driven rapid consumer uptake of on demand services offering access to quality domestic and international audiovisual content. These drivers include:-

- The shift to VOD observed is driven by a range of variables including consumer behaviour, and especially preferences for choice of content with instant gratification, with convenience and content quality, and seems uni-directional
- Rejection of advertising drove some of the consumer preferences in early rollout of OTT VOD but a significant proportion of users are prepared to receive ads for lower or free subscription .
- The content quality differential between domestic TV and international OTT VOD is a key driver. Where there is a greater differential streamers tend to be more successful.
- Cultural diversity and language have historically acted as a 'cordon sanitaire' limiting global influence in some broadcasting markets. This seems to be declining in importance.
- Infrastructure development is a necessary condition for new OTT services
- OTT VOD growth has been driven by quality drama rather than other genres.
- Younger consumers as earlier adopters and a cohort effect
- Social media and short video compete with long form VOD and broadcast
- Advertising innovation driving value of data rich targeted media. (ARPU for ad funded VOD services higher).
- Likely consolidation of streaming markets with loss making domestic enterprises?

3.10.3 Regulation and Policy

The objectives of public policy and regulation differ between cases in emphasis, but generally oscillate between:-

- Industry policy objectives such as improving the balance of payments in audiovisual sectors;
- Protecting domestic competition and consumer interests;
- Cultural and social policy objectives such as protecting cultural production, democratic resilience and education.

In recent years, policymakers have been increasingly interested in:-

- Protecting digital sovereignty
- Economic resilience and national security in the digital sphere
- But these concerns are less pronounced in policy on OTT for VOD platforms, which so far, have had less attention than social and search platforms for regulators, except in Korea.

Policy objectives

These include:-

- Industrial policy goals – with protection of content production sector and encouragement of national VOD providers as well as moving traditional TV broadcasters into VOD diversifications to protect them and their legacy in viewing audiences, cultures and balanced news obligations
- Public service obligations – with requirements for educational, informational, and other public interest content to be made available and possibly also prominent.
- Cultural policy – with ensuring the production and distribution of content that reflects the national culture(s) and language(s), as well as possibly promoted the culture internally and externally to audiences
- Export promotion – with efforts to promote the productions and services to other markets and engage in transnational collaborations

Regulatory instruments

These include:-

- Competition law (including antitrust, state aids, mergers).
- Licensing, (licensing and authorisation by regulator of broadcasting and telecommunications providers)
- Auctions (particularly of electromagnetic spectrum).
- Subsidies, (direct and indirect subsidies of public goods including public service media).

- Taxation, (fiscal social policy through exemptions for public and merit goods, hypothecation and 'sin' taxes).
- Export promotion, through trade policy, missions, promotions, prizes and clustering.
- Quotas, (to promote domestic production for cultural and economic benefit).
- Intellectual property protection (including through trade agreements, international cooperation and enforcement programmes) and
- Co-regulation safety codes such as internet safety codes.

The basis of regulatory regimes

In terms of general application of regime, streamers tend to be an intermediate category between licensed broadcasters and telecommunications services. Streamers tend to be seen as broadcasters rather than conduits and thus do not benefit from general liability exemptions where they exist.

New platform competition regulation is not generally applied to OTT video sector (yet). So there remains an asymmetry between regulated legacy broadcasting and OTT.

But there are proposals for reforms which could reduce this. Across the countries examined these consist of:-

- Public interest and consumer protection, with privacy of personal data and including - child protection issues, data theft, identity theft, financial fraud
- Domestic content promotion is delivered by subsidies and by export promotion, rather than quotas, but quotas are discussed

Discoverability and prominence rules for public service broadcasts and public information

- a new area of intervention in a growing numbers of markets such as the UK and France.9.4 Toolkits of policy and regulation vary by country but five main elements are necessary

A list of key tools generally should include the following main elements for which tools found in the cases examined were found. For each tool listed the details can be found in the case chapters for the country or countries listed as examples for the tool.

1 Industrial Policy

- Demand side management– content quotas for national, European, independent works on broadcast and VOD services. The aim is to ensure national employment and exports.

France has used this highly successfully, firstly for its cinema films and productions studios with its national archives (eg le Cinematheque) and now for TV video properties with local and regional financing for local production.

- Supply side – National film and audiovisual funds (and Creative Europe, the EU's fund); tax incentives; investment in training; investment obligations on VOD services (such as a requirement to spend a percentage on domestic production or a tax on revenues to be paid to national film funds as in France); mechanisms for ensure compensation from platforms for news producers (France, UK, Australia - press publishers rights and the Australian Bargaining Code)
- Clusters – creative industries clusters through various incentives that support creative industries in particular geographic areas (Korea).
- Intense investment in training and education (France, Korea) in the techniques of creative video and cinema production and post-production from Scenarios to VFX.

2 Public service with public obligations

Key elements of such policies tend to include:-

- Funding of public service media
- Public service obligations on commercial media (linked to licences)
- Prominence rules are increasingly important and not restricted to publicly funded services (France, Australia).
- New distribution offerings on fixed broadband infrastructure (BBC/Freely/ UK) that can challenge the commercial streaming services in the market with their public service media and messaging

3 Competition and consumer policy

The major uses of competition and consumer law are:-

- Levelling the playing field in advertising market with equivalent rules for all advertising supported services (the EU's AMSD, France's advertising transparency laws)
- Consumer protection across linear and on-demand (through AVMSD/NRAs in EU and through self/co-regulation in Japan & S.Korea)
- Limitations on the use of targeting in advertising that protects consumers and affects the attractiveness of advertising sold by online services such as video-sharing platforms like YouTube and social media (as in the Digital Services Act in the EU)

- Addressing the information asymmetry between the services that collect large amounts of data on their users and in the advertising trade and the services that have less ability to collect audience data and have insight into the advertising trade-related data (as in the Digital Markets Act in the EU)
- Investigations of targeting and fraud in online algorithms and user interaction patterns (what the FCC terms 'dark patterns') are increasing to protect adults and children.

4 Trade policy

Trade policy tools include:

- Trade agreements that protect domestic production from imports or establish co-production relationships (such as between Malaysia and Australia)
- Supporting the production and distribution of film as public diplomacy etc. – 'soft power' capabilities (Korea, France)
- Export promotion through distribution support via film funds, the work of commercial attachès at embassies, or specific programmes to encourage the sale of productions abroad (UK's BBC world; EU's Creative Europe distribution support

5 Network policies

Countries manage their spectrum and connectivity in the following ways:

- Organising the DTT network and providing public funding to encourage take up of DTT by households (Malaysia)
- Allocating spectrum to favour consumer connectivity, making more available for broadband internet provision ()
- Strategic Internet carriage policy towards zero-rating and net neutrality rules that encourage development of domestic players, which differed across the cases with Malaysia's market encouraged by wide allowance of zero-rating and the EU's characterised by net neutrality and restrictions on zero-rating.
- Access obligations as part of regulatory supervision of national broadband infrastructures to balance oligopolistic behaviour in national assets - perhaps formation of wholesale markets in broadband capacity.

Changes to policies and regulations for traditional television in the context of technological change.[348]

In the countries studied, the tendency has been to leave unchanged the licensing obligations and other regulation for traditional television despite the migration of content and audiences to on OTT VOD. This is particularly the case where broadcast licensing is managed, in line with international standards, by an independent agency with a clear statutory basis. In such countries, such as France, the UK and Australia, legacy broadcast licensing structures are still in place. In Australia the relevant legislation which sets out the definitions pertaining to broadcast licensing were set out in the (much amended) Broadcasting Services Act 1992. These set out content requirements. Licensing requirements for operation of a transmitter are set out in the Radiocommunications Act, also of 1992. In countries such as Australia, the content standards conditions applying to broadcasting have tended to change only after amendment to legislation but in others such as the UK, the regulator (Ofcom) has more often been prepared to negotiate away expensive to meet license conditions. In relation to community radio and also for local TV for example Ofcom has a procedure for licensees to negotiate away their key commitments both between and during licence periods.

In general, it is also the case that the full range of content obligations that apply to traditional television have not been extended to new services such as OTT on-demand. However the process of converging these two regimes has begun, led by the EU which has extended it's Audio-visual media services directive which applies a standard for a baseline of broadcasting regulation across the EU, which is applied to VOD and 'TV-like' services.

The asymmetry between legacy broadcast and new on demand regulatory regimes is due to a lack of clarity about the fundamental justifications for the content obligations: license conditions have historically been justified by spectrum scarcity, being applied traditionally in return for access to use the spectrum often in the context of a lack of alternative uses, or for non-market prices. As a result of this asymmetry between licensing obligations between licensed broadcast services and OTT on demand services, there may emerge a situation in which there is a lack, or a perceived lack

[348] See in particular: https://www.acma.gov.au/broadcasting-content-licences

https://www.ofcom.org.uk/siteassets/resources/documents/manage-your-licence/community-radio/forms-and-guidance/kc-changes-guidance.pdf

https://www.ofcom.org.uk/siteassets/resources/documents/manage-your-licence/tv/local-tv/newcastle/newcastle-l-dtps-licence-granted-22-july-2014-pdf.pdf.pdf

of an 'even playing field' between services that are subject to broadcasting regulation and those that are not.

Similar ongoing debates apply in relation both to 'must have' and must carry rules. Must have rules, also known as 'anti-siphoning' (in Australia) or 'listed events' (in the UK and the EU) rules prescribe a list of programming (mostly sporting events, but also including major royal occasions in the UK) that should remain available on free to air television rather than being 'siphoned' onto pay television platforms that are no longer available universally. This is a major intervention justified mainly on cultural grounds, which has restricted the ability of new pay TV platforms to create competitive advantage in the transition to digital, but arguably contributed to social cohesion and cultural continuity. In the context of rapid shift to OTT platforms the question arises whether definitions in existing rules need to be updated to ensure they prevent Pay OTT services 'siphoning' key listed events to accelerate audience migration away from free TV. In Australia new legislation was introduced in 2023 to ensure that the rules also applied to new on demand platforms.

Must carry rules are another major intervention that are intended to ensure that a degree of universality of access to certain core audiovisual services is maintained. Most EU countries for example have rules to ensure that some television channels are available on a range of 'new' television platforms such as cable and satellite services. In the United Kingdom, pay TV operators such as BskyB are obliged to carry a suite of core TV channels including BBC services and channels 1-5 as a condition of their licence. In the EU, these rules are subject to review every 5 years to ensure that they do not constitute an unreasonable burden on network operators. In the context of widespread migration to OTT platforms definitions should be reviewed to ensure that some services, including those that parliament considers should be available universally, should continue to be carried. In practice, the question of must carry in a smart tv/ OTT environment is linked to the question of prominence of such services.

3.10.4 Conclusions and Summary – the shift to OTT brings challenges in content and media policy

1) **We are witnessing a universal shift away from free to air (FTA) television though there is variation across the cases:-**
   - Much of the audience time, revenue, ARPU and reported use lost by FTA television has been gained by OTT Video services, but the ecology of digital entertainment and information is not a zero-sum game. The rise of new distribution routes has radically

expanded the revenue available in the sector and its overall size, and the costs and benefits of these developments have been unevenly distributed.

- The development of new on demand models for AV content has in some countries been seen as a potential problem for domestic production, consumption of local content, and other traditional public interest objectives in broadcasting. Consumers, particularly younger consumers have migrated to short form video in all countries where content and hardware is widely available. The take up of new OTT services has been driven by convenience of timing more than by mobility and content quality has been a key driver of subscription OTT in particular.

2) The relationship between the shift to OTT and content production sectors is complex.

On one hand the injection of new investment in the sector has generally been good for production volumes, budgets and quality in the countries studied. On the other, traditional concerns with 'local' or 'national' cultural production arise in a new context in which the boundaries between local and national content are increasingly blurred. Audiovisual content is largely produced for a global audience, through commissioning processes in which the global streamers control larger budgets than legacy television producers. In this context, even the most successful local broadcasters such as the BBC are no longer able to produce content of sufficient quality for their home market alone, and rely on co-production with US or global partners in order to command sufficient budgets. The commissioning power of global streamers is thus increasingly important, and local broadcasters need their cooperation in commissioning, and also in distributing the long tail of their content.

Whilst recent experience may suggest that OTT video is the inevitable future for all AV industries, it is impossible to predict new models and services beyond the end of the decade. The speed of innovation has increased and product cycles shortened. It may be the case that new converged genres and services with different technological affordances that might demand more bandwidth, mobility, or social group participation – for example in new services involving the convergence of gaming, social media and high-definition mobile services. These may drive the next wave of consumer demand, and also impact infrastructure and hardware demand. Just as the rollout of super high speed FTTH was the necessary infrastructure for OTT VOD, the rollout of 5G and mobile VR and AR services may enable a migration of user time, attention and revenue away from OTT VOD onto new

services. Big shifts in user behaviour do take longer periods of time to permeate a whole population, but younger audiences familiar with gaming platforms will be keen users of new services.

3) There are major challenges for media policy in the short and medium term

In the short to medium-term, policy innovations may be necessary to mitigate emerging problems with content production and its quality - these include high quality drama, funding news and information and in regulating OTT with mounting abusive content.

The problems arising are:

- Collapsing revenue model for high quality domestic production especially drama due to shrinking advertising revenues and reductions in public media budgets. Investment can be encouraged through trade and export promotion, investment, training, clustering, quotas, prominence rules and subsidy but governments are not artists and creatives must be free to create.
- Crisis of revenue and funding models for news and information. Lack of independent sustainable revenue tends to lead to media capture and compromise. Incentives for investment in sustainable news such as tax breaks, subsidies, prominence, and IP and competition privileges should be implemented in ways that do not empower government control or breach international standards which would compromise market access.

Social policy objectives of governments seeking new regulation of OTT video in particular related to positive objectives such as education, information and culture, and negative concerns such as disinformation and child protection. The division of labour between a domestic statutory licensing scheme (broadcasting) and voluntary ethical codes (journalism) should be revisited.

Possibility of applying this market promotion and regulation to Thailand

Commitment to a long-term skills, infrastructure and export promotion strategy for the Audiovisual media industries requires high level and consistent political support across media, industrial and export promotion. Successful long term ‘soft power’ strategy requires governments to commit to a ‘hands off’ approach to content production, even in government subsidised and public service sectors. It may be necessary to consider production quotas for both domestic

television and for OTT streamers as the natural barrier to imports may weaken when the quality dif effects of its ageingferential between domestic and international (OTT) content widens and as younger audiences in particular familiarise themselves quickly with new offerings. Government support for the TV broadcast industry following the approach taken by France and Korea (and perhaps in the future under a new government in the UK) for a shared streaming platform for the TV broadcasters, in order to gather a new advertising revenue stream could be applied in Thailand. Other potential revenue sources through advertising could be to introduce the 5G broadband channel, so simulcasting to upgraded 5G handsets is possible, to carry the linear TV channels for free. Further research on existing level of training and standards of skills in digital production and creative sectors would be necessary in order to assess feasibility of more aggressive export promotion strategy.

Chapter 4 Three scenarios of the future Thai audiovisual sector

4.1 Introduction to the scenarios

4.1.1 Introducing the method: Scenario Construction for Forecasting (SCF)

Here, as requested, we give a brief introduction the method used that we have applied in many projects for over 30 years.

Foundations of the scenarios presented here

Scenarios are stories about the future. They are often based on understanding the initial conditions, the economic and other drivers and the plausible outcomes of a projection from those.

OBJECTIVES OF THE SCENARIO BASED METHOD

To carry out anticipatory analysis with a socio-economic basis for specific cases of:-

- Market development with trends and characteristics
- Policy and regulation at national, regional and global levels
- Services – usage, development, trends
- Social trends and demands
- Technologies – developments, take-up and impacts
- National and international strategies in economic and political terms
- Business models
- Potential user profiles and usage patterns
- Supplier and operator strategies

THE APPROACH

Our approach is based on models or simulations of the future using scenario formulation – we employ a methodology (‘Scenario Construction for Forecasting’) built up over some thirty years of studies – it is a pragmatic method for short and long-term forecasting of trends, such as demand, using scenarios. This approach has been applied to micro-economic problems (such as a person,

or a company) as well as to macro-economics at a national or global level and to intermediate levels (a technology, a sector, an industry).

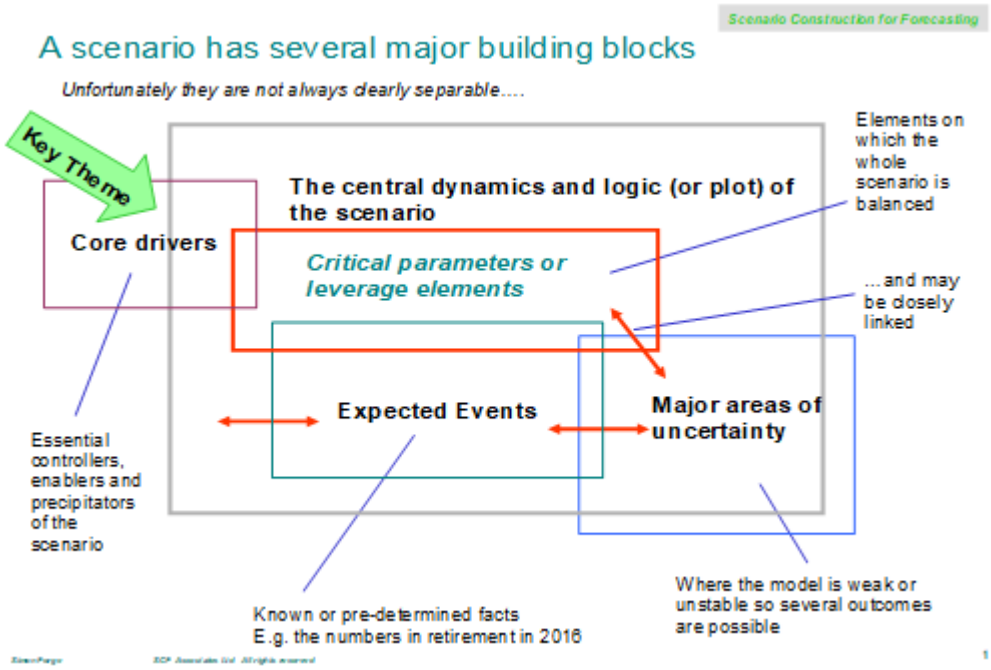
Generally, scenarios should deal with the chaos and complexity of the real world to bring useful future views of events, attitudes, surroundings, new forces and players. Scenarios offer a small set of contrasting **stories about the future** involving all elements, as naturally as possible, to construct daily life at some or all of the three levels of personal, corporate and national/global environments. Note that they are not predictions or precise in any way.

Scenarios should be as convincing, yet as startling, as possible because the expected is often not reality. With scenarios, we combine two worlds - a world of a future perception, usually centred on a theme or significant change - and the world of plain facts.

But they are still **stories about the future** – the mistake is to take them for verifiable reality, especially for forecasts which are further out (beyond two or three years). Successful users of scenarios use them to imagine their potential hazards, as well as their possible gain of advantages in some way (inward investment, more efficient services that leverage the economy) or introduction of hazards, for instance cyber-attacks in new ways on critical infrastructure, using weaknesses in accepted major protocols. This was used, for instance, very briefly, for the European Court of Audit, examining 5G networks.

Overall, the aim is to build several pictures of a specific domain of interest in which hypotheses can be set to obtain a range of future views. Each scenario must be noticeably and fundamentally different in some explicit way to be valuable. Real forces of change have to be identified – and may be widespread and long term - for instance, increasing youth in the developing world or the rise of the NICs (Newly industrialised countries) to govern the world economy, progressively towards OECD levels of GDP/head, while OECD populations are aging fast and some continue to feel the effects of increasing long-term unemployment. Usually we construct two to four scenarios, possibly more. Each one is built up from several blocks:-

Figure 4-1 Major building blocks of scenario



The method has been used since around 1993, with various enhancements and updates to produce global prospective views, ranging from five years up to twenty five years. It is based on a mix of traditional scenario methods which have been continually refined, to produce a more formalised approach with certain additional aspects. It has been employed for various sizes of project, up to quite large studies (teams of six to twelve workers, with a study duration of six to twenty four months).

The SCF method has been taught as part of a methodology for futures planning for the long-term strategy unit of a telecommunications operator in Europe. It has also been used as a part of university courses at post-doctoral, doctoral and undergraduate levels in Chalmers University of Technology. It has been combined with Delphi style surveys. The Scenarios are built from a series of linked stages with initial conditions, assumptions, assertions, drivers, hypotheses and finally plots.

The underlying approach has been tested by the strength and accuracy of future views from earlier studies performed with it, which now have proving times of ten to six years. So far, certain key hypotheses from these forecasts have proven largely correct, giving us confidence in its use, even when including some disappointments, which are always instructive in themselves. start by collecting the initial conditions in the Thai AV market that set the scene. The method was taken up easily at the August knowledge transfer seminar by NBTC staff.

4.1.2 Gathering initial conditions to form the basis of the scenarios for this study

The Initial Conditions across all the scenarios:-

- The global economy, despite wars and instability problems is generally expanding by investing overseas although there are major volatile centres in the region, Taiwan, China and Hong Kong, plus North Korea. and as ever, the Middle East, as well as the Ukraine.
- There is a general sustainability move towards a lower carbon emissions economy still to be completely accepted – and so unsuccessful in the large, so far. This will, in the longer term, perhaps reduce major climatic events and possibly the transition and to lower energy use will calm excessive pricing in energy markets, driving global economic expansion. as it reduces inflation.
- The ASEAN region has the highest growth rate globally with its 700Mn population. This is a key factor in world trade, both for production as a replacement for China, and as a centre of consumer sales.
- However Thailand in comparison with the rest of ASEAN may see its GDP/head reduce over the next decade and with that, its rural poor suffer more. This indicates protection of low cost audiovisual services access must be expanded. should be protected. Currently its GDP is fairly flat, around 2 -3 %.
- Financial conditions for Thais – are fairly stable post pandemic for Thai national and regional economy in terms of per capita GDP has declined since 2014. Thai GDP and is less than other ASEAN members (Malaysia 4.4%, Vietnam 6%, Indonesia 5%,[349]). So far this year, the revived tourism boom has not boosted the Thai stock market.
- Globalisation of manufacturing slowing as 'on shoring' proceeds but also redirections of supply chains from China benefit ASEAN states, as assembly and manufacturing centres, especially with moves next 10 years into electric vehicles as (local) battery production expands in ASEAN. Thailand is profiting from this 'friends as supplier' move, with signature of an EV production centre including batteries with Chinses EV maker BYD[350].
- Thailand is profiting from its manufacturing sector to build a more skilled workforce from a largely rural and farming community that is still a major economic contributor (rice, cash crops, etc). To support this transition, Thailand has several highly active university

[349] The Economist, The world ahead 2024

[350] Financial Times, LEX, (2024) Thailand's tourism industry is doing little to boost its stock marker, 17 JULY 2024

centres of research and learning with business, technical and social research faculties expanding currently. It is slowly creating a wider based, well-educated middle class.

- However, Thailand has a large inequality gap, with its rural areas hosting 79% of its poor which are classed as representing under 10% of the net population[351], but the politics are complex and are holding back inward investment[352], especially relations between the central bank and a government looking for bank rate cuts for industry stimulation. Overall National economy, with inward investment, could have positive outlook with government seeking calm economic expansion, based on its manufacturing sector.
- A possible constraint on development is that Thailand has one of the fastest-aging populations globally[353], posing a challenge to future growth. That is also most important when age dictates audiovisual genres, as well as the move to online services over fibre optic streaming and away from over the air broadcast and with its more convenient viewing modes (linear/ non-linear) and audience attention span – over an hour vs less than 90 seconds in younger viewers.
- For Thailand, global warming can provoke extreme weather conditions and so unpredictable interruptions of economic growth – with floods, drought, typhoons, wild fires, tsunamis, etc.
- Thai disposable income – again age related – is generally far lower than the USA or the EU but PPP does expand this considerably
- Location of Thai population is uneven– with slight majority in urban or suburban but with near 50% still in provincial rural and in remoter regions
- Despite International crises, a relative calm in is the normal situation in the ASEAN region, with a few areas in conflict such as Myanmar and a possible Philippines threat from China.

4.1.3 The Drivers Across all scenarios

In each scenario, the determining social and global trends and forces as well as specific ecosystem components of the AV value chain should be considered:-

[351] Financial Times, LEX 06 May 2024

[352] Financial Times, LEX, (2024)) Thailand's tourism industry, ibid, 17 July 2024

[353] Financial Times, LEX, (2024)) Thailand's tourism industry, ibid, 17 July 2024

- The audiovisual market in Thailand is growing. The television segment is expected to grow at a CAGR of 7.5% over 2022 – 2026 (post COVID)[354].
- Disposable income of Thai consumers sets limits on take-up rates of the more expensive OTT channels (unless they are FAST–based – that is Free adverting supported TV) – both urban and rural – average Thai GDP/head is US$8200, PPP,US$23,470 [The Economist, The World in 2024] –with a population of 72 million for GDP of 0.59TN$, with total percentage of population under the national poverty line being 6.8% [World Bank, 2020] and is increasing. The majority of those in poverty (4.9 Mn) are the rural poor (3.9Mn).
- Audiences are served by the various media services – for DTT, geosatellite TV, cable TV (CATV) and for what is termed IPTV – which be over-the-top (OTT) video services or an older technology of serving video over pre-fibre (copper twisted pair or coax with protocols being quite specific such as xDSL – digital subscriber line - for delivery of Internet protocol, IP, packets).
- The take-up of new viewing technologies is not just for the improvements in signal quality and presentation but also is driven by viewer choice of content that comes with the interactivity given by Internet access, to control the programmes presented on demand. This is a general trend globally and has led to the rise of major USA streamers as well those from China, South Korea, Japan etc.
- While Foreign Direct Investment (FDI) is needed for the Thai creative media sector, the "Broadcasting Act B.E. 2551 (2008)", Sections 13 and 15, give detailed qualifications and restrictions for applicants for commercial broadcasting service licences. These are designed to ensure that those responsible for broadcasting services in Thailand are stable, financially secure, and most significantly controlled by Thai nationals, to maintain national sovereignty over public communication channels. The question of balance to encourage both FDI and national sovereignty is evident and is being reviewed currently. Maintaining national sovereignty over Public broadcasting is certainly seen in the countries surveyed, especially the UK, Japan and France. In countries such as Saudi Arabia the public broadcaster is majority government owned[355].

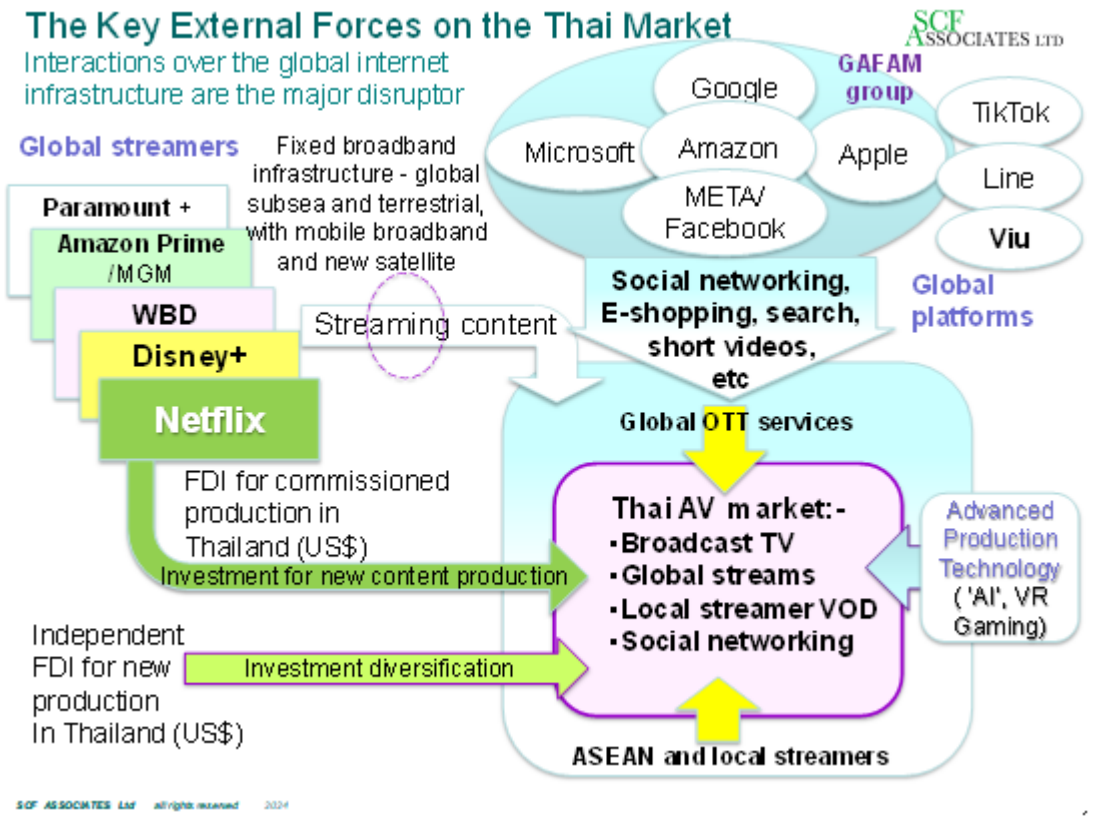
[354] 6WResearch,(updated 2024) https://www.6wresearch.com/indusry-report/thailand-television-market-2020-2026

[355] Cornish, C.,Omran, AA (2024), MBC squares up to Netflix on Middle East streaming, Financial Times, 08 July

- Looking ahead, it can thus be predicted that the adoption of streaming will be led by more affluent households. This creates the risk that poorer households may find themselves still viewing, on DTT or via a geo-stationary satellite, a linear channel whose finances have been undermined by its loss of revenue to streamers.
- Considering the Thai media industry structure, this follows the typical structure of national media production, but with a comparatively light infrastructure, and downstream distribution, that is, light compared to the major developed markets, such as South Korea, the UK, France and Japan. The Thai media production side consists of multiple diverse sources, such as in-house studios attached to the TV broadcasters, producing news and other programs, and a growing number of independents, with no monopoly in production.
- Other major players are the outsourced production companies, with individual creators, and there are of course foreign program rights holders for shared production agreements. The trend here is to outsource production as ad revenue shrinks and close in-house production studios. Thus co-producing operations are present, as shown below with content providers involving various arrangements, for time-sharing with and without rental fees and revenue sharing based on agreed proportions, or time-sharing in advertisements. Also present are the TV shopping programs, leasing airtime. While acquisition of program rights from local and international producers is current.
- Digital advertising is increasing, by 14% in 2023 over 2022 and by 8% so far in 2024 over 2023[356] This implies the revenue streams for advertising, by broadcasters might expand.
- The international streamers, especially Netflix are also present in the Thai markets. In 2023, Netflix was the most popular video streaming service in Thailand with 35% subscriber share. Local provider TrueID was second at 21%, followed by Disney+ Hotstar (13%), Viu (11%), WeTV (11%), iQIYI (10%), and AIS Play (7%).

[356] Digital Advertising Association of Thailand:2023: 29,283 ; 25,729, 2022; 2024 so far 31,568, all in MN THB
https://www.twfdigital.com/blog/wp-content/uploads/2024/03/image-2.png

Figure 4-2 External forces on the Thai AV market in summary



Source SCF Associates Ltd

- Turning to digital TV broadcasters and production ownership in Thailand, this has increasingly being acquired by general, non-media business groups as the new shareowners. It denotes a trend towards non-media/media cross-ownership, driven by direct economic synergies. The original TV media shareholders are selling shares to large investment groups, who seek portfolio diversification. That follows findings by Eli Noam (2018[357]). Furthermore, there is also an imbalance observed in ownership categories between public service broadcasting and commercial broadcasting in Thailand.
- Note that for the digital TV business in Thailand, the NBTC has officially approved remedial conditions for digital TV businesses and compensation for licensees that decide to exit the sector[358]. This has reduced the number of digital TV channels from 22 to 15.

[357] Noam, E., (2018), https://business.columbia.edu/sites/default/files-efs/citation_file_upload/Beyond-the-Mogul-From-media-conglomerates-to-portfolio-media.pdf

[358] https://www.bangkokpost.com/business/general/1701864/bright-tv-20-sets-channel-shutdown-for-aug-16

- Diversification of media ownership has increased the involvement of non-media business groups in acquiring shares of digital TV businesses, so a broader range of media types, perspectives and interests are entering. This heralds a potential shift in content. Non-media business groups entering the media sector may open types of content to a broader range, possibly influenced by growth of the VOD streaming market, as Netflix notes[359]. Economic synergies may drive these groups to prioritize content that aligns with their other business interests, especially if they have accords or ownership in streaming media, that might alter the Thai media landscape.
- More specifically, there could be Impacts on sector competition: the entry of large investment groups seeking portfolio diversification could impact competition within the sector. As ever, consolidation of ownership of production and distribution among a few key players may lead to less competition, potentially affecting content diversity and quality.
- This can hold consequences for Public Service Broadcasting: The imbalance in ownership categories between public service broadcasting and commercial broadcasting could have implications for media plurality and diversity of voices. That would influence the type of content promoted and the extent to which diverse perspectives are represented in the media. This would have significant regulatory considerations: regulators will need to reassess existing regulations and policies governing media ownership to address the changing dynamics in the media landscape. This could involve evaluating the impact of non-media business groups' involvement in media ownership and ensuring that regulations promote media diversity and independence. The new initiatives in this area, outlined above as proposals for new regulation could be used in this area.
- Regulatory Considerations: as NBTC has begun to propose, audiovisual media regulators may need to reassess existing regulations and policies governing media ownership to address the changing dynamics in the media landscape. This could involve evaluating the impact of non-media business groups' involvement in media ownership and ensuring that regulations maintain and promote media diversity and independence.

[359] Thomas, D.(2024*), If you make a show for everyone, you make it for no one*, Financial Times 15 July 2024, interview with Netflixu Chef Content Officer, Bela Bajatia

- The Thai AV sector has the same difficulties which DTT/ geosatellite broadcasters in nearly every country have had over the past decade, during which their number has fallen despite various measures to reduce the decline, while data projections show a continuing decline, due to streaming services entering the market on the back of the broadband networks rollout.
- Thailand is not alone in facing this issue of protecting viewers from harmful content, and the review of developments in other AV sectors of eight international markets indicates what has been done elsewhere, especially for viewers of these legacy channels,.
- Whilst the intersection of issues related to consumer protection, competition, privacy and content policy has been much debated in relation to online search and social media, these debates have less often dealt directly with similar issues that emerge in relation to audiovisual content and the transition of broadcast TV to OTT services. This is now a major subject for regulation in most countries; in the UK for instance OFCOM has recently recruited over 300 moderators to scrutinise all forms of online services for harmful false and fraudulent online content across all platforms[360], to enforce the UK Online Safety Act.
- Thus for all the scenarios, the main revenue streams are : firstly advertising, by the advertising industry and its clients, especially the digital advertising market in Thailand, and secondly OTT subscriptions for streaming, also pay-per-view, PPV – and for the GAFAM platforms – collection and auctioning of personal details of the users of their platforms – with their exact geographic location in real time, likely disposable income, images, gender, communicating friends and family, products and services preferences, time on line, time on each service and on each platform, willingness to purchase, payment and credit card details, etc. Data broking and consumer profiling with and without use of cookies – these can be the major revenues for the GAFAM global platforms.
- Digital literacy nationally – high in urban, lower for rural older citizens, also less educated.

[360] Criddle, C.,(2024) Ofcom poached Big tech staff in push to enforce online curbs, Financial Times, 09Jan

- Regulation – a) of the global players b) of the national industry. This implies that the forces externally especially from the global platforms but also from the Hollywood streamers, and including the global platforms should be regulated to assure that Thai taxes are not lost, standards of content are maintained and the local content production is of the agreed standards for quality of content with no social harms, accuracy and reliability (no fake news) and the same content standards apply to Thai produced content.
- Evolution of trends in preferences for AV media genres, styles and consumption modes is expanding, especially with more choice through OTT channels
- Political trends – set by which group in which region?
- Demographic trends eg the global teenager vs the aging majority (Japan, China, Thailand)
- The major stable content genre that will always expand is kids – which is a) dependent on suitable content and b) price dependent
- Arrival of Thai OTT platforms nationally and ASEAN-wide - if a level playing field can be created for internal consumption
- Expanding the Thai production industry for exports - with the global OTT categories that sell – Major dramas and series; Children's (sub-categories); Teens (sub-categories); Newscasts and verified news channels (multi-lingual – English, Spanish, Chinese, Hindi); LiveSport/ Events
- Entering new target markets for Thai content – Latin America, Africa, ME, China
- Growth of Thai infrastructure for streaming hubs will be a key requirement for inbound streaming and exports - with links into ASEAN and global subsea networks /data centre web hubs – links to EU and Pacific coasts – LAC and USA
- Arrival of new infrastructure for delivery channels - eg the LEO constellations – and their ownership issues and opportunities (possible own investment in an ASEAN consortium or an existing one.)
- Frequency-based satellite TV channel delivery is being challenged as 5G cellular MNOs wish to have access to the C-band (3.4 – 4.2 GHz), as used on geosatellite systems. The question is whether the geosatellites and their millions of viewers' transponders will need to change as many Geosatellite systems may use the higher Ku (12-18 GHz) and Ka (27-40 GHz) as well as the K-band (18-27 GHz) bands. The FCC in the USA has cleared 280 MHZ of C-band, plus a 20MHz guard band, for 5G mobile. Some of the USA

Geosatellite operators such as SES have just launched 5 satellites by March 2023 with the new FCC C-Band proposals.

4.1.4 There are some key regulatory initiatives, now under way by the NBTC361 in 2024

Here we add the notice on new drivers, and various relevant additional regulatory initiatives that are now being reviewed within the NBTC:-

The new NBTC initiatives, July 2024

The rapid growth of internet broadcasting, commonly referred to as Over-the-top (OTT) services, has necessitated a comprehensive regulatory framework to ensure a level playing field, protect consumer rights, and promotes a vibrant digital ecosystem. Thus, for Thailand, the National Broadcasting and Telecommunications Commission (NBTC) is spearheading efforts to establish regulatory regime for OTT services.

1. Draft Notification on Audio and Video Broadcasting Services over the Internet:

To address the evolving landscape of internet broadcasting and align with international best practices, the NBTC has drafted a Notification outlining the guidelines for notifying audio and video broadcasting services over the internet. This aims to foster a competitive environment, address content-related concerns, combat copyright infringement, and streamline fee and tax collection. The draft Notification is currently undergoing review and will be presented to the NBTC board for approval.

2. Review of Legal Framework:

Recognizing the transformative impact of technology on broadcasting, the NBTC is conducting a thorough review of the **legal framework** governing radio, television, and telecommunications services. This review aims to identify and address any gaps or inconsistencies in the existing regulations to ensure they are aligned with current technological advancements. Specifically, to comprehensively address OTT services within the broader communication landscape, the NBTC is incorporating relevant provisions into the **draft Communications Act**. This integration will ensure that OTT services are subject to appropriate regulatory oversight, fostering a cohesive and well-structured legal framework for the entire communications sector.

3. Draft Notification for Supporting Broadcasting Programs Beneficial to Society,

[361] Source: NBTC, Audio and Video Broadcasting Services studies, July 2024

A new addition for a vibrant digital ecosystem in broadcasting by support for development of high quality broadcast media content.

These NBTC initiatives are important but will require a) completion of the contents of these guidelines b) acceptance by NBTC, and c) implementation with recruitment and training of at least 3 new teams measures

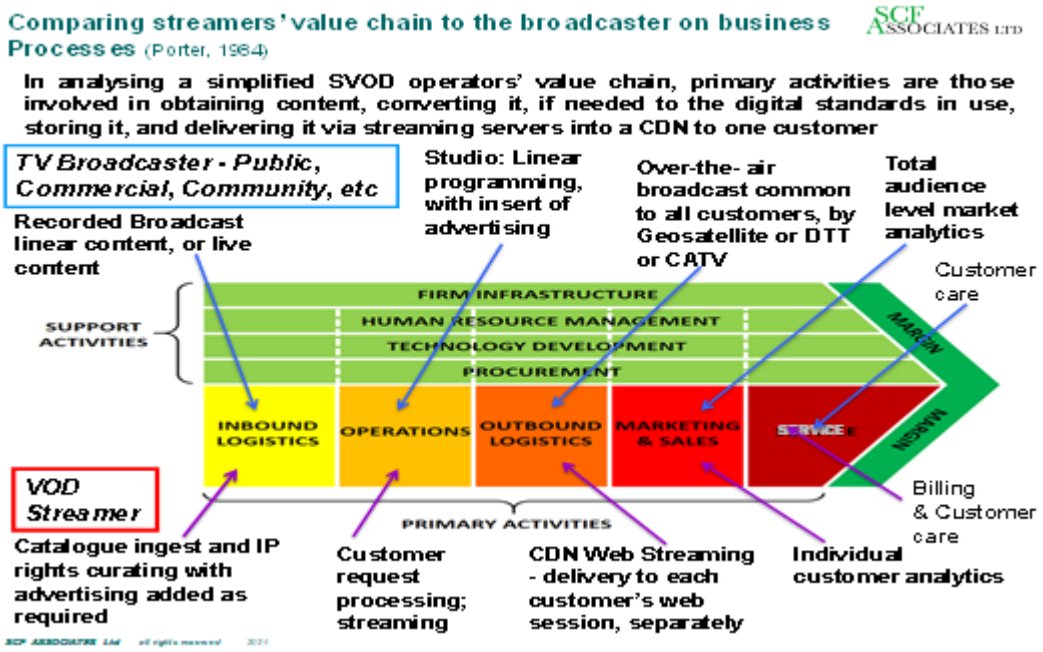
From the above it is evident that there may be changes in the near future which will depend for their impact **not only** on the quality of the regulation in terms of its scope and focus but on the detection and enforcement resources for infringements.

These will require far more funding than previous regulatory measures, with detection, surveillance and moderation by content teams. For instance, Ofcom in the UK recruited over 300 moderators in late 2023.

4.1.5 The business models of NBTC licensees show the operational profiles with value chain

As part of understanding the focus of the scenarios between market forces, technologies and audiences, a first step is perhaps to compare the streaming VOD provider with the TV Broadcasters, using their value chains.

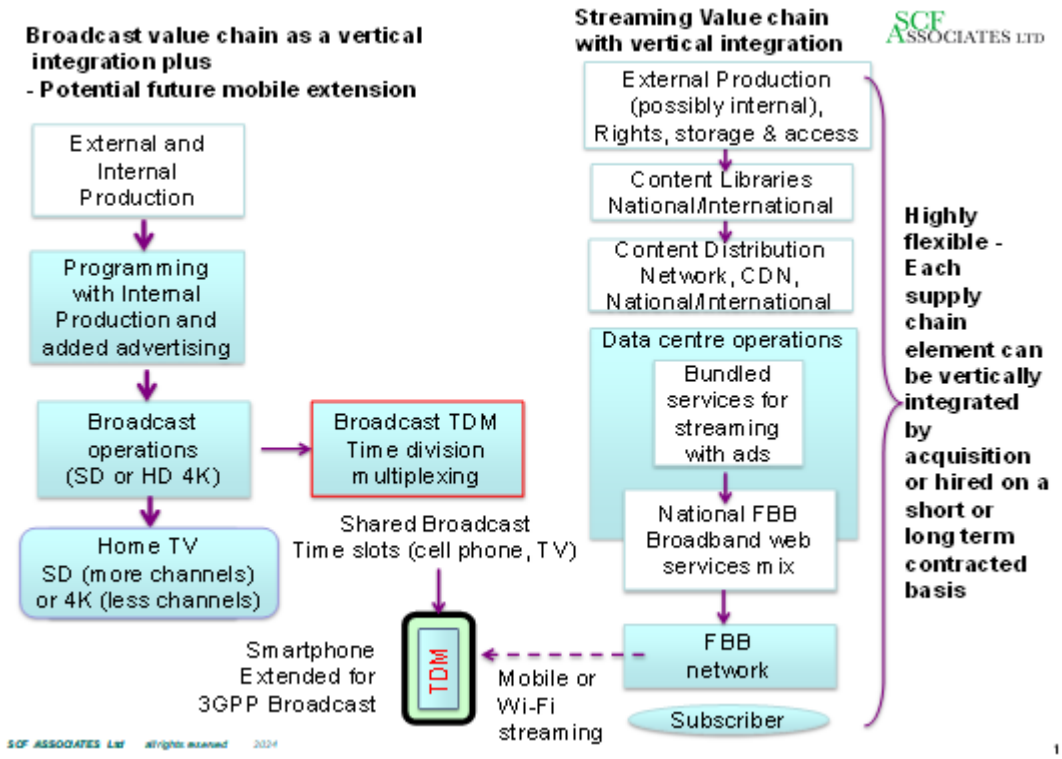
Figure 4-3 Simplified Value chain: for a TV broadcaster vs VOD streamer



Source: SCF Associates Ltd

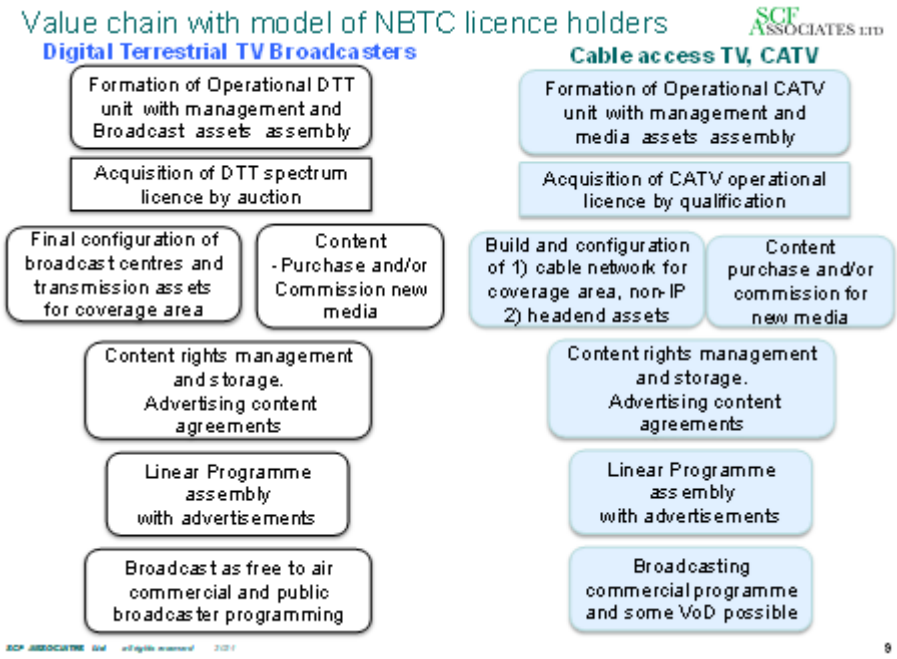
Examining this in more detail, the streaming value chain is a global networking application:-

Figure 4-4 Comparison of Commercial/Public TV broadcaster business model/value chain also having access to 5G Broadcast technology with VOD streamers business model



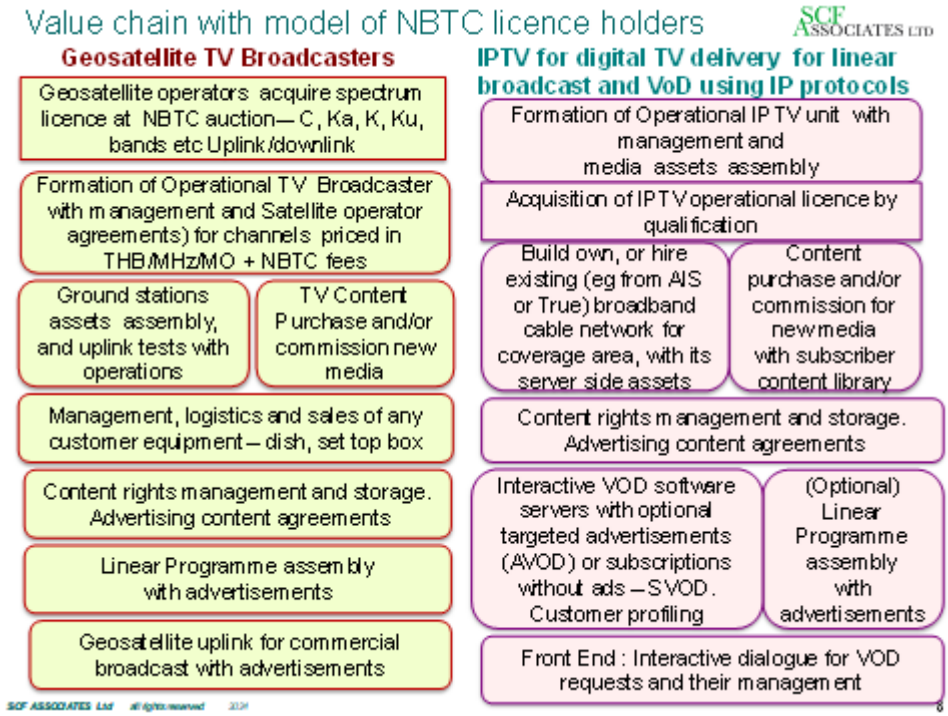
For the major licensees, the business model is shown below with the value chain, while showing the critical phases in operating business and the critical operations and assets. These are for DTT and cable TV operators:-

Figure 4-5 Model (both business and public service) for the DTT commercial or public broadcaster and for cable TV



The business models reflecting the value chain for geosatellite broadcasters and IPTV operators are shown below:-

Figure 4-6 Business model for the Geosatellite broadcaster, commercial or public, and for IPTV



Source: SCF Associates Ltd

4.1.6 The Scenarios in outline with assumptions, assertions, drivers, hypotheses

Solving The Problem before us in the Thai AV industry today

Assumptions:-

1) The Situation in the Thai AV industry today

The AV industry in Thailand is at a turning point as the regulated broadcast industry by Geosatellite, cable TV and DTT is being challenged by online OTT programming technologies entering from the global market. These online OTT services offer video content on demand for subscription (SVOD) or with advertising supported funding (AVOD) to provide non-linear TV as a demand led download pattern, with a large range of content choice being streamed over the Internet from national and international sources, in data centres.

Thus the providers of linear TV services are being slowly overtaken by streamers offering more expensive but often preferred products. Such customer switching by income class is irreversible and accelerating - leaving the poorest last.. Thailand is expected to have Media market revenue reach US$7.32bn in 2024. (Statista 2024). The country's largest media market segment is TV & Video with a volume of US$3.18bn in 2023 (Statista 2024).

In consequence, the scenarios must examine the future of each content distribution channel in the next decade, especially for the ‘legacy’ technologies, the traditional TV (DTT, satellite, cable, IPTV) and how to regulate content on those channels in the next decade is thus the background for each scenario.

Therefore, we see there are different degrees of vertical integration: eg traditional broadcasters, Facebook etc., Thai streamers and international streamers.

The independent streamers without global platforms are generally far less vertically integrated and thus have far less investment in assets and may not own the content libraries they show but only hire items on a demand from a customer.

The OTT players involved in this digital content delivery take an increasing proportion of the advertising revenues, which are harvested in the USA and China, leaving the domestic broadcast TV stations with lower revenues every month.

Moreover the regulation of the two groups of content providers (Thai broadcasters and overseas streaming platforms) is quite different.

While the domestic broadcasters pay spectrum fees and are regulated as to child protection, Must-Carry for commercial and public service broadcasters and specific rules on content, the OTT services providers have little or no regulation on content, no regulation of competition and market share and no fees or Must-Carry public service requirements. All that is required of the streaming OTT platforms is registration with the authorities (ETDA) reporting on the numbers of users and the fees paid, with an address for reporting of an agent in Thailand.

Thus the streaming entrants from the USA and China largely are placing the broadcast industry in danger of slow bankruptcy over the next decade.

2) Various difficulties must be faced – and the Thai industry is not prepared for this market

In considering the future of the AV industry, Thailand lacks significant policy plans, regulations, and incentives to respond to the changes in the business brought by digital streaming.

A specific complication is the need to protect the poorest elements in Thai society and ensure that any industry changes do not exclude the more deprived, and so expand the digital divide via both the cost of the digital technology and the ability to use it.

Effectively there are four areas that together form the supply chain in the AV sector that must be considered in examining future industrial policy, and the regulation that should go with it:-

- The content supply of TV videos such as serials and unscripted ‘daytime’ TV, also films be they major feature films, or unscripted shorts or children’s cartoons – and whether generated in Thailand or elsewhere. Generation of content of any type emphasises the need for driving the Thai industry, if possible towards exports, possibly, using models from the global country survey - It is necessary to emphasise the goal of 'import substitution' as much as content export.
- The current infrastructure – with its various owners, and market shares for TV broadcast, mobile broadband and fibre broadband (FBB) for fixed network coverage of steaming services
- Investment in the industry – perhaps the most essential for a successful Thai industry – both national and by FDI – in which subsidies and tax relief may be invoked, requiring significant funding support
- The audiences and their changing trends – to drive creation of content that meets all their changing tastes. Taste is heavily set by age group – and digital literacy.

Further complications lie in two areas:-

- The current commercial (operations and spectrum) licences for DTT TV broadcast terminate in 2029 and it may be that some or all TV broadcasters hand back their licences as they are too expensive to renew. The questions here over broadcast spectrum may be complex, stretching over high definition TV and mobile use of the spectrum, with shrinking, or expanding, broadcast demands, as high definition TV demands higher bandwidth.
- At present there are several different administrative bodies in the field of audiovisual regulation and the future division of responsibilities is unclear. So recommendations are necessary for assuring smooth operations – perhaps with new structures and bodies. The bodies include ETDA, that touches on payments for OTT regulation, with the Digital Platform Act, which is a Decree applying to larger international platforms - and the NBTC for the broadcast sector and for some OTT rules, on Video on demand (VOD) and video sharing platforms (VSP) such as YouTube and TikTok. Other bodies are also closely involved, including the soft power promotion unit for Thailand, the Thailand Creative Culture Agency, THACCA, which is mapping out an industrial promotional plan across sectors, created by the Soft Power Act as highly energetic campaign to put forward Thai culture of all kinds from food to fashion to film, internationally, with AV sector support.
- There is no equivalent for protection of operations on behalf of the populace as the DSA provides (for children, data privacy, fraud, fake news, etc) or for assuring the balance of competition in the sector (as the DMA provides). However, the NBTC is now reconsidering consumer protection and so recent proposals for a **draft Communications Act** for OTT players may apply.

So, a Key Question must be answered?

The basic question is: -

Should Thailand have an **industrial strategy for the AV sector** in order to reply to the prospect of a progressive demise of the national TV broadcast sector? This involves four sub-questions:-

1) What should be the policy options that may be followed for the AV sector? Just for example, what should be the decisions at the level of supporting the existing industry and migrating it to a mixed broadcast/streaming model?

2) How should the administrative structure be shaped to serve the industrial policy and the policy options? For example other countries have installed a range of specific laws and operating structures to vigorously support the industry.
3) What regulation – and legislation behind that – will be required?
4) Should the powers that be shape the infrastructure in a participative position – for instance, the NBTC supporting a BVOD platform for IP connected TVs for all or some of the TV broadcasters to migrate their linear and nonlinear content to, as a transition phase support, as is happening in other countries?

4.1.7 The scenarios in brief outline – we give a snapshot of each to set the scene

First is Scenario 1: The Status Quo – which continues the conditions of today to see how a baseline would behave, while the next two scenarios have dynamic operating Themes.

Scenario 1 - Continuing today's status quo in the audiovisual market – what happens with no supporting intervention- a scenario for comparison

For comparison, it is useful to consider what would happen if the current situation continues, without major intervention by government in the face of the global OTT platforms bring high quality content that competes with the TV broadcasters. This content may come from the USA and China largely but is localised for Thai audiences in lip synched local language and AI based VFX for facial expressions. It gradually takes up the whole market. However the OTT legislation remains weak in this scenario and the new legislation from overseas for global platform regulation (the DMA and DSA) is never really implemented. Thus revenues from subscriptions, advertising and use of consumer data gathered in Thailand are never taxed at source. Consequently, global platforms not only are unregulated in fraud, and harmful content with fake news and hate speech, etc, there is no consumer protection for under age and vulnerable viewers.

Scenario 2 - A Mixed Market – The theme for this Scenario 2 is that – at least 5 or 6 major players exist in mutual coopetition (competition and cooperation) to produce a fairly vibrant market:-

1) Streamers over the FBB networks (AIS and True) are expanding but only cover 16% of the TV market (Statista 2023). Also present are the GAFAM platforms which compete with streaming entertainment as well as their social media products with some Chinese players also (eg TikTok, WeTV, Viu). ASEAN groups enter Thailand with their media and form new network accords with the FBB network operators for streaming distribution

2) The incumbent TV broadcasters use Thai satellite TV (Geosat) channels continue to be viable due to the large installed base, with the DTT and CATV operators although they are no longer dominant, survival in a reduced form is possible by putting their linear content over streamed media simultaneously ('simulcasting') in BVOD streaming and 5G broadcast modes. Both video and sound radio is also offered over downloadable podcasts. Their uprated Thai newscasts prove to be a new USP. Eventually the DTT channels in the UHF range could be put out for mobile, at auction (for 5G or more LTE-A-Pro) and the switchover through auctions could finance free-to view FBB and LEO satellite channels.
3) This demands a new regulatory structure that combines protection of competition and of the consumer, with an infrastructure for migration to the new digital technologies:-
   - Control of the GAFAM platforms and other global platforms for:-
   - Protection of citizens online – child content restrictions with proof of age restrictions, control of fake news and verification for false images and news, limiting of violent and abusive behaviour online, control of fake attributions and acts
   - OTT regulation with registration, accounts with ownership, and market share information
   - NBTC sponsorship in streaming for a shared streaming server for the broadcasters (BVOD) switching to OTT services (for IP connected TVs).
   - An expansion of the low cost and also of the PBS market is broadcast over the Net Pracharat broadband network, for rural and remote locations. This could be augmented by a Net Pracharat free–to–view service, for any consumer, financed by government subsidy This subsidy could come from:-
     - Perhaps from a spectrum auction of the satellite TV bands released for 5G in the C-band spectrum)
     - Possibly by the auction of a possible future abandoned DTT UHF band for mobile, as the band is in highly a desirable range, offering long range UHF frequencies, for LTE and 5G NR.

Scenario 3 The use of industrial policy to drive the audiovisual market

The audiovisual market is becoming a major economic driver across the world as well as 'soft power' generator. Looking at the successful country models- we see a common theme – the application of highly dynamic industrial policies that can shape and drive global expansion by from

a national market, with targeted funding and guidance, aiming for global expansion. How could this model be adapted to Thailand?

Using models from two leading audiovisual sectors this scenario applies industrial policy implemented through two key structures – for operational efficiency within the legal structures and operational actions to expand the Thai audiovisual market.

4.2 Scenario 1 Market conditions under the Status Quo

The status quo – a continuation of conditions today without meaningful intervention by regulators of markets in audiovisual operations, telecommunications or consumer protection

4.2.1 What happens if little changes on the governance and regulation side?

Here we examine an effective baseline for comparison, with its scenario's distinctive character and events.

First each scenario is given its distinctive 'Theme'. This Scenario focusses on a set of market conditions that examine what will happen if little or no intervention is made by government and its regulation of today continues largely unaltered. Australia has seen this is now trying to change. Thus this scenario examines the development of the market as it follows the evolution if left to the current players, both Thai and overwhelmingly, to international streamers. In consequence, this scenario forms the status quo for comparison with other scenarios, and so is often termed the baseline scenario.

The main theme of this scenario is that little is done to interfere in the market by regulatory and financial authorities and other government departments involved in the sector including to those that might protect the TV broadcasters and in some areas do more for the consumers. In consequence, the Broadcast TV market shrinks, little is done to stimulate the media production sector for new content, especially for the TV broadcasters.

Initial conditions give the context:-

1) Specific assumptions/rationales/reasons behind each scenario

The economy, markets and competition:-

The economy as a whole has low growth. AV markets are dominated by the rising influences of international streamers that compete with TV broadcasters, who are losing market share and thus their ad revenues; so they sell off assets to compensate- especially

the production studios. This is serious as it does not just replace content viewed with a more human behavioural way of viewing – on demand - and so is displacing fixed programming and so linear broadcast TV. However it is doing much more damage to the TV broadcasters. It is taking their digital advertising revenue stream. Moreover the global platforms with a video streaming offering, such as Google, TikTok, Amazon Prime, Meta/Facebook, have a further revenue stream, of a comparable size – consumer data gathering for resale to advertisers of all kinds.

2) Effects of Thailand's changing demography[362]

Thailand has a rapidly aging demography. This ageing trend might tend to preserve the less digitally adventurous older cohort, above 50 years and so the possible Public service broadcast viewer population with high linear TV traditions. However this will not stop the slow expansion of younger viewers towards the majority and with that, their migration from linear TV viewing over DTT and geosatellite services, with cable TV, into nonlinear VOD from Netflix and Disney and also to a very different form of video – perhaps self-videos on TikTok or user generated videos on YouTube, as an online participative player in the new viewer norms .

3) Classification of consumer segments, and disposable income, which could affect TV broadcast/audio-visual services

Also, social development and economic conditions, specifically consumer average disposable income, are relevant as they set the baseline with impact on investment in the industry

Social and political conditions: Thailand continues in a fairly stable state, but with the effects of its ageing population and flat economy:-

- Regulatory - a laissez faire regime focuses on the TV broadcasters, but ignores the OTT market and its streamers
- Socio-economic – the Classification of consumer segments, and disposable income, which could affect TV broadcast/audio-visual services shows a two speed economy with younger age-groups (under 50 Years) having only a

[362] Anantanasuwong, D.,(2021) Population ageing in Thailand: Critical issues in the twenty-first century, book, https://link.springer.com/chapter/10.1007/978-981-16-3326-3_3

slowly growing disposable income . the ageing population suffers from lack of funding, apart from family, with a lower level of education and critically from digital skills[15]. Correcting this would require a highly efficient and ubiquitous through-life learning initiative to turn an aging population into an economically active populace – a low probability outcome.

- Note that disposable income has dropped from a growth rate of over 4% between 2013 and 2019, except for 2015 (1%); after 2020 it has grown at around 1%, lower than the CAGR of the economy (2%)[363], except for 2020 itself when in shrunk 1% with COVID.
- Political – while governments change in elections, little effect is seen in the AV market
- Technological AV change – minimal change is happening. The move to streaming is generally supported by the high Internet penetration. Broadcast TV changes little in technologies for transmission or in consumer devices, although 4K screen resolution spreads. The content production side gains new VFX skills.

The key drivers of the scenario, which 'set the scene' – are the entry of players from outside Thailand. They act to dominate the market in the absence of regulatory guidance. Any technology changes come from outside, imported into Thailand

The main Assumptions here are:-

- The major AV players in distribution, production and investment will build dominating structures as far as they can, and so monopolies or duopolies may appear in specific areas.
- The current situation continues in the AV sector of a slow demise of TV broadcasters, who sell off their production studios and depend increasingly on third parties for their content
- That trend is not effectively resisted by the governing bodies with countervailing measures

[363] Trading Economics, Thailand households, disposable income , https://tradingeconomics.com/thailand/disposable-personal-income

- In hand with moving to independent studios for TV broadcast programme making, the general budgets for new content shrink, as advertising revenues stalls.
- These assumptions indicate a net effect - the slow decline of the commercial TV broadcasters.
- It is also assumed that the public services broadcasters survive but may rely on state budgets that do not increase with inflation and so their own production and outside acquisitions of new content is limited.
- In an auction for TV spectrum that will yield broadcast licences, TV broadcasters may not be able to participate due to lack of revenues from advertising, taken by the OTT players
- How to regulate content on OTT channels is never decided on by the relevant authorities.
- Other financial supports have little or no impact, such as that through the Broadcasting and Telecommunications Research and Development Fund for Public Interest
- The Thai administration's future policies for TV broadcast and the whole audio-visual sector, and other converged services have little or no effect - as they are not applied across the audiovisual sector but in limited specific instances. For instance, the IPR regulatory reform (for AV copyrights for video and film, which requires a broad-based collaborative effort from the relevant government agencies never materialises).
- No real regulatory agreement among the relevant governing bodies is reached on The future of each content distribution channel including streaming, OTT services more generally and on a new regime of regulation for the traditional TV (DTT, cable, satellite, IPTV)
- The numerous different bodies, despite good intentions, have little real effect on problems of OTT operations by the small Thai content streamers, that offer violent, pornographic material with no consumer protection, especially for children. That actually has the effect of making better off families with FBB access subscriptions turn towards the USA Hollywood streamers (Disney+, HBO, etc) and above all, Netflix, - quote from interview with Thai AV expert – "whatever the costs, I would rather our children watched Netflix than the Thai streaming companies", also effectively repeated by a Thai body promoting the digital economy.

From these inputs, simple assertions can be made about the scenario and the causal effects and interworking, with hypotheses can then be formed:-

- Throughout this scenario, the current operating conditions continue, largely unchanged over a decade. This reflects the case of Australia where poor quality broadcast TV (commercial and public) has allowed Netflix to enter 60% of homes. That translates into adverting revenues and starvation of the traditional TV broadcasters. For advertising revenue, across the various TV advertising segments, the largest advertising market in Australia now is for OTT video advertising (with market value of US$3.47bn in 2024).
- In the Thai market, the various parameters of the main players, their processes and investments, exist in a fairly relaxed, laissez-faire regulation, leaving problems of piracy, lack of online fraud, fake news and child protection to continue, with little change.
- The market-changing concepts of a Thai industrial strategy (as in Scenario 3) are never invoked, with regulators and government continuing a hands-off approach so market forces decide the trajectory of development. Thus a duopoly is present in FBB and mobile markets.

The above explains the reasons behind the scenario and its rationale of market left to decline, in a demographic mix of streaming for the younger age groups (as shown in the recent online SCF survey of 786 respondents in the Thai market, on age-based preferences in media and viewing.

Thus the initial conditions of today continue following market investments and commercial promotion of streaming. Today's social structure of a limited disposable income for the majority of the population, with traditional Thai social, psychological, political and economic conditions continues. Thus, the audiovisual market evolves in opportunistic directions, based on various digital technology devices, both fixed and mobile broadband.

Consequently the key drivers which traditionally set a background to any evolving consumer market scene do have some impacts but do not radically alter this scenario. A selection of such drivers could include the price of energy and overall inflation, the real value of disposable income, the need for major levels of foreign direct investment (FDI) for the current audiovisual sector, or the availability of spectrum for new technology entrants such as DAB+ or LEO satellites of a Thai audiovisual market with its slow evolution.

No major catastrophes of a climatic nature, Covid type health disruption, or geological events, or political disruption, etc, occur to disturb consumption during the ten years of the scenario. However, consumer behaviour diverges between the linear, older TV audiences of the broadcast TV side of the sector and younger and increasingly predominant tastes and preferences

in programming content evolve towards streaming over mobile (as well as fixed) broadband. This relies to some extent on 5G but the cost performance of modern LTE-A-Pro is used as a back-up.

4.2.2 The role and actions of the NBTC and the audiovisual unit

The two key NBTC entities – the overall executive, with its regulatory responsibilities and the division surveying the market, especially for the TV broadcasting sector by Geosatellite, DTT, cable TV and IPTV apply the current legislation, before, during and after the scenario. Most importantly, these two levels of regulatory management take a laissez-faire position, assuring the current regulation is applied but not intervening or requesting new powers.

That is left to the new regulatory elements, such as ETDA (although it does not have the powers to intervene over OTT platforms that do not directly take payments – for instance in typical search engine use). This leaves the global platforms in the GAFAM group a free reign in digital advertising and data broking of customer data.

The overall scenario working or narrative (also sometimes termed 'the storyline or plot') is one of a market which is largely uncontrolled in four key areas:-

- Market dynamics of streaming video content on demand, over broadband fibre networks, – so that the status quo today continues, with no real active attempts at change. Thus in Thailand the duopoly of mobile and optic fibre streaming broadband networks continues as demand for online content increases with the demographic evolution. As the older, linear TV and also the poorer section of the population is replaced by Generation Alpha (pre-teens, teens, early twenties), and generation Z.
- Generation changes in the TV audiences bring an evolution in content tastes and technologies of delivery and viewing. The younger generation have far more diverse tastes in genres, languages, cultures and forms of viewing. So the streaming content they demand evolves completely from linear TV Thai dramas, in Thai, to multi-language programming, for single features and also serials of features (such as the seven Harry Potter episodes) with some dubbed in Thai, some in original languages - English, Chinese and Japanese for manga and gaming. The new generations of viewers also demand a far wider set of cultural references and formats with short forms (as in TikTok) as well as non-scripted features.
- The displacing of the TV broadcasters in the market be they DTT or Geosat, as streaming takes market share, Viewers initially are placed among the more wealthy in Thai society, who also have FBB coverage. They tend to reside and work largely in the metropolitan

and suburban areas. That leaves out the great majority of the country geographically. Moreover that also tends to exclude poorer viewers (who are likely to to be located rurally and rely on Geosatellite TV) in the position of perhaps being cut off, if the geosatellite broadcasters fail, as their revenues from digital advertising shrinks, as streaming takes their spending and also subscriptions may shrink where FBB has coverage.

- Intervention from new regulation, or from central government industrial policy for the sector is absent – the administration does not mediate or arbitrate to any extent – the policy is largely 'laissez-faire'.

In these conditions it is perhaps wise to make the following assumptions about the scenario's development over up to 2035:-

- No real help will come for the TV broadcasters as the authorities and regulators take a market driven approach to development of the audiovisual sector and allow competition to take its toll, even if the competitive forces are quite uneven
- The major players globally will become more important within the Thai market over the decade in these market conditions
- That implies that the TV broadcasters may eventually fail and so the major victims and losers will be the poorer members of society, and predominately the elderly. They still rely on linear TV broadcast programming and have lower levels of digital skills for joining stream sites and profiting from them in social and cultural terms. But they naot supported as they form a minor slice of society.
- Help is not expected from the duopoly of the telecommunications infrastructure owners and operators who can combine network access subscription with bundled content in one offer

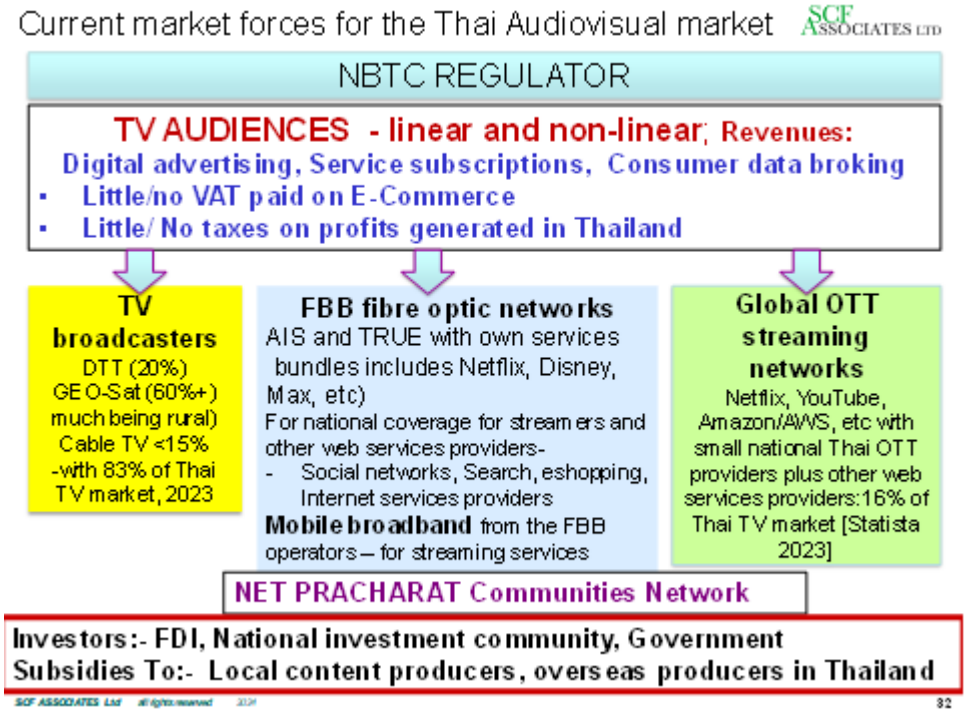
From this set of conditions it is possible to make the assertions that:-

- Content piracy continues and is likely to dwarf legal content having full legal rights as IPR is effectively unprotected. The streamers take advantage of this.
- Drivers for the decade will be these unrestricted open markets for all with streamers winning market share and exporting all their revenues and profits – both the "Hollywood bunch" (Disney+, WBD Max, etc) and the Chinese streamers (TikTok, WeTV, etc) as well as the major streamers in GAFAM group – exporting the funds from subscriptions, and

advertising streams, with no VAT on ecommerce, no profits tax on business in Thailand. Netflix maintains a strong market share for high quality globally sourced content.

Thus, the overall theme of the scenario is that the current conditions of market dominance in content sourcing and in national broadband network distribution continue with little stimulation of a national audiovisual production industry, as **import substitution** prevails.

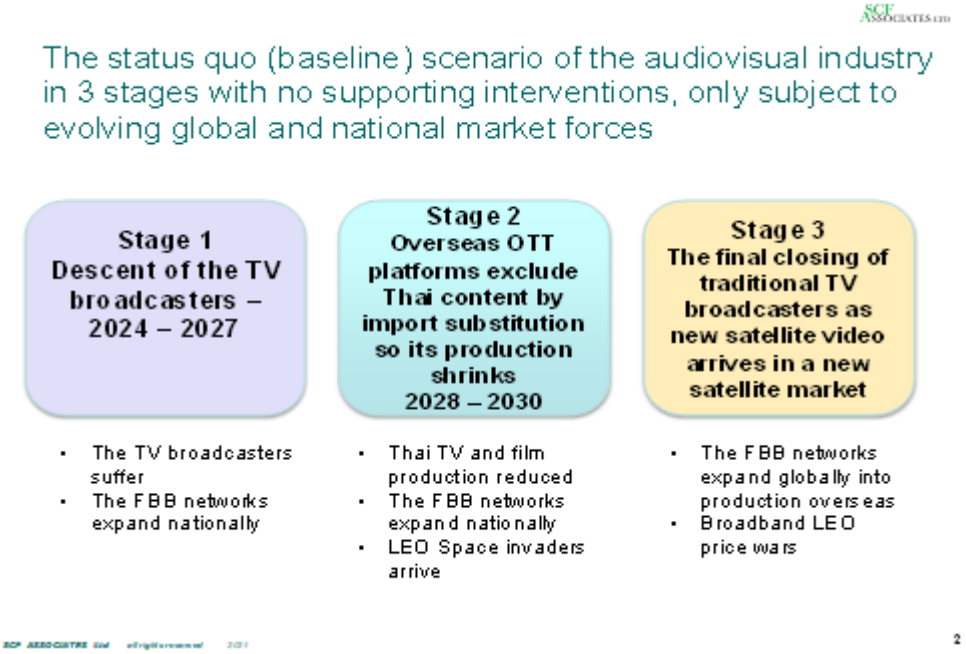
Figure 4-7 The value chain from broadcasters and operators up to viewers that define the market forces



Source: SCF Associates Ltd 2024

Although there are no evident tipping points in time – a further hypothesis is that this scenario can be considered as series of three development stages. The three stages of market development under free market forces are shown below:-

Figure 4-8 The stages of market evolution in the baseline scenario begin with descent of the TV broadcasters



4.2.3 Stage 1: Early decline of the TV broadcasters with viewer migration in the Thai audiovisual industry: 2024 – 2027

The TV broadcast industry of today will evolve - and perhaps reshape - but can only survive long term if it can move into a new form that meets the demands of the coming audience profiles.

Such viewers use the Internet for OTT non-linear services that form part of the way they consume entertainment media, be it gaming or social networking. That requires migrating from the traditional linear preprogramed TV to the streaming of its linear content over the OTT to non-linear, on demand. A possible alternative is for government (eg the NBTC and the financial authorities) to invest in content and support that maintains their revenue streams from advertising and audiences in high quality content, as France has done.

But that requires a proactive protection of the TV broadcasters as a harbour of national culture. For Thailand, that is not significantly apparent in a market scenario without a change from light central government intervention. It also requires building a major portfolio of streaming content for cartoons, serials and features as TV broadcasters in the USA, UK and France have done by new links into the national content production sector while buying from the global market. The TV broadcasters are investing in this for a Thai audience and some global exports, but that is not at the level of USA and Chinese OTT players.

Quite possibly, the current independent Thai OTT platforms may diversify out of streaming pure TV, for instance, into alternatives such as gaming channels. Conceivably they may also attract FDI from those investors who wish to finance content production in Thailand, including gaming. There could be investors who might finance the established TV over-the-air distribution channels. Consequently, the patterns of market changes in this First Stage for the Broadcasters could be:-

- A slow move to streaming as FBB coverage continues so streaming spreads with the coverage by the FBB broadband access networks
- However, losses by TV broadcasters continue as little is done to help them. As a possible countervailing move, BVOD is set up by the NBTC. But that brings insufficient revenues, from advertising or audiences whose revenues tend to shrink further over next three years.
- However the NBTC does not make the mistake of tying the BVOD channel interface to one smartTV brand or one web browser interface such as that from Apple and its AppleTV or the Chinese smart TV suppliers. Instead an open downloadable interface for an open source operating system such as a version of Linux, also for iOS or Google Android or a real-time extension of Windows, not based on Teams. Also included are the Interfaces for set top boxes (STBs) such as Roku and also for gaming interfaces with VR headsets and smartphones or the consoles are. Numerous competing STB's from the USA (such as Roku) or from China can thus enter the BVOD interface market.
- Despite this BVOD offering, increasing parts of the audiovisual market are slowly taken by competing streamers who present linear and nonlinear content from any source globally, including the Thai TV broadcasters who have linear content to trade with. Over the next three years, the TV broadcasters suffer a slow demise, due to changes in taste with demography towards non-linear TV. Those viewers that can afford it and have access to FBB coverage move increasingly online, either via their own OTT FBB channel, for direct subscriptions or via a bundling sale with the FBB duopoly.
- As inheritors of the TV Broadcaster licences, these migrating broadcasters may be required to offer the 'must-carry' PSB content if they also become a streaming channel.
- Consequently, investment in the TV broadcasters stagnates but other countries in ASEAN eclipse Thailand in their audiovisual industry with major investments and production, particularly Vietnam, Malaysia and the Philippines, with Singapore as a smaller competitor.

- For those competing with the TV broadcasters, the streaming business is brisk, as FBB coverage continues so take-up spreads. The streaming market slowly expands, reducing the linear TV broadcast market. Really there are three streamed media categories for consumers – video entertainment, distance learning and video education which overlaps as entertainment with new science and technology documentaries, also streamed audio for music and voice for podcasts for stored radio programmes and ebooks as podcasts.
- To underline this. Is the growth of content hubs for streaming in ever larger data centres, over subsea cables if they come from other countries, or, other continents, with their sustainability impacts of power consumption.

The video streaming market has also expanded the high definition screen market to towards 4K displays (4096 horizontal x 2048 vertical pixels often with OLEDs). The aim is to improve viewing quality with high resolution screens to give the 'cinema experience' that Netflix, Disney +, Paramount + etc, claim to bring. That exploits the higher bandwidth for streaming over FBB networks, and possibly LEO satellite (and perhaps even geosats). High definition Netflix requires 7GB/hour for UltraHD and 3GB for HD[364] and 1GB/hour for standard, SD. Amazon, HULU, Sling TV, Spotify demand similar streaming capacity for feature films. This implies data rates for web connection at 20- 50 Mbps over an H-264 video standard link.

In this first Stage of the scenario, the global demand for spectrum could also impact the Thai audiovisual market, as various assignments may change the available bandwidth for TV broadcasters, both DTT and satellite:-

- Moves into the C-band by 5G could have impacts on geosatellite services using the 3 - 4 GHz bands
- Moves into the Ku and Ka bands for Geosats by LEO satellites may interfere
- Moves into DAB+ with its new frequencies, but interference with others may be unlikely

The growth of content hubs for streaming raises carbon footprint issues

Collective moves to cloud data centres is seen over the decade driving ever larger data centres, over subsea cables if they come from other countries, or, other continents, with their sustainability impacts of power consumption

[364] Netflix, https://www.makuseof.com

- Investments in the sector from overseas and national groups continue. But others in ASEAN countries easily eclipse Thailand in international AV investment levels by 2027. Thus audiovisual skills in scripting, locations for production, actors and technical crews, and post-production, particularly Vietnam, Malaysia and the Philippines, with Singapore as a smaller competitor (largely for data centres for streamers). Each looks forwards to building a major and robust new sector, by looking to their own forms of a sector industrial strategy for the audiovisual markets at home and abroad.

Alliances form under such pressures.

The existing Thai TV broadcasters may decides to form alliances between themselves for content production and thus their new content may be eagerly sought by the two Thai FBB operators, for their traditional linear content repositories, which can be streamed, aiming at the traditional viewer segment (over 50 years). The two leading MNOs also form alliances with Starlink and Kuiper for reaching the most remote Thai viewers using their LEO systems. New LEO systems enter from the EU and China expanding the LEO capacity to lease for their Thai viewers and across ASEAN while reducing wholesale prices to carry content and yet expand their reach, globally, if they can produce suitable content.

4.2.4 Digital Display technology in the home changes slowly

Streaming technology is based on fibre optics, with multiple wavelengths for efficient multiplexing. This broadband data rate enables full motion large display, high resolution (4K elements screens and higher). Consumer viewing technology progresses with streaming in terms of the forms of consumption: -

- Location of viewing, changes, with duration of viewing – home/street/ car /office
- What is viewed changes and younger consumers mix entertainment video with social networking for 2 – 6 hours per day for the youngest consumers
- Smartphone, tablet, smart TV are preferred networked devices – not PCs
- Display technology in the home moves to high resolution displays - 4k with multi-screen media centres in every room, over Wi-Fi, Bluetooth, etc;
- Immersion Technology for gaming with virtual reality becomes more common (with AR/VR and metaverse products from GAFAM players such as Facebook/Meta and Apple. But price and side effects slow uptake – Apple Vision pro+ 9, at over US$ 4900) as eye tracking becomes common, although corrective optics add another US$3000.

- The rise and future of the gaming console is towards smartphones with an AR/VR headset sub-market.

The first trials of LEOs for military and civilian communications in Myanmar show the utility of the technology's but its use for high bandwidth continuous video streaming to the home is still emerging in 2027.

4.2.5 Thai Market, Stage 2 - 2028 – 2030 Overseas OTT platforms challenge the Thai content production sector

The years between 2028 and 2030 are crucial for market disruptions as newer technology, profits from the greater FBB coverage as the rapid take-up of greater volumes of international content sweeps the market. The commercial digital TV broadcasters are also focused on the ending of their licences which occurs in 2029 and by 2028 they have to have decided if renewal is worth it – and most do not. In these circumstances the TV broadcasters have to see if they offer some form of streaming services, either singly or in concert with the bundles offered by the duopoly of the FBB providers, or else just operate their own jointly owned streaming platform. What they want is presence in a leading position in all the national electronic programming guides – with a prominently placed 'button' but this is difficult to assure nationally.

Thus by 2030 the Thai market becomes effectively dominated by overseas content from the OTT streamers and social networks and thus:-

- All of market is slowly taken by a range of streamers; so by 2029 they are dominant. To combat subscription fees and having to pay to watch, many streamers incorporate advertising by the FAST model (Free Advertising-Supported TV).
- Various conglomerate investors enter Thailand in this second phase – notably the Chinese platforms diversifying into media - Alibaba (a co- investor in China's largest private film company Huayi Brothers, needs to expand its ASEAN footprint), while Tencent has a portal strategy for its film investment, using its portal's search engine. From Hong Kong, CK Hutchison has media and communications companies already, diversifying further into content making and distribution with its TOM Group (TV and magazines) inside China and a need to expand.
- Other ASEAN countries take off using a media sector industrial strategy like Korea but Thailand misses out. These countries attract outside media sector investment on an increasing scale led by Malaysia and Vietnam. Investments in the Thai audiovisual sector continue but others in ASEAN eclipse Thailand in investment and then in production,

including the Philippines and Indonesia, with Singapore more as a smaller competitor for data centre hubs.

The USA OTT streamers dominate as the Thai market is conquered by the GAFAM platforms from the USA as FBB coverage spreads across Thailand. TikTok also has a place but mostly among a young minority. The social media, ecommerce, entertainment streamers and cloud providers control the Thai market. Under these conditions, the current TV broadcasters slowly fail despite attempts to hold on especially in the regions outside Bangkok. But even PSB content is taken over by "voluntary" 'must carry' rules exercised by all the Thai FBB networks used for streaming, following NBTC rulings. Effectively over the long term little is done to manage the global streamers and global platforms with their advertising revenue streams avoiding taxation for export of the total value. Really there are three streamed media categories for consumers – video entertainment, with news and education, streamed audio for music with voice for podcasts of stored radio programmes and ebooks.

Thus technological change in the medium term is quickly moving from the tightly controlled, standardized, harmonized, and slow-moving process that has characterised the TV world of broadcasters and cable-TV-casters, to the much faster-moving OTT invasion which also brings changes in business models for the dominant media services distributors and content providers:-

- Move to global platforms – web based access triggered by social media and rise of video sharing platforms (eg YouTube, Instagram, TikTok),
- A trend for the 'currency' of the platforms is that it is not in monetary payments - but in the form of customer data, resold in bulk with histories profiles, preferences and interests
- The move away from single-sided markets to 2-sided markets of both retail and wholesale trading that depend on the model of customer data collection to yield tradeable value
- However, the dependence on digital advertising as the major revenue stream remains with OTT operations

These and other elements enable future TV to become a high-resolution, immersive, yet participatory and personalized device, combining social networking experiences, with access to world-wide content. What could such a system look like? Perhaps the best answer is that there will not be a single product called "Television" but multiple ones.

By the end of Stage 2, Thailand becomes a focus of import substitution by content providers largely from the USA and China (in global market terms, Thailand becomes a 'feeding area' for the sale of imported international content). Thailand is extremely attractive to global streamers because of its lack of financial controls over them, so advertising revenues, data broking profits and ecommerce without local VAT are all exported without any taxation claims

Hence, Thai content and production becomes priced out by the low cost mass imports. It also does not offer the same cultural bandwidth. So Thailand remains an open market for foreign content, of all kinds. It is a market of massive players globally, able to reduce prices for years if necessary, and with no price control of revenue taxation from ad-revenues, ecommerce sales, or streaming subscriptions, few of the Thai distributors or content producers can survive. The market is one where:-

- Consumer protection applied to the TV broadcasters fails to engage effectively with global social media, as do the rules on 'Must Have and Must Carry'
- The content market is dominated by a few oligopolistic and mostly overseas streamers in each retail sub-market
- The broadband networks for FBB and mobile networks make collusion-based excess returns.

The NBTC does respond to protection of the poorest, encouraging expansion of Net Pracharat in early 2028. With state encouragement, the Net Pracharat organisation seeds **an 'indie cinema with an indie broadband network'** [which refers to the impetus for a content type which is new and creative on an independent network] offering its network as a set of streaming channels to bring OTT services to the poorest villages across Thailand.

This also generates a new (state supported) Thai **content production industry** by offering its enhanced Net Pracharat fibre network, upgraded by DWDM technology, with suitable new launchers, to provide a lowest cost national fibre network for these independent creators. That low cost, original mix content, succeeds in rural locations, exploiting its Thai language content of high quality at minimal connection cost as well bringing new young Thai content creatives their first productions.

The network also targets the SME business community with business products – streaming meetings, ISP services and business directories for small enterprises, with an export arm. It competes with the national TV broadcasters to a large extent but also forms alliances with them to carry their linear content as streamed media.

The result is a more benign environment for the established content production players, while providing a performance stage for new independent video and film studios based on the expanded low-cost Net Pracharat FBB network in a form of cooperating ecosystems. FBB operators AIS and TRUE continue but do not compete as this third network covers remote areas, bringing new independent content that resonates with some – but only with the with the younger audiences. The new content studios then expand by signing agreements on distribution and co-production internationally with small creative units and studios globally, using low cost ('AI') voice translation and lip synch, for global exports and for translation of its global imports.

The effects of Thailand's changing demography, builds contrasting customer segments, as the audience for OTT (non-linear) streaming stretches from pre-teen consumer segments, and low disposable income and then moves up into higher income age-groups with the 40 and 50 year olds cohort.

However there is a persistent oldest group, of 60+ citizens having free to air linear TV traditions, which also continues down into the two age-groups below it, so 40 to 60 year olds still spend perhaps 20%-40% of their viewing time on traditional free to air broadcasts. Thus investment in the industry for broadcast holds up. It is dependent on the advertising revenues being maintained, perhaps with a move into a shared streaming platform, possibly under a promotional subsidy support from the regulator. These measures are the results of new powers for supporting TV broadcasting, specifically for programmes considered as being constructive for a balanced society, with suitable intellectual and social value.

For this, the regulators also put forward guidelines that support market diversity and growth. Specifically these examine more Internet (OTT) service notification, registration and content scrutiny for harmful media. This has beneficial effects on audio and TV broadcast services which are now seen as part of social development, as well as economic conditions, as they could have impacts on investment in the industry so that promotional programmes form part of the soft power initiatives.

4.2.6 New infrastructure invaders from space – the LEO option enters Thailand

At the same time new broadband networks with no ground-based infrastructure begin to enter Thailand, although its first moves were made back in 2024.

This is the first Invasion of 'the space pirates' – stealing the Internet market from outer space, as the LEO operators enter Thailand gradually with interactive connections - at first

unofficially – as in Myanmar.Thus there is a move towards a new interactive broadband channel for the majority, varying in take up by prices of connection. Its coverage includes remote villages, farms and residences, but only if the citizens and perhaps whole communities can afford it.

For these LEO satellite frequencies, the current ITU rules, some of which date from around 2000 and earlier may need updating but the discussion is between the richest investors (Space-X/Starlink) with Amazon's Project Kuiper against the established operators of Geosats, now aiming for high data rates – for instance 1Tbps from Viasat[365]. The tests should reveal the interference impacts of concentrated directional beams in large volume and power against a more diffused geosatellite TV broadcasters spread over a coverage area that may be the size of India, Africa, the EU or the USA.

Just the potential introduction of LEO systems has also affected the geostationary orbit satellite market that has been negatively affected in terms of new ventures and investments since 2022[366]. However the geostationary satellite suppliers have demonstrated interworking between GEO and LEO satellites. Moreover these LEO constellations still face problems of obtaining rights to use the Ka and Ku bands, launch costs, and perfection of the technology for global coverage as well fixing the price point to be low enough for mass take-up in lower income countries which already have low cost alternatives for linear DTT and Geosat broadcast services.

Arrival of constellations of communications satellites in low earth orbits (LEOs, at 170 - 2000 km) are already challenging the existing geostationary television satellites placed in orbit since the early 1960s, such as Telstar (with orbits of 36,000 km and above). The LEOs use beamforming antenna (multiple Input/ multiple output, or MIMO) for interactive broadband links to users' ground transceivers carrying multiple web channels for OTT services, such as SVOD (streaming video on demand). The quadrennial ITU World Radiocommunications Conference (WRC) in Dubai in November 2023 showed the rivalry over spectrum for satellites from the Geosat community (specifically the Ka and Ku bands, (12-18 GHz and 26.5-40 GHz, respectively) that both types of satellites wish to use.

LEO operators will need to use higher power levels than the traditional geostationary broadcast satellites. Various countries objected citing their investments in geostationary orbit TV

[365] Harebuttle, Adrienne, (2022), GEO 2.0: The future of geostationary orbits, Interactive satellite today 27June 2022

[366] Ibid, Harebuttle, Adrienne, (2022)

satellites – specifically Indonesia, Japan, Brazil, as well as the USA's geosat operators such as Viasat, Hughes, of the USA and Intelsat. The WRC vote decided research studies on higher power would be permitted although proposals to make ITU rules changes for LEOs in the 2027 WRC meeting were defeated[367].

Consequently, with sudden presence but also with some caution, the LEO operators begin to appear across Thailand- mostly SpaceX-Starlink and Amazon's Kuiper with a few others - possibly OneWeb from the EU and Telsat from Canada.

But most aggressive is a new Chinese competitor with 13,000 satellites entering the global market in early 2025, based on Long March rockets. By 2029 it can offer OTT delivery for SVOD and linear content to every home across the Thai nation – for remote areas first, then suburban then metropolitan centres. This relies on swift and simple NBTC licensing for use of the spectrum bands required.

These LEO operators use the Ka and Ku bands, perhaps without Geosat operators being interfered with, or even realising perhaps - if narrow beamforming really works without interference to adjacent frequency Geosat broadcast users in Ka, K and Ku bands (fairly wide bands) and in their far distant orbits (35,000kms). Highly directional, low power uplink and downlinks make the LEO presence invisible to the Geosat operators. LEO operators will be joined for content and ads streaming by the GAFAM entrants (Google, Apple, Meta/Facebook, Amazon, Microsoft)

Quite possibly one or more of the GAFAM group will see a competitive edge in either buying an existing LEO network or building their own (Amazon Kuiper is now present and also the Google Loon project is being used). Loon has developed an operating system for LEO constellations (Aalyria), commercialised now by Google and used by various LEO operators.

4.2.7 Stage 3 2031 – 2035 – the final closing of the digital TV broadcasters and other terrestrial TV as new satellite video arrives

The FBB market takes an evolving central role as the major FBB operators branch out into content and LEOs. AIS and TRUE effectively serve the majority of the Thai AV streaming market across the country. The operators of traditional TV services over cable and Geostationary satellite

[367] Hollinger, Peggy, 2024, *New Star Wars over satellite space*, Financial Times 04 Jan 2024

are also heavily affected by this migration to LEO satellites where FBB cannot reach, although some operators respond by using LEOs to distribute their content.

In the face of high concentrations of content from the USA and China, the two FBB with MNO network operators pursue an expansion to be more like Netflix, so the FBB network retailors extend their content bundles with their own content. In consequence, they extend their operations up the supply chain into dealing in content at a wholesale level. They expand both their own bundles through content agreements as well as neutrally carrying the streamers' content over the FBB network for streaming subscribers who directly sign with the original streamers over the Web.

This gives a choice of a user's direct subscription (which the USA and Chinese streamers prefer, for reasons of 'customer ownership') or taking the bundles, and discounts, from the two FBB retailors with their own content bundles. Thus AIS and TRUE - effectively supply the majority of the AV market as they expand up the supply chain into dealing in content. Naturally this descends at content and web platform level into a stable duopoly with price following.

The next step is to produce their own content by setting up new tied studios and also buying into existing Thai content studios. Effectively, they control much of the OTT streaming deals, mostly with the USA studios, but also with K-Pop and Studio Ghibli from Japan. They compete strongly in original content from Thailand and from elsewhere, some commissioned, anew, some existing bought in, especially from Korea. The next step is to export their content across the ASEAN community, using automated translation and pattern recognition software for lip synching VFX, specialising in localised versions for each ASEAN cultures.

Such expansion is funded by their own mounting profits from exploiting their unique market position as the strongest network infrastructure providers, so that they can dominate OTT expansion, as they negotiate deals with the global content providers – be they from the USA, China, Korea or Japan and even from the EU. Funds also come from international investors buying into these content deals, including the USA majors.

Thus the FBB operators move up the value chain from the broadband mobile and fixed fibre networking market in Thailand by generating a constant stream of reinvestable profits to finance further moves up the value chain, into content in Thailand and then expand into overseas content exports.

Under such pressures, the existing Thai TV broadcasters form alliances between themselves for content production. They are eagerly sought out by the two operators for their traditional Thai

linear content series, which can be streamed, aiming at the Thai traditional viewer segment (viewers of over 50 years). Each FBB network operator also forms alliances with Starlink and Kuiper for reaching the most remote Thai viewers, using their LEO systems. Newer LEO systems enter from China, expanding the LEO capacity they can lease for their Thai viewers and across ASEAN while reducing wholesale prices to carry content and yet expanding their reach, globally.

But for reasons of quality and cost these two FBB operators may often prefer to import from the enormous choice of high quality USA, Korean, Chinese and other content and localise it themselves if it is not already offered in Thai. For instance the largest three USA streamers will offer a combined 'Kidz Market' selection of animated series (now becoming the leading content category) for eleven main language and cultural markets. They also expand into 'side categories' of their own and have bought into music streaming and high end fashion via their own ecommerce platforms for young adults. In addition to largely controlling the OTT streaming deals with the USA studios they begin to dominate in ASEAN in specialist genres such as K-Pop and Manga/ Studio Ghibli from Japan are obvious targets. Another minor niche market is distribution of the Thai language films to the national cinemas, equipped for video projection.

However the close duopoly of the two FBB operators begins to break ranks. They begin to compete strongly as they realise there is a global market that is much bigger and only a click away over the subsea networks they can export over. In a small way globally, they start to export their content (both Thai exports and the imports they control) across the ASEAN community, using automated translation and pattern recognition software for lip synching VFX.

Thus they specialise in localised versions for ASEAN culture, so that they can dominate OTT expansion, as they negotiate deals with the global content providers – be they from the USA, China, Korea or Japan and even from the EU, all for ASEAN localisation.

Thus the two locked into duopoly break out into international media, expanding from the broadband mobile and fixed fibre networking market in Thailand by generating a constant stream of reinvestable profits to finance the move up the value chain, into arbitraging global (not Thai) content deals and then onwards into overseas content expansion.

4.2.8 Global platforms compete for Thai market dominance

In a surprise move for many in the industry, external forces after 2032, mainly the global platforms, realise that Thailand could be a fairly stable market in the future and could become an easily dominated market for their imported streaming products. Two global groups compete – first

the USA streamers – now all owned by the GAFAM group, as each member acquires a Hollywood studio for its streaming library, led by Amazon Prime (which already owns MGM Studios). Disney, Warner Brothers, Paramount, etc are all owned by GAFAM members. Chinese platforms, led by highly capitalised investors, form the second group.

The two global platform groups have different approaches to taking over the Thai market. These are shown in the table below. Note that the winner may be that with the largest capital access – easily the Chinese investment companies, with excess domestic savings to reinvest, who will buy up all they can in the Thai AV industry.

Table 4-1 Building Streaming Dominance by the global platform streamers of the Thai AV industry after 2032

Parameter	If USA global platforms dominate, offering USA and content from other countries with a global appeal	If China and its investment community, buying Thai streamers and production facilities
Major Players	The GAFAM Group, plus Netflix, plus the Hollywood bunch (Disney+, Paramount+, Universal+, WBD HBO-Max)	The major platforms – TikTok, Tencent, Diui, Alibaba – also in e-commerce; Social networking - Viu, WeTV, etc
Content type	Diverse but USA based – video sharing, YouTube Meta/Facebook social networking, Google Search, software and music, Apple Store, Google Store, Amazon e-commerce, Amazon Prime streaming, Apple+ streaming, major video streaming players (Hollywood bunch + Netflix)	Video sharing-TikTok, all largely based on development on Chinese platforms for ● Social networking, ● Gaming ● Chinese content- cartoons, dramas serial etc localised for language and culture ● Locally produced Thai Dramas

Parameter	If USA global platforms dominate, offering USA and content from other countries with a global appeal	If China and its investment community, buying Thai streamers and production facilities
Value chain after 3-5 years	Production – largely USA sourced imports with some additions - eg by Netflix etc, from Korea and elsewhere, etc Post-production – localisation of languages, cultural alignment in USA/EU or Thailand Distribution – via the Thai FBB duopoly and any other streaming network – eg Starlink, or possibly local ISP on top of FBB if a wholesale market in FBB broadband is created by the duopoly to balance the market powers	Production – largely local Thai sourced, with some international sourced and Chinese content. Post-production – localisation of language, cultural alignment, is all in Thailand, in Chinese owned studios eg for dubbing, lip synchs, facial expressions, rotoscoping etc Distribution – via the FBB duopoly and any other streaming network – eg Starlink, or possibly a local ISP/ Chinese owned on top of FBB if wholesale market in FBB broadband. Note that Chinese platform and AV operators may buy into TRUE via CP Holdings due to their Chinese connections, to own FBB distribution
Approach to takeover	• Translation of customer interfaces into Thai – spoken and written. • Major push on social networking as high consumer time spent with strong ads revenue streams • Localisation of content (kids, features, serials) for language, cultural mores, behaviour • Only invest in local subsidiaries with capability for content creation if Thai revenues justify, compared	• Increase local presence for each platform, with major investments in Thai subsidiaries, using reinvestments by savings trusts. • Localise the customer interface – all in Thai language – spoken and written. • Establish major local content studios for cartoons, gaming, feature films and serials in Thai genre/culture and

Parameter	If USA global platforms dominate, offering USA and content from other countries with a global appeal	If China and its investment community, buying Thai streamers and production facilities
	to other investment areas – in ASEAN, EU, EMEA, LAC ● Some local sourcing of content but major sellers are localised Hollywood	create new Thai post-production studios. ● Change content to increase Thai language and culture proportion– whether sourced locally or imports from other markets, ASEAN or overseas translated, lip-synched, expression-added.
Form of takeover	Progressively expanding towards significant share of market and overall SMP. This should need to be taken into account in the formation of suitable competition law to reset the market. However in this scenario, such action may not be followed up and is tolerated.	Progressively expanding towards over 80% of market with control of content and production. May move into control of part of the FBB networks duopoly, by investments to take control of one player (TRUE Online)
The Thai market after 5 years	Have 60% of market Many minor but independent Thai offerings in less important areas	Have 60 -70% of market A few independent Thai offerings in less important areas
The Thai market after 10 years	Have over 70% of market. A few minor but independent Thai offerings in less important areas with 10 %. Rest is some Chinese platforms (eg TikTok), Korean and Japanese which together have near 20%.	Gained 80% market share A few USA competitors continue (eg YouTube, Google search, Amazon, Netflix) and also a few Thai

Parameter	If USA global platforms dominate, offering USA and content from other countries with a global appeal	If China and its investment community, buying Thai streamers and production facilities
NBTC activities	No real effective industrial policy – a laissez-faire approach. Thus NBTC has no major intervention in terms of market guidance, support with quotas or subsidies. But does have consumer and state protective role - examines content and markets for child protection, fraud, cultural issues, fake news	No industrial policy – a laissez-faire approach. NBTC has no major intervention in terms of market guidance, support with quotas or subsidies. But does have consumer and state protective role - examines content and markets child protection, fraud, cultural issues, fake news

4.2.9 In conclusion for Scenario 1

Continuing with the status quo in market regulation unchanged so that the strong market forces driving streaming effectively close the TV broadcasters, both satellite and DTT who have not managed to build viable streaming alternatives for their programmes. The cable TV operators may continue but offer streaming VOD also for an integrated service so some may well survive if the have the bandwidth already installed. That loss impacts the structure of the sector in an unrestrained free market in which concentration of significant market is unchecked:-

- Vertical integration of value chains from network distribution up into content arbitrage and then into content creation
- Then Horizontal integration in the value chains produced by new technology such as LEOs for network distribution and also horizontal mergers in content creation and other related media production assets such as studios and postproduction labs.

In summary

In summary, this scenario expects all the ecosystem components of the audiovisual value chain to be impacted:-

- The Thai national content supply chain and its content distribution channels – which will stifled eventually by import substitution
- The advertising industry and the digital advertising market in Thailand –the major revenue stream for the future- will move towards the streaming market, such as ByteDance/TikTok
- New major revenue streams are in consumer data broking and consumer profiling with and without use of cookies, a market controlled by the major global platforms
- Dominance by the international streaming platforms plus survival of only a few Thai OTT platforms but much smaller in size is the final condition
- Weak growth of Thai links into ASEAN for media sales
- Arrival of new delivery channels - eg the LEO constellations – with their ownership issues and opportunities – and to some replacement for geosatellites in remoter regions, if the disposable is there, as certainly on entrey the LEO systems may far more expensive than geosatellites
- Thai participation and control of new satellite systems and global subsea networks / data centre web hubs weakens as the global players with their capex advantages buy up assets.

The main theme of this scenario has been that little is done to interfere in the market forces and their directions by regulatory and financial authorities and other government departments that might protect the TV broadcasters - and in some areas the consumers. In consequence the major players are left free to shape the media industry in Thailand from production to viewer delivery and may build up portions of the market that give them SMP.

The conclusions are that without careful nurturing, the Thai media sector will not flower, as it has done in those countries with energetic and successful audiovisual sectors. Moreover the TV broadcasters will not be protected from the streaming giants and so will tend to lose market share, of audiences, and so of advertising revenues. Without strong support, today's approximate audience ratios of 16% streaming to over 80% TV broadcast, in one of its various forms be it geo satellite or DTT, will be exchanged in market shares. Thus streaming, for the richer citizens (and in limited forms, for poorer citizens) perhaps via smartphones, will be the norm.

The final outcome is a media production sector that is dwarfed by overseas imports and a distribution segment that has become dominated by the major streamers.

4.3 Scenario 2 - Mixed markets

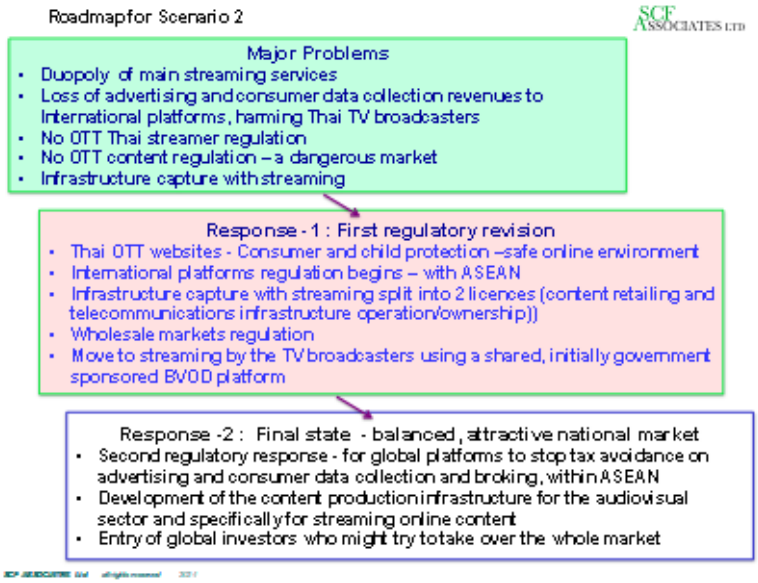
4.3.1 The promise of balanced growth gradually

This scenario offers a slow growth 'business as usual' scenario shaped by audiovisual (AV) regulation from the NBTC and other bodies, such as ETDA over 2024 to 2035.As a reminder, - it is a story about the future, no less, and no more, as all scenarios are.

It should be noted that if scenario 2 is adopted, then the more radical policy changes for the AV sector would entail different forms of regulation - and possibly a re-organisation for its implementation. Our approach is to firstly give each scenario its distinctive 'Theme'. To some extent it resembles the UK and Japan, and also France, perhaps ten years ago.

This may be an iterative process with the gathering of assumptions. We also list initial conditions – the context – as widely as possible – social, psychological, political, economic, market, technological, climatic, geographical, military, etc. Following that the key drivers of the Theme, which 'set the scene' are identified – eg the major impact of the international platforms players in the national OTT market and the market control of the owners and operators of the infrastructure for the Thai streaming networks, those who control the main broadband telecommunications infrastructure, both fixed and mobile. Key assumptions can then be made, based on suppositions of the ways in which economic forces, markets, social factors, technology trends, politics, environmental situations may evolve, as examined below. The major actions in the scenario are sketched for an illustrative example below:

Figure 4-9 An illustrative outline of Scenario 2



Source: SCF Associates Ltd

Examining the Thai market, it is notable that the two FBB network operators, AIS and TRUE continue using content deals with all of the main players, including Netflix, Disney+ and BBC International to drive the mobile/FBB bundles market, enhanced by content deals. They thus offer three services – first the discounted bundles of content, plus broadband connectivity; secondly just fibre and mobile connectivity, without content but with ISP services; thirdly; fibre connectivity with web access only, so subscriptions to say Netflix are taken directly by the consumer.

These two major MNOs in Thailand who are also the two leading streamers expand their own bundled content deals with Hollywood, the Chinese content providers and platforms (TikTok, Tencent) and the GAFAM group such as Amazon. The two Thai FBB/MNOs then decide to reverse into AV content production themselves to take advantage of the failing broadcast industry and so mop up their audiences with cheap home deals to encourage take-up against broadcast TV by expanding their streaming coverage – but that needs far more fairly high quality local content production, initially for their own distribution channels. This serves a streaming audience of all ages, but with an emphasis in the younger ages groups.

In a second phase of expansion, perhaps after 2028, they move up in content quality with their own production organisation. This is minor at first but later expands for local content, and finally begins to bid for take on new projects from Hollywood, etc. They can then sell content across ASEAN and possibly into the EU and USA. For the latter they sign deals with international streamers (eg Netflix, Disney+, HBO Max, etc as well as the Europeans - StudioCanal, Vivendi, Bertelsmann, Boloré, Gaumont, etc). Additionally they set up companion domestic web platforms for both video sharing and e-shopping. The whole offer is then exported to other suitable ASEAN countries via OTT invasion – Singapore, Malaysia, Vietnam. They mix content and ecommerce, financed by their backers – for one the SWF in Singapore and for the other the largest conglomerate in Thailand.

4.3.2 Maintaining a lively and flourishing Thai mixed market – regulation to the fore

The question becomes how should the Thai authorities with the NBTC regulate to maintain and enhance the continuing existence of a reasonable large competitive audiovisual sector in the face of new market conditions. These are being continually redefined by new technologies, content and services being brought in by increasing globalisation. The scenario assumes all terrestrial broadcast TV modes – DTT, Geosatellite, Cable TV and IPTV- would be equally affected by the move towards streaming, but that trend would be dependent on the rate of coverage of the. FBB fibre optic rollout across the country- implying for remote regions linear geosatellite may persist

for longer, would also be affected by the geosatellite loss of the C-band, unless user households can convert simply and at low cost to Ku, K and Ka bands.

Such competition and market regulation will require both the current standard regulatory interventions to promote advantageous entry for new players, yet prevent abuses of market power, while protecting consumers from harmful effects of their online AV experiences, OTT. A regulatory regime is needed that not only achieves these outcomes, but also ensures that the expected changes do not deprive a significant group of customers (particularly those poorer and aging members of Thai society who rely principally on linear broadcasting, delivered either by digital terrestrial television or by geo-stationary satellites) of their opportunity to at least maintain their existing level of provision, in terms of quantity and quality of provision.

Hence, the evolving state of the market over the next five years is lively, being stimulated and challenged by the overseas streamers and the move towards non-linear TV, for the minority (perhaps 16-18% in 2023, Statista, 2023). Growth in streaming viewers may perhaps be well over 40% over the next 5 years growing in proportion to the fixed FBB national coverage, by the costs and by the interest in consumption of VOD content, when the expanding viewing on digital platforms is taken into account. Use of adverting supported VOD (AVOD) now pursued by Netflix to reduce subscription costs.

But just as some risks have crystallised already, largely market shrinkage for the linear TV broadcasters, others risks may be expected in the future, especially to do with unchecked growth in SMP in the OTT markets, from both the global platforms and also the Thai broadband incumbents in streaming services and streaming infrastructure. This will need to be addressed soon, recognising that they can occur quite quickly as this is a much faster and dynamic market than TV broadcast.

Hence much of the scenario which follows identifies problems which can usefully be addressed, using the "precautionary principle" That is, regulatory authorities use market surveillance, based on observations of players and offerings in the Thai market, and in other jurisdictions of what might go wrong, and so start monitoring the situation early in order to engage preliminary thinking about how to respond.

It may be expected that some major players from the global AV markets will introduce new types of business and business model. The driving innovators will include in particular the five US-based social media platforms known as GAFAM (Google, Amazon, Facebook/Meta, Amazon and

Microsoft), supplemented by TikTok/ByteDance. These have already penetrated the Thai AV sector in numerous different ways, notably by:-

- Ownership of major infrastructure assets - data centres, under-sea cables and content distribution networks - and typically selling their capacity to streamers. Certain players such as Amazon's AWS and Microsoft are important here for content distribution networks (CDNs) and streaming data centres.
- Offering AV material to consumers via their own platforms, such as META's Facebook and Google's YouTube, especially for user generated video clips – both YouTube/Google and TikTok's major revenues streams.
- Selling retailers and others opportunities to advertise to groups of viewers chosen by their personalised characteristics, as demonstrated by their viewing histories.

However these overseas platforms may be failing to protect any vulnerable Thai customers, in particular, from access to harmful materials, intrusion, etc. It is now increasingly recognised that these matters of online incursions deserve immediate attention. In consequence, the scenario needs to examine the regulatory options for the expected behaviour of the various industry players, in collaboration with other agencies that may need to adapt to the new circumstances.

In order to build a fairly stable audiovisual industry model the future audio visual market may be based on the following components for delivery across its value chain:-

- Global platforms for OTT services including streaming AV content
- Delivery technologies, in the form of broadband telecommunications networks, either fixed fibre networks, or mobile networks
- Spectrum-using delivery mechanisms – other than mobile networks - such as digital terrestrial television (DTT), geo-stationary satellites, and low earth-orbiting (LEO) satellites
- Provision of streaming services, both local Thai and international
- Other broadcasters, where the major issue may have to be addressed of protecting the interests of legacy viewers of linear TV, who cannot afford to switch to streaming.

Looking at each of these, it is evident the future audiovisual market will need stable and regulated platforms. Thus a major necessary task, at a regulatory level, for the Thai AV market is to devise a means of controlling the powerful but quite varied, and often USA-based, global OTT platforms, which today play a many-sided role in the Thai AV market-place. They include the five US-based social media platforms known as GAFAM (Google, Apple, Facebook/Meta, Amazon and

Microsoft), to some extent the Hollywood streaming 'bunch', supplemented by TikTok/ByteDance, and possibly others such as Viu, WeTV and other new players still to appear. Taken together, these market actors penetrate all customer segments of the Thai AV sector in various ways, be it in social networking, VOD content streaming, online shopping or self-generated videos.

Managing this future AV market could be simply by ensuring the pressures from commercial activities, in free market competition are always present. But it may be that what is also necessary to maintain and ensure that is market management through highly active regulation, as is seen in the EU, and specifically by protection of competition, as well as by strong controls over content to prevent online harms becoming dominant.

4.3.3 The global response

These OTT platforms are quite diverse, and each impacts different components of the AV value chain and its associated services and products. One thing which unites them is the widespread response to their emergence in the market, in the form of a growing number of new laws in many countries, including Thailand, where the new Royal Decree on digital services has been recently issued. Some of this regulation is in reaction to issues and events while some is pro-active, being ex-ante, a measure that forces major OTT players to declare their positions in advance, the basis for the EU's Digital Markets Act, the DMA, and also the DSA. These compulsory declarations avoid court conflicts, with their costs and delays, as long as transgressions are self-monitored and self–declaration of contraventions is followed by the largest players, under pain of major penalties.

But this is not the case in the USA, as no draft legislation there has yet attracted a majority of law makers. The USA authorities are therefore required to use competition law instead, often with court based judgements, which are long in processing, expensive and uncertain in outcome as the field is comparatively new and the views of courts may vary widely. Moreover, such judgements are ex-ante – so examples of actionable market behaviour are needed in evidence before taking action.

Thus the streaming platforms having entered Thailand now view it as an excellent market for their expansion, largely through import substitution, using their external content and services for both locally produced content and for OTT online services, all in localised formats for language and culture.

The future market will be shaped by platform regulation

Thailand's Royal Decree on Digital Platforms came into effect in August 2023. In addition to search engines, digital platforms must inform users of their terms and conditions if: they are provided to users for remuneration, and; if they are provided as an intermediary in offering goods and services, and: if they are provided by an operator who has contractual relationships with business users in offering goods and services to consumers. But this Decree just a first step, as new problems and their solutions arise over the next decade and more far-reaching regulation will be needed.

The Minister of Digital Economy and Society has taken control of the execution of the decree. Eligible platforms, whether Thai or located outside Thailand, above a certain size, have to report specified information to ETDA , as set out in section 12 of the Decree. According to the ETDA, the decree is intended to increase transparency for the local business community, address consumer complaints and provide ETDA with critical information. This provides a first basis for the future. However it is is quite dispersed and as the OTT complications grow over the next decade, new powers will need to be granted.

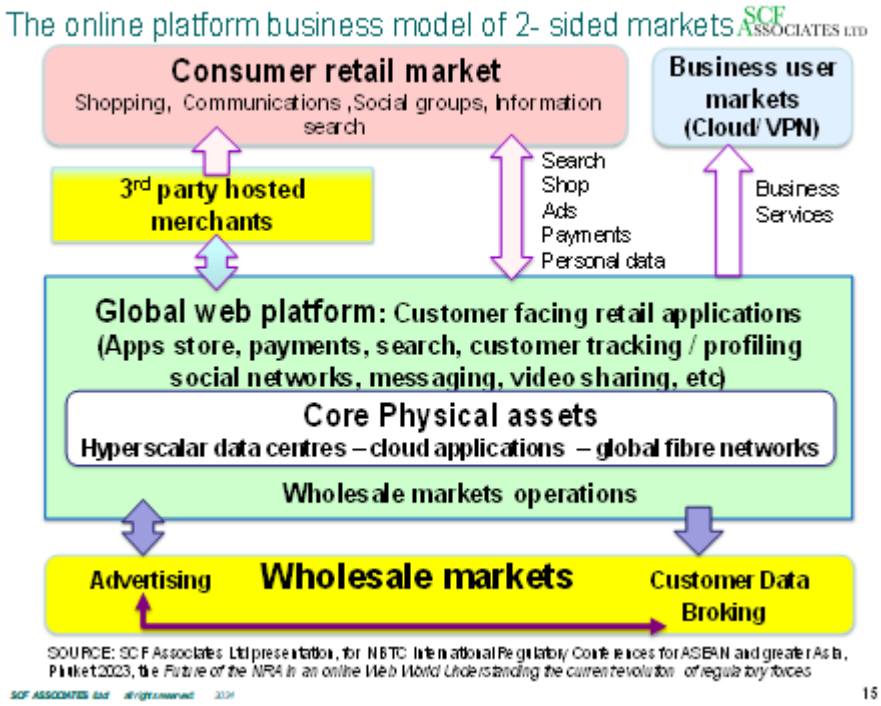
However, things start to go wrong quite soon after 2025 as this definition excludes an important set of what are often referred to as two-sided markets (see figure below). Two-sided markets are a typical global platform economic model. Revenues come in from the retail and wholesale sources and each feeds the other – so customers go the platform for services and goods while merchants hosted on the platform sell to customers going to the platform.

Both merchants and customers produce the major currency of platforms which is not monetary payments directly but information on what sells to who at what prices. That highly valuable data is collected, processed so profiles can be created. Such data attracts advertisers and advertising agencies, who pay the platform operator for advertisements placed on the customers' screens. The data may include personal data including location.

Thus two-sided market act as the commercial structure which is the intermediary between consumers and advertisers and also between consumers and merchants – who are the third parties selling via the platform. All is meticulously recorded via a process in which advertisers also buy ad slots on the platform with a place on the page displayed.

The diagram below presents the 2-sided market:-

Figure 4-10 The two-sided market model as used by the global platform operators



Source: SCF Associates Ltd

At the same time, users may not be subject to a monetary charge, but 'pay for' the viewing experience by their willingness to accept advertising. This follows the OTT business model that the online currency is not monetary but is valued in customer profiling details, for advertising and promotion, with their personal data on searches, location, preferences and probably inferences using behaviour pattern recognition ("AI") for more detail - age, gender, income, location etc).

Thus with this interpretation, the Decree is a key first step in the Thai government approach to regulating digital platforms, and during the next decade to 2035 it goes much further. Note that already many countries are passing legislation which does go further. This will possibly become the Thai case as competition from the platforms with TV broadcasters, not just for viewers but for advertising revenue streams, increases and starves the TV Broadcasters of this revenue. Thus, after 2025 a major revision and update is seen as necessary, activated in early 2025. Following major internal studies and negotiation between relevant bodies, the Thai regulatory community then enacts regulation from the EU adjusted for the Thai AV market as the TCDDD – the **Thai combined DMA DSA Decree**.

The future for a balanced AV market in Thailand may well be to echo the leading example of such legislation, which is the European Union's Digital Markets Act (or DMA). Like the Royal Decree, the DMA identifies a set of OTT services subject to its regulation, including search engines,

online social networks, video-sharing platform services, ecommerce hubs, etc. In consequence the Thai administration decides to go further over the next few years. A carefully considered version of the DMA is applied in Thailand through new analysis at the end of 2024 and into 2025, being fully applied by Decree in late 2025.

Following the EU DMA the global platforms, defined on the basis of turnover, number of users, and an 'entrenched and durable position' held over three years, are christened 'gatekeepers'. They are subject to more severe regulation. In September 2023, the EC announced that six gatekeepers were designated under the DMA: Alphabet, Amazon, Apple, ByteDance (owner of TikTok), Meta and Microsoft. Twenty-two core platform services were designated.

Core Services, for instance, involved the OTT platforms that demand payments by their own payment system only (as Apple and Google had previously required, in the EU) or messaging systems that will not interwork such as Instagram and WhatsApp. Hence these global OTT operators are subject to numerous obligations and prohibitions, which require transparency, prohibit unfair leverage of power from one market to another, enhance customer switching, etc and so promote competition. In addition, Thailand's form of the DMA strongly promotes the proviso that gatekeepers also have obligations to inter-operate with competitors. This is to facilitate entry by competitors into existing markets – an example of 'pro-competition' regulation.

The Thai regulatory bodies thus play a fundamental role in implementation of the DMA regulation, by specifying the key market defining conditions after 2025 but really in 2026 – with decisions on designating gatekeepers, imposing obligations and where appropriate sanctioning them for anti-competitive behaviours, also personal data breaches and other infractions. The new Thai regulatory function is discharged by a task force composed of staff from the relevant Thai regulatory bodies. They set up a jointly staffed unit – that also considers the legal preparations for new e-services taxes and penalties for violations leading to SMP. It requires some 100 qualified staff, with regulatory, market operation and international relations skills.

The Thai regulators decide to take an ASEAN level of approach, negotiating a common DMA set of rules with other ASEAN states, principally Malaysia, Vietnam, Indonesia and Singapore as well as neighbours Korea and Japan over 2026. This means the ASEAN and Neighbours OTT Platform Regulatory Group (ANOPRG) can impose administrative fines of up to 5% of global turnover in each country with 20% for repeat offenders, for infringements by the gatekeepers of their obligations. It does not attempt the full EU DMA penalties (of legal separation of an offender's business units, or of preventing a gatekeeper from making an acquisition). This DMA approach is being widely copied

in countries as far apart as Australia, Brazil, India and Korea. The direction of copying the EU as the original law maker (the 'Brussels effect') simplifies legal processes for the platforms as they can adopt globally uniform processes, with some national variations. Here they also benefit from regulatory advances in the execution process, such as the move to ex-ante regulation processes from ex-post court battles.

Consumer protection issues in relation to platforms are a key problem. It is clear that from consumer surveys, social media in particular were being heavily used by consumers in Thailand In 2022. Thais then on average spent over 7 hours a day on the internet, with generations Y and Z using it even more heavily and just-born to twenty years (sometimes termed generation Alpha) just starting to. This will include substantial recreational watching of AV content – on Facebook, YouTube, streaming platforms, and elsewhere. Various Thai studies have also found problems arising from social media addiction with fake news and information, bullying and hate speech, privacy issues and a negative impact on mental health. This is an international phenomenon, and the response to the OTT invasion of personal space is an operational problem (and so is for the DSA) needing greater protection of consumers of AV services over the web.

4.3.2.1 Countering the problems of mental health due to social media

In all of the countries studied, pressure for increasingly strict regulation of social media platforms to reduce the risk of mental health problems has increased in recent years. This has resulted from a range of developments such as: 2021 revelations by whistle-blower Frances Haugen of allegedly inadequate assessment and mitigation by META of known risks to young people of using META products[368]; publication by the US surgeon general[369] of an advisory warning about effects of social media on mental health, and the publication of several evidence reviews indicating a growing scientific consensus that harms had previously been underestimated.[370] In each of the countries studied such developments have led to calls for new and stricter regulation, including under the DSA in the EU. However no country has so far fully implemented a new regime. In the EU and the UK, the relevant codes are still drafts subject to further consultation[371].

[368] https://www.nytimes.com/2021/10/05/technology/what-happened-at-facebook-whistleblower-hearing.html

[369] https://www.hhs.gov/about/news/2023/05/23/surgeon-general-issues-new-advisory-about-effects-social-media-use-has-youth-mental-health.html

[370] See for example the influential book by Jonathan Haidt: "The Anxious Generation" (Allen Lane 2024).

[371] https://www.ofcom.org.uk/online-safety/illegal-and-harmful-content/quick-guide-to-childrens-safety-codes/

Regulation has been targeted at reducing unsupervised use of smartphones, and preventing underage use of social media accounts including through age verification. In Australia new regulation is likely to be introduced by 2025 to tighten age verification procedures to ensure that under 14s do not acquire social media accounts and the government funds age verification software development.[372]

In the UK, due to the suicides of children and teenagers from the ages of 14 upwards, have provoked a cross party group of Members of Parliament who are asking for considering banning use of smartphones by individuals under the age of 16, although now there is a request that this be 18 years. The rationale is that web-inexperienced people should not be exposed to social media as the risks of exposure to harmful content, entrapment and dangerous situations personally, mentally and socially are too great.

There is also the question of enforcing regulatory restrictions on the major platforms. That is the solution in the medium term if the DSA can be effectively applied (or its variations such as the UK's Online Safety Act, although there are major doubts that it is effective due to weakening by the prior government perhaps under influence of the platforms).

4.3.4 Curtailing operational problems of smaller Thai online platforms is a key regulatory aim

Thailand has to consider its first step towards a holistic approach to platform regulation, following on from the Royal Decree on digital transactions, and so becomes one of the leaders on this within ASEAN. These activities are not covered by other regulatory bodies such as ETDA or the Ministry for the digital economy. Thai authorities may have to take an ASEAN approach, as many of the offending websites are offshore. The countering of illegal websites, extended with DSA relies on legal and operational cybersecurity experts for the global platforms. The DSA builds gives a set guidelines for how to regulate in practice, on previous rules requiring the moderation (and where appropriate, the taking down) of racist and hate speech and material that harms under age users, to provide a fuller and graduated set of rules, with the heaviest pressures, actions and fines on large platforms, with fines up to 6% of a platform's global turnover for proven infractions.

[372] https://www.abc.net.au/news/2024-05-19/age-verification-internet-use-children-online-pornography/103843886

Hence in mid-2025, Thailand, in concert with The ANOPRG countries, signals the largest online platforms and search engines, must have a compliance function within four months for operation in late 2025. This must implement all the specified powers and resources, which include their publishing of reports on content moderation, and permit investigations which may involve inspections of business records, and critically, the key algorithms.

Naturally the NBTC continues to work with the platform regulator already created (EDTA) subject to the duties of the two bodies to exchange information relating to the AV sector. Ideally this would involve discussions by the government on new legislation, as described above. A specific consideration for the NBTC is to consider how regulation should be enforced on access to harmful content and protection of OTT users, especially children. The NBTC moves quickly in late 2025 having considered the problems and passed new legislation to control the small Thai streamers presenting objectionable content, as defined by the code's Article 37. These streamers are at the low end of the market, dominated by content which is harmful. Generally these websites are small, carry advertising and show only violent and pornographic material. Today, they are completely unregulated (because, for instance, ETDA only registers and taxes services requiring consumer monetary payments - while the key revenue stream is the advertisements). Currently here is no way the NBTC can locate them and shut them down,

As one interviewee, an expert in the AV sector noted 'I would rather my children watch Netflix despite the expense, than can see any of the Thai streamed material' (interviewee).

The criteria for banning content exists (Article 37) but not the practical means to locate and take down offending websites. The whole regulatory structure for small streaming websites and the support systems necessary are absent today.

Hence the NBTC quickly decides to builds a special centre for locating and taking down online illegal websites. Main functions may include:-

- Location internationally using major routing paths nationally and internationally
- Discovery of concealed websites with use of the Internet addressing structures
- Content analysis and identification, automatically with recruitment and operation of content moderation teams aided by content analysis software.

4.3.5 Stimulation of the Thai media production industry through regulation

In the audiovisual industry, it has been traditional across the world to use various mechanisms of a regulatory nature to discourage import substitution by international content providers in order to substitute for locally produced works in TV and film.

Use of regulatory support tools for local audio visual production by South Korea

Several countries such as Korea and France have used regulatory mechanisms to stimulate local production of films, TV, cartoons, etc. In 2026, new Thai regulation, stimulated by the cultural bodies attempts to use two regulatory tools to increase growth and investment in the Thai production sector – creative conception, for film and video production and post-production.

Following other countries that have tried this, over 2025 to 2030, two regulatory bills are passed (unless legal and administrative processes are found that do not require passing new bills):-

- The first is use of subsidies for the production of Thai content, especially for the TV broadcasters but also for local film production. This has been successful in both cases.
- The second is use of a quota system, applied primarily to cinemas and then to the linear TV production by the broadcasters

The Korean regulatory regime's industrial strategy is to use subsidies widely[373]. Their experience in opening the audiovisual industry for global exports was somewhat different to telecommunications (which is much higher in capex and requires building a local working infrastructure first for each generation of telecommunications technology) but the same principle of launching a national version first, was successful for media, for both music and film. However, the quota system on cinemas and local distribution was not successful and was abandoned. In contrast, France has used both tools quite successfully but is more relaxed about quotas than some years ago; subsidies remain a highly used and successful policy, especially for creativity small projects.

However in Thailand it is found that, like the Korean approach, film quotas do not work very well but subsidies, for new content production, if well managed, are quite successful.

[373] An example from Korea in the early 2000's is the recycling of spectrum licences and taxes on operators as a strategic re-investment fund for building its fixed broadband telecommunications infrastructure, with its technology research, to boost the overall economy, by the financing of its broadband infrastructure and seeding a new industry, rather than just being as a tax on the sector [Forge, 2007, for European Commission/IPTS].

EXPLANATORY NOTE

There is the question of whether the NBTC can proceed without new regulation – and this perhaps might be possible but from the quite minor first step of introducing a new agency, ETDA, to handle OTT monetary transaction charges under the Ministry for the Digital Economy, it would seem new structures with their legislative support are necessary in the current conditions.

Note that the DSA when implemented in the EU acts over all countries, which is why the legal framework of ASEAN and neighbours is suggested here, to which the Thai government would be signatory at the level of the other countries, with aim of magnifying economic-political leverage over global players. That could open the door to national legislation for the DSA and DMA. The same is true for promoting new initiatives to revise the creative audiovisual production industry and especially its export potential.

That is why Scenario 3 has been created.

However, note that formation of an ASEAN level organisation does not preclude the move into new legislative initiatives at national level, in preparation for an ASEAN agreement signature.

4.3.6 Future development of the infrastructure for the audiovisual sector and online content

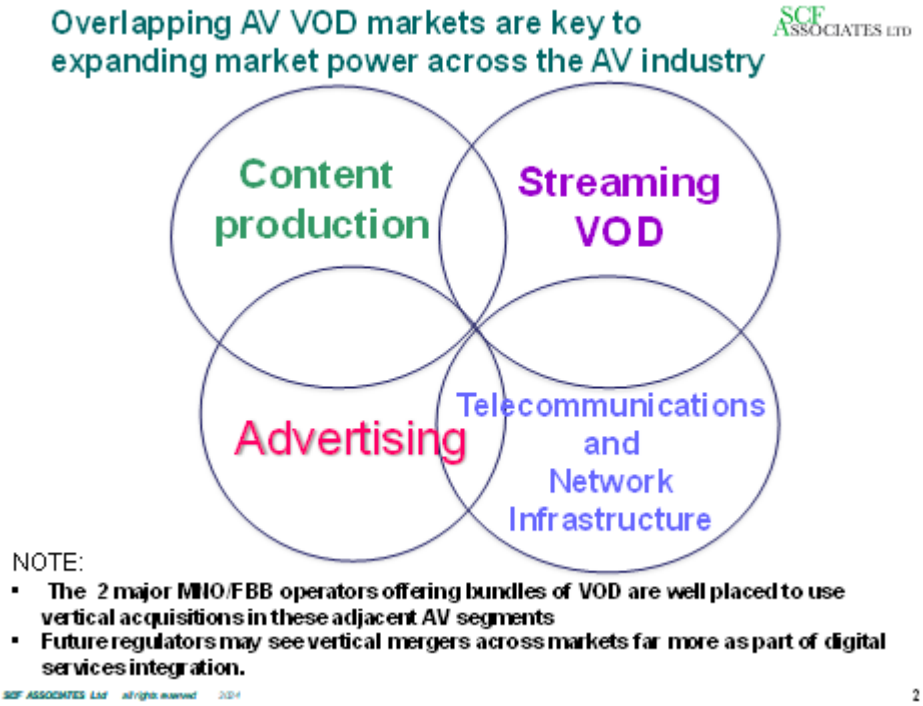
Delivery technologies in the form of broadband telecommunications networks, either fixed or mobile are essential from the standpoint of the AV sector, but that is just a component of their total use, by both households and business. Following the recent mergers of both fixed and mobile broadband networks, both markets have two main operators, plus some smaller players. Such 'duopolistic' market structures can generate intense price competition or else collusion not only on prices, but on service levels and innovation – so the consumers suffer

Accordingly, an abuse of market power by these networks, if it existed, would have wider ramifications for the Thai economy, especially for the audiovisual sector and of its growing streaming business. That requires effective and rapid response regulation of the sector by the NBTC and/or other bodies and so new powers are granted to examine the duopoly in broadband networks, both fixed and mobile, from the perspective of the AV industry.

These regulatory bodies decide whether both consumer detriment and industry level restriction of competition in streaming may arise if a mobile or a fixed network co-owns a streaming service, where the two may be bundled together at a favourable price, even when available separately. New powers for regulators for the AV sector are granted for regulation in the event that fixed and mobile networks in Thailand exhibit these detrimental features.

This concentration of market power could go further, if the MNO/FBB streamers move into adjacent market segments – for instance owning content production and parts of the advertising business to complement their streaming bundles with mobile and FBB connectivity:-

Figure 4-11 The vertical merger possibilities with the MNO/FBB operators would magnify market power



The merged market players that this vertical integration would produce gain strong economic leverage over the whole AV sector nationally, but following the trend in this scenario, would also provide a strong national platform for global content and perhaps streaming services exports into ASEAN.

4.3.7 Countervailing powers to balance SMP - with a separation of licences for content and infrastructure, and forming wholesale markets for Broadband fibre access and for Mobile

The new regulatory powers also consider the introduction of remedial measures – firstly in the form of two new wholesale markets in broadband (both fixed and mobile) with a key decision in 2028 leading to new major broadband capacity availability after 2029.

The relevant regulatory bodies consider two types of remedy to deal with a market failure which originates in networks, whether fixed or mobile. Both involve bringing more players into the downstream market for AV services.

In the first approach, wholesale capacity is arrived at by requiring each of the two networks to sell wholesale access to their network management, subscriptions and billing assets (which generate physical connections while managing the cashflow directly) to new wholesale market players. This is common in the UK, France, Germany and especially Spain which has a most advanced FBB infrastructure and use of independent wholesaler offers. These new competitors could combine the wholesale connectivity with other inputs, including streamed content and advertising, in order to enter the retail market, as is common in countries such as Spain. At first it is necessary for the regulator to intervene to assure suitable wholesale discounted pricing levels are offered by all operators. With increased penalties, this is successful and expands with new entry by entrepreneurs in content, some of whom specialise in the popular genres, such as Webtoons for smartphones, many from Korea, and soon from Thailand on a pay-per-frame basis as the wholesale networks market stimulates new content production niches.

A further remedy is not to just sell capacity on a streaming network for retail customers but to sell bulk capacity from unbundling the broadband network resources, to build up a wholesale market in network services that can be sold to the major network customers, including the global platforms in the GAFAM group. This could be achieved by moving to separate licences for the infrastructure of FBB and mobile networks for their owners and operators to disconnect the network infrastructure business from the bundled content management and retail sales operations that are currently integrated. Separation of the network and content services would result. The current telecommunication licence is silent on the carriage of content bundles, together with subscription services for FBB connection and mobile connection access. The future licences would for a telecommunications company would explicitly separate infrastructure access for both mobile and Fibre optic broadband from the retail and wholesale offering of content, streamed in non-linear Video on Demand (VOD) form or from linear TV delivered in digital streaming format. A telecommunications operator would then need a content licence, similar to a TV broadcaster.

However the broadband duopolists at first decline to compete on retail prices, and then bluntly refuse to unbundle their full network assets at a single wholesale price. Consequently, new powers are accorded to the telecommunications regulator, combined with the AV regulator to implement this measure by separation of content sales from the infrastructure ownership and operations. The new unbundling is forced by reason of not only to oblige the networks to offer the wholesale product, but also so that the regulators can set the pricing, while leaving a profit margin

for the wholesaler[374] as has been performed in France and Germany recently. From international experience they set prices at a level which remunerates the access provider with a return which covers its costs of production, including a reasonable return on capital, but does not deliver excess profits.

The same process can be extended to mobile network operators (MNOs) which can be required by a regulator, whether willingly or unwillingly, to create an equivalent wholesale product which a competitor (known as a mobile virtual network operator or MVNO) can acquire to provide a retail service to mobile customers – supplying all their mobile connectivity needs. The current Thai MNOs are very small but a successful MNO initiative could result in 15% to 25% of the mobile market being taken by MVNOs[375].

This approach by the competition authorities in Europe, the Americas and Asia Pacific for mobile companies which wish to merge obliges them to make a new wholesale market as MVNOs share capacity available at competitive pricing to impose a competitive constraint in the market. Appearance of a wholesale market can provide strong competition and price reductions.

4.3.8 A new broadband competitor for the remote communities

In early 2028, the Thai telecoms and AV regulators decide to introduce further competition into the fibre broadband markets on a national scale. Thailand benefits from the existence of an alternative operator, and in its revamped form, the NEW VILLAGE Broadband Network, over Net Pracharat infrastructure, ducts and wayleaves. It has new management, with its own operations centre and technical resources and an NBTC licence in telecommunications infrastructure and a new licence to sell content. Its network reaches remote and uncommercialised areas throughout the country, since the project aims to extend connections made by local telecommunications operators to provide FBB services for local usage. Thus the role of this network is to remove the digital divide and enable access by smaller new fibre services entrants, at local as well as national scale. It opens for services in its revised form in late 2029. New Village offers firstly FBB connectivity to remote homes and businesses as well as lower cost subscription prices due to its low cost of operations and its subsidies, as a public service dedicated to removing the digital divide in Thai

[374] The wholesaler may be termed an FBVNO – a Fixed Broadband Virtual Network Operator

[375] For example in the UK, 15% of the market is with the 5 larger MVNOs, and over 5% of the UK market is held by one supermarket. 21% of the MVNO market is in the business segment. A global MVNO CAGR of 7% 2024 to 2029 is forecast, Mordor Intelligence, and also GMINSIGHTS accessed Aug 2024, gminsights.com/industry-analysis/mobile- virtual-network-operator-mvno-market-report

society. It brings digital education for the elderly, as well as connection. It also offers a free high speed outdoor Wi-Fi service in remote communities.

The market demands a network which is viable both technically and geographically. The regulators between the several bodies involved settle ownership issues. Thus its capacity can be leased at wholesale prices to local small operators and resellers. The wholesale FBB market that is opened permits the social community networks offering free access via community Wi-Fi to be extended into fibre to the home (FTTH) delivery beyond 2030.

All of this market development must use checks and balances on competition and SMP. Monitoring the wider performance of the major network operators in Thailand, and the wider markets in which they sit, it is clear that these market supervisory and regulatory actions will be a key support element in the AV sector for the foreseeable future, and any form of static market failure (including excessive prices) and dynamic market failure in the connectivity infrastructure for audiovisual products and programming would tend to have an adverse effect on the AV sector as a whole. If the potential adverse effects noted above are present, then NBTC should take action. Thus the NBTC then considers the potential for the Net Pracharat as beneficial for a number of Thailand's remoter population groups, including the poorest, if it has coverage expansion and stronger maintenance and operational support, by local service providers, to stimulate the provincial economy. These actions also form part of the strategy of countervailing market powers through creation of new competitive markets[376].

In Thailand in the early 2020s, DTT and also geo-stationary satellites can provide linear TV broadcasting services to a high proportion of homes, often in concert with internet-based streaming technologies, based on broadband fibre optic or mobile networks. Broadcasters employing low earth-orbiting (LEO) satellites may be present after 2026, if these services enter Thailand. It makes sense for NBTC to take a view as to how these might benefit the TV Broadcasters, as an inevitable consequence of competition between different technologies. But with a free market in this case the transition may cause older technologies providing an essential service for some years before exiting the market before poorer households can afford the modern replacements and so provision might be made to prolong that, perhaps until LEO ground interfaces have fallen in cost, or the authorities decide to provide subsidised interface modules and antenna.

[376] Galbraith, J.K. (1952), American Capitalism, The Concept of Countervailing Power, (Houghton Mifflin, NY)

Turning to the linear television market, this is now available on DTT, also via a set top box from geostationary satellites, and on some streaming platforms, as well as the IPTV and CATV networks. As a matter of principle, It is important that DTT services are subject to the same licence conditions and other regulations wherever they compete, however in the situation of a laissez-faire regime little may happen so that would require a review of the regulatory situation. As noted, the Net Pracharat public fibre network could widen access to streaming, but may also rollout very gradually if capital constraints occur, so that would have to considered and budgeted for.

4.3.9 The move to BVOD and streaming by the TV Broadcasters

Finally other measures are taken by regulatory bodies attempt to address this issue. Subsidies are enlarged in 2029 with minimisation of licence costs for linear broadcasters and by subsidising domestic content on which linear channels may concentrate (as in Canada with a 'culture' tax on streaming to stimulate the free to air Broadcasters).

Must carry and Must Have rules may require streamers to make linear channels available on their services, which benefits their subscription and/or advertising revenues. Moreover there could be a reduction in the frequencies for broadcast TV as the ITU seeks further spectrum transfers to the mobile operators to serve their markets in this key segment of the radio spectrum. Moreover the move to higher resolution TVs – 4k and 8k pixels - with some take-up in Thailand - implies a reallocation is expected for mobile. That would reduce the TV broadcast frequencies by 30% or possibly over 35%. Moreover 4K high definition could demand (without better technology) would starkly reduce channels, in the currently available range of 470-690 MHz, by 80% - to 5 channels while Thailand has some 25 TV channels currently. Streaming over BVOD becomes more vital.

Injection of public funds for production for new content to promote the TV broadcasters' programmes and for a streaming BVOD (broadcasters' video-on-demand) platform, could be too little and too late to increase broadcasters' content and market access. Unless pursued immediately, the overall broadcasters market positions will decline and thus advertising revenues.

But the concept of a streaming platform for linear TV broadcasters could be successful – perhaps with initial funding by the administration and later complete funding by the linear TV broadcasters that share the BVOD streaming platform. That would not preclude them having their own streaming platforms of course for their own content libraries and catch-up viewers.

Following the example of the BBC in the UK (the state broadcaster) participates in FREELY, a new shared BVOD platform. Notre that since 2015 the BBC has launched its own VOD streaming

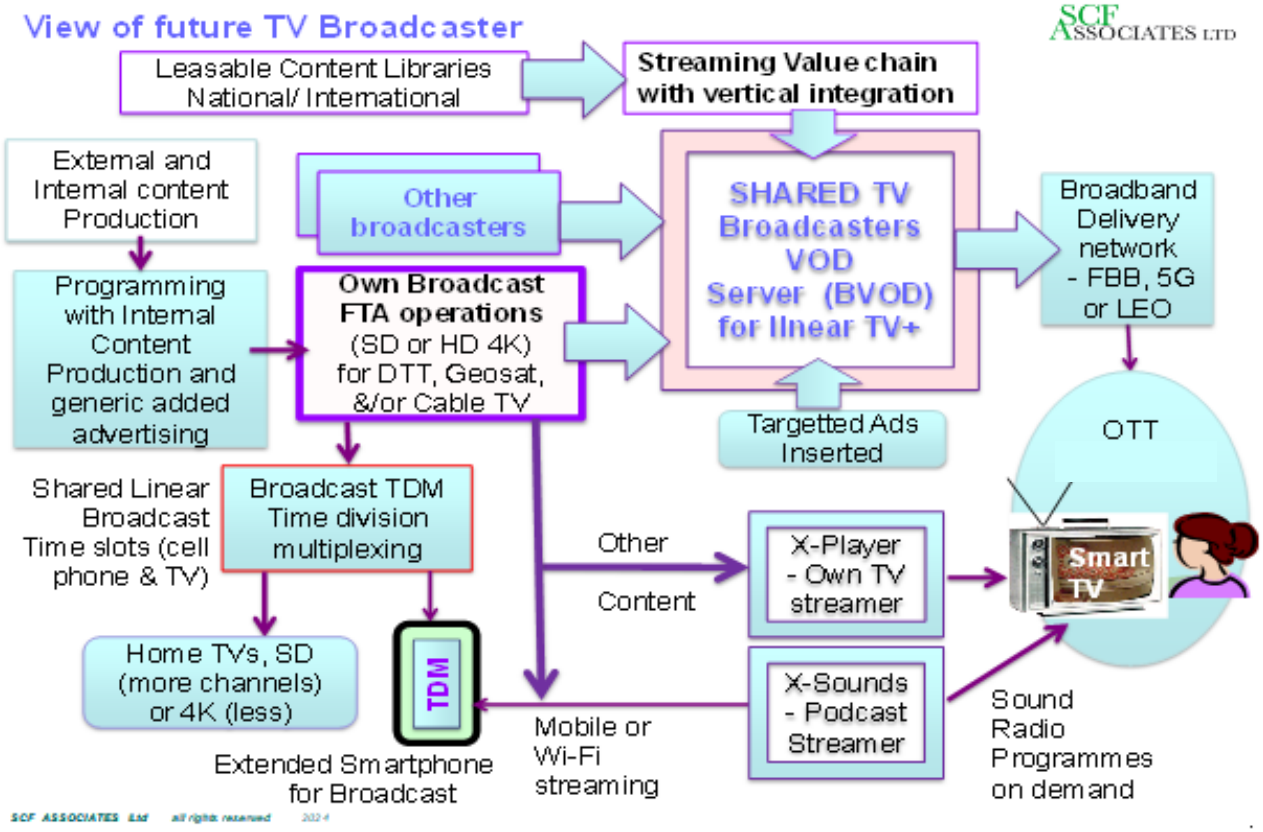
service – BBC iPlayer for video - and for sound broadcasts and other podcasts - its BBC Sounds IP streaming platform. As the market evolves, the major content libraries are opening their doors to resale to broadcasters – as in the UK, where Warner Brothers are negotiating with Sky to lease its film library and its streaming cartoons and drama series.

In Thailand, these new developments overseas are followed closely by the Thai TV broadcasters who realise this could be a new advertising stream and thus financial survival.

They carefully avoid a common problem with many streaming platforms which is the attempts by the manufacturers of 'smart' TV sets to lock in customers and platform providers to a proprietary operating system that manages the interfacing of the TV set to the streaming channels. TV manufacturers are currently in an operating systems war in the USA over this.

Unfortunately, Freely in the UK initially made the major mistake of signing an accord with Chinese manufacturer HI Sense to use its proprietary operating system, rather than an open software interface as is more commonly used. This implies users must buy a new television set to watch Freely made by Hi Sense. The five new ranges of distribution options for the TV broadcasters are shown below, from 5G to a shared BVOD, for linear broadcasts via streaming media, well as their own streaming platforms for their past content and for new streaming content, possibly acquired from the major content owners such as Warners, Disney, MGM (Amazon) or the Chinese providers. It also includes delivery via 5G TDM broadcast reception on smartphones with the required chipset:-

Figure 4-12 Potential future for the TV broadcasters– multiple streaming channels to market



That generates advertising revenues for the TV broadcasters and increased taxation revenues for the state as the BVOD streaming takes off as it is carefully promoted to streaming households.

4.3.10 The market matures

For the streaming services, the many streamers in Thailand differ in their offerings to the public – by language of the content, the genres, the cultural tradition with wide diversity (for example, majoring in sports, drama, gaming or comedy) form a global mix. The streaming services are likely to expand in content types, funding and payments. But any given market of competing streamers is likely to exhibit increasing returns with scale, as those with more and better content will attract more customers, and use the proceeds to win contests for content with other streamers, either in bidding for completed content (such as blockbuster movies or key sporting events) or for the talent to make its own content.

On the content side, Netflix now spends in 2024 US$17BN per year on new content, most of it sourced outside the USA, as that is where 67% of Netflix viewers are . Note that Netflix, as it expands is concentrating on lower price tiers as streaming moves down market and Netflix has to seek appealing content for that audience segment, from anywhere globally. The reverse of this

Netflix virtuous circle of more content, more customers attacks those streamers with fewer customers and lower content budgets. This repeats the experience of the strong streaming competition in the USA – among the Hollywood bunch. That induces some of the Thai TV broadcasters to consider mergers among themselves.

Thus analysis of the position of streamers globally shows that concentration is increasing, and that some smaller streamers can make more money out of selling content to a larger streamer than exhibiting it to their own fewer customers. In fact Disney already sells its streaming bundles in 2024 to Netflix for lower cost distribution – and Netflix expands its offering. In Thailand, with its rich variety of streamed content in the early half of the 2020's decade turns to decimation of the smaller streamers, as the global platforms can sustain losses for far longer than the small players. Market concentration ensues as the smaller streamers with poor content lose customers, website tracing and objectionable content finally comes under a rapid specially when . Little follows within regulators or competition authorities, although first moves towards a broad OTT legislation are begun.

ETDA (as empowered currently) declines to regulate the OTT streamers because they do not fall into the categories of financial transactions which the new unit was set up to regulate and tax. Thus two-sided markets are effectively excluded. Moreover no regulatory unit has the market data to understand the levels of competition and their direction, so that anti-competitive behaviour could be reigned in. Audiovisual market surveillance needs to be installed for rapid reaction and this begins.

While the Broadcasters continue with linear television, which is now available on DTT, cable TV and geosatellite, IPTV and Cable, as well as BVOD, it is becoming more widely available on some popular Thai streaming platforms. And so the broadcasters invest more in better content for this new market, which also does well when transmitted on traditional free to air channels. But unless new policy positions in the regulatory and administrative bodies are taken, DTT services will still not be subject to the same licence conditions and other regulations wherever they compete with the OTT streamers and whoever they compete with – notably the global streaming platforms.

Essentially, the principles of a level playing field, for all media providers, broadcasters and streamers would need to be applied. Furthermore, there are reasons for concern about linear television displacing broadcast increase as adoption of streaming grows by the more affluent households. Thus, poorer households, often with older age-groups, find themselves viewing linear channels whose finances have been undermined by the increasing use by richer households of

streaming – and so content quality suffers. As noted, the three public fibre networks may widen access to streaming, but this only happens slowly because of capital constraints.

Measures available to the NBTC (with others) to alleviate this issue need to be considered with care. Subsidies can be directed to linear broadcasters, either directly or by subsidising domestic content on which linear channels may concentrate – as happens in Canada – but is it enough? The Must Carry rules do not apply to streamers or the necessity to make linear channels available on their services. As hoped for, arrangements are progressively made to stream TV broadcasters' programming by a new project promoting a dedicated BVOD (broadcasters' video-on-demand) platform, to drive the relevant broadcasters' revenues and market exposure. This joint platform ownership, financing and operation has to be shared – a reliable independent operator is chosen.

They are joined for content and ads streaming by GAFAM entrants (Apple, Meta Facebook possibly MS, as has MSN already, but less likely perhaps). as well as Netflix and the ASEAN/ Chinese OTT players – TikTok, WeTV, Viu, etc. All the GAFAM group may go to LEO. Note that each of the GAFAM players may also follow Amazon with its acquisition of MGM to reinforce their offerings in the streaming market. Thus Disney, Warner, Universal, Paramount and others may become subsidiaries of the GAFAM members as a necessary content library asset for their conglomerate strategies.

With sudden presence - but also with some caution - the LEO operators now enter the market (mostly SpaceX-Starlink, but possibly Amazon's Kuiper, and a few others - conceivably OneWeb and Telsat (Canada) but the most probable competitor are the Chinese systems (one is currently launching 13,000 satellites into 2025 using their Long March rocket system).

All offer OTT delivery for SVOD, the BVOD and linear content across the nation – for remote areas first, then suburban, then metropolitan centres. Swift and simple NBTC licensing for the spectrum bands required is drafted as this could be a lucrative new funding source for the AV sector. LEOs use the Ka and Ku bands, conceivably without Geosat operators being interfered with, or even realising perhaps (if narrow beamforming really works without interference to adjacent Geosat broadcast users in Ka and Ku bands, due to the narrow focus of LEO beams, which are also some 33,000 kms below the geosats).

4.4 Scenario 3 An industrial strategy to drive international export operations and compete globally in the AV market

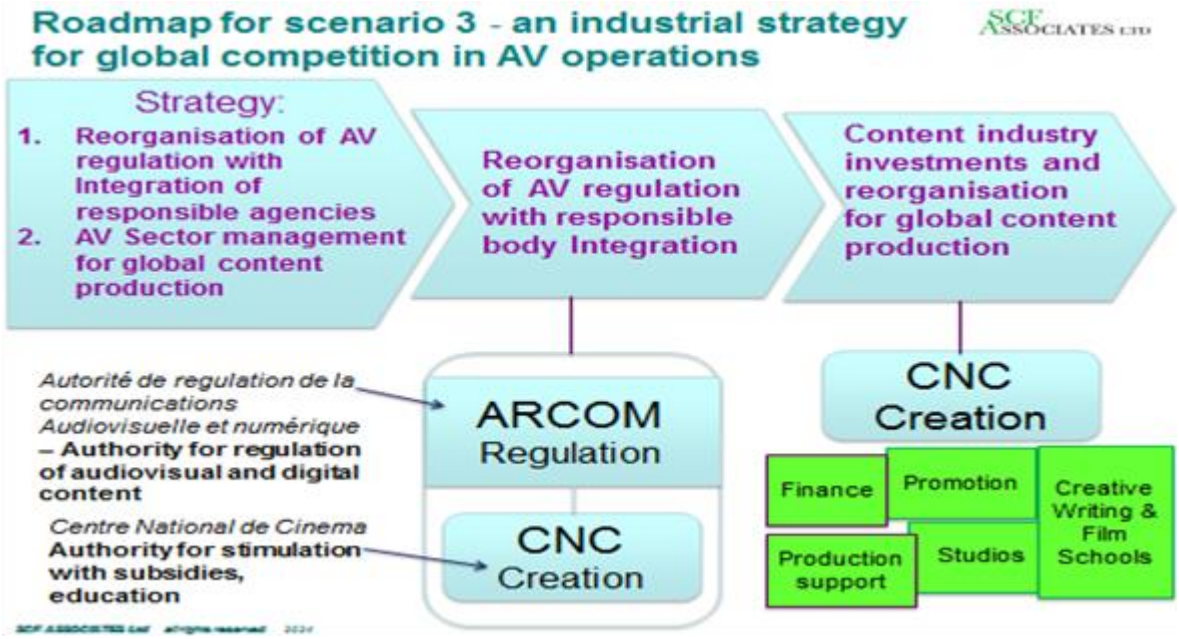
4.4.1 A New Overall Framework

Thailand today –a problematic prelude

At this time the TV broadcasters find they are losing both market share and digital advertisng revenue. The current situation is a common one across the ASEAN community and globally – a heritage of broadcst television is being overtaken by the new format of streaming video on demand (SVOD). That is because it gives viewer choice control of content and a wider library of content. Morever, often programmes are of far higher quailty than the broadcast linear content as much larger budgets/minute are spent for a programme sold on a global market, rather than a national market. That also has the effect of taking most of the digital advertising reveunues, which will disappear out of Thailand to the USA, China and elsewhere, as the streaming and digital platforms are also dependent on advertsising in the FAST model – Free Advertising Supported TV, as well as subscriptions.

Our approach follows the previous steps for each scenario, of deciding on the theme, then looking at initial conditions and forming assumptions with assertions that lead to a set of hypotheses with the main drivers.

Figure 4-13 An Illustrative guide to Scenario 3 – setting up the two new industry bodies



Source SCF Associates Ltd

Moving towards an industrial strategy for the Thai audiovisual industry

Fortunately the Thai industry and its supervising government and regulatory bodies decide to pursue a new inititave. The aim is to revise the industry and so reverse its possible decline into an online world governed by the international platforms with a failing linear broadcast market, in which digital advertising and other revenues move offshore, out of Thailand. Balance is also sought with stimulation of the creative content segment especially, to attract new investment, commissions, creation of TV video and film content, and with it, the latest in AV studios and skills.

The above all requires a major change at a managment and operational level.

It also demands detailed changes at a regulatory, legislative and operational supervision level. It must draw on the organisation of the sector under a strong industrial strategy which unites five key elements to build a new AV sector that can compete internationally:

- Encouragement of inward investment from overseas – be it from the streaming players themselves (especially Netflix but also Amazon Prime and the Hollywood bunch, plus ASEAN and Korean, Japanese and Chinese partners)
- Encouargement of national investments from the sector, but also from Thai conglomerates with a need for investment opportunities, especially if they offer a combination of tax breaks and diversification.
- Subsidies for overeas film makers to perform script writing, pre-production organsiation production within Thailand and also post-production in Thailand.
- Investment in major new film schools – first for creative writing and then for the new thechnologies (including AI techniques) for localisation and use of lip-synching, language changes with facial expression. This is accelerated by hiring large numbers of USA writers and technicians who have no work in Hollywood, following the production strike over AI and have not been hired back. Exchanges with film schools for students and teaching staff are set up with France and Thailand. The prize creation is a focus on creative wring for scenarios, with a new academy of creative writing and production.
- Strong promotional funding for participation in over 20 major global film festivals for the most talented creations, be they features, documentaries or short form, unscripted content.

However the online world of the Internet and World Wide Web presents major challenges for a safe Thai society, especailly when presenting media that can become a social and economic problem.

Current rapid and major changes in the audiovisual and digital landscape thus require the creation of a new regulator, with strengthened and expanded powers for global OTT platforms and their carriage of audiovisual media of all kinds.

4.4.2 A new online regulator for digital audio visual media should integrate multiple bodies

When one looks across the different media in Thailand one sees different degrees of regulation - currently heavy for broadcasters, light for streamers, none for social media (often the most harmful), search and video sharing. Thus there is a need to make regulation equal for all in terms of costs and rules, with most difficult and most in need of efficient regulation being the online OTT services and their platforms. Note also that providers of linear broadcast TV services are being left behind by the OTT streamers offering more expensive - but preferred – media services. Such switching by income class is becoming irreversible and accelerating - leaving the poorest last. The new Thai Regulator for Digital Audiovisual Media (RADAM) is the result. This is based on the similar new regulator/ sector support body created in France over 2021/2022 (ARCOM), bringing together nine different bodies supervising the audiovisual industries in France.

4.4.3 A possible way forward: using country examples - France and South Korea

France has had many overlapping agencies in the digital and media markets but none fitted the new problems raised by digital media and global platforms. In consequence, using government support over 2021 and 2022 it reorganised the range of regulating and support bodies radically to produce a new agency (ARCOM – Autorité de regulation de la communications Audiovisuelle et numérique – **Authority for regulation of audiovisual and digital content**). For an English review, see–

- https://www.arcom.fr/sites/default/2023-6/English version-presentation kit arcom.pdf
- https://www.arcom.fr/sites/default/files/2023-06/Livret%20interactif%20ARCOM-13-06-2023-%20livret_EN.pdf)

This new body has addressed the problems of regulating two major AV areas – the protection of consumers using OTT services and secondly regulation of the financial revenue problems and competition issues with the online OTT players - GAFAM global platforms and others. It has also ensured a bright future for the TV Broadcasters and their revenue stream as well as their commissioning of high quality content. It must block illegal websites, bots and mirror websites.

ARCOM consists of nine functional units, plus internal administration and finances (355 people and a budget of 46 Mn Euros (1,702 Mn THB) :–

1 Online platforms, social networking practices, search engines and harmful content;

2 Pluralism of opinions, audiences and programming for social cohesion;

3 TV broadcast and Video on Demand: supervises DTT broadcast and OTT VOD for market access and broadcast spectrum management. Thus ARCOM is responsible for 32 free to air channels and their continued success with new access to interactivity via streaming for a balanced offering (66% of Internet users have a VOD subscription in France). It also judges mergers and acquisitions (eg TF1/M6 TV broadcasters) with the competition regulator.

4 Audio broadcast radio – for DAB+ and analogue FM broadcasts, frequencies, etc;

5 For new content creations – defending media obligations, rights and digital content online;

6 Participation in forming EU regulation and also external regulatory participation globally;

7 Legal department, to study and interpret new media law and give decisions;

8 Research Studies and forecasting;

9 Public promotion through communications on ARCOM's values and role;

10 Administration, finance, HR, offices and IT.

Overall, the role of ARCOM is to ensure the plurality of views and the balance of content in the digital AV market.

It guards against the manipulation of AV content, with respect for protection of minors, also respect for women, with intellectual property rights on the origins of content, applying to both the digital OTT operators and the broadcast television operators, embracing whether financed by subscription, pay-per-view or advertising and the independence of mass media.

ARCOM has taken over the responsibilities of several agencies - firstly the agency for the platform regulation with DMA and DSA (from the CSA – Conseil Superieur de l'Audiovisuel) and also that for protection of Internet rights and for content distribution digitally (HADOPI). It is responsible for AV frequency allocations– TV broadcast, satellite and FM radio with DAB+.

Effectively ARCOM regulates the digital OTT services segment of the online AV world, as authorised in France, as well as the rest of the digital AV industry. It takes over this role that previously was split between ARCEP (telecommunications), ANFR (spectrum regulation for telecommunications), CNIL (online freedoms and protections), also the competition authority in AV

matters, the government and political process transparency commission, for questions of online conflicts of interests.

ARCOM has a media industry companion body for national AV promotion with an industrial policy for expansion of the sector: the CNC – the Centre National De Cinema et de l' Image Animé, which in function is close to South Korea's KOFIC (Korean Film Council launched 1973 which promotes the national video, music and production side, subsidises films and builds film studios). The CNC's main role is to support new and existing AV media projects, of any size. The CNC also promotes education, including formal creative education and technical film production education, in all metiers from screen writing, to lighting to VFX specialists to a stunt person to producer to sound editor to décors to costumes.

Thus ARCOM has been constructed from a merger between the main regulators for audiovisual content (the authority overseeing the protection of property rights online and supervising the nature of the content) and those for the lawful dissemination of online content. But most essential to operations is integration of the fiscal body responsible for taxation of online e-services, using real time taxation, for the first time perhaps.

For this new market it is critical to bring together these relevant dispersed bodies. This could end the previous fragmentary approach to the regulation in Thailand of digital media over a mix of global and national regulations, with a future that requires considering ASEAN OTT platforms. Thus the structure of the new Regulator for Digital Audiovisual Media (RADAM) is that of an independent public authority with integrated powers for the emerging audiovisual sector in a digital environment. It is closely modelled on ARCOM as French model that works quickly in the market, solves the problems of multiple bodies across government being involved, and is able to administer an industrial strategy for the sector, as KOFIC does for South Korea. However RADAM's role is closer to its regulatory responsibilities than KOFIC, following ARCOM.

Created in 2025/2026, RADAM regulates all the on-demand audiovisual media services, including SVOD. It also manages the agreements with broadcast television services and SVOD streamers. It thus deals with issues relating to their economic regulation and to the balance of distribution of revenues between broadcasting and online distribution of audiovisual services, as well as to prevent sales of pirated and illegal material. It draws on the experience of the EU's digital audiovisual policy, anti-trust regulatory departments, as well as Ofcom in the UK, and ARCOM in France.

Importantly, it is responsible for specialising in regulating the social media sites, search engines, video sharing platforms as well as SVOD streaming, viewed as forms of digital media. It oversees their operations, and most importantly here, their success in preventing manipulative, harmful information, fake news and hate speech with use of fake user accounts.

Over 2026, RADAM forces Facebook/Meta, X, TikTok and YouTube/Google and other global platforms to close a large number of fake accounts[377] used for election manipulation across the ASEAN countries, also for selling fake products, for child pornography, etc. This is performed with and without the platform's agreement due to RADAM cyber centres' advanced toolsets for both detecting anomalous behaviour and online accounts and their tools foe taking down accounts and whole sites.

As the guarantor of freedom of communication and expression in audiovisual and digital spaces, RADAM's role is to oversee the democratic, social and especially the economic responsibilities of audiovisual media and online platforms. Its powers are based on supervision of OTT platforms, using strong and rapid enforcement by projection of international regulatory instruments, such as the EU's DMA and DSA. These are adjusted for the ASEAN markets, and include the Data Act for cloud services operators and the EU's AI Act. These are all adjusted for ASEAN agreements, to assure joint ASEAN negotiations with global platforms across the ASEAN markets.

Internally, RADAM is composed of a board with seven people - its chair and six other members, three men and four women, appointed by six separate related authorities, to ensure independence and to encourage diversity of backgrounds. Every board member chairs one working group and is vice-chair of a second group, for social, operational, technical, legal and financial questions. The board members are all experienced professionals in the audiovisual and digital sectors for issues in their group's sphere of competence.

RADAM acts nationally, but also ASEAN–wide, through eight national Thai branch offices, provincially, with some 400 staff. Over 50 of these are engaged internationally, with ASEAN offices and for global platform legal issues, with permanent offices for regulatory coordination with the European Commission in Brussels and the Department of Justice and the FTC in Washington, DC, USA coordinating on DMA and DSA extensions plus the AI Act updates, annually. It has national scale online monitoring and cybersecurity operational centres, using its own newly developed

[377] This figure is indicative of the size of the problem in the USA elections in 2016 which exposed 44% of the electorate in 2020 and in elections in the EU.

pattern recognition ('AI') tools. Its national cyber-awareness service provides complete supervision of all Thai OTT audiovisual services and channels in real time:-

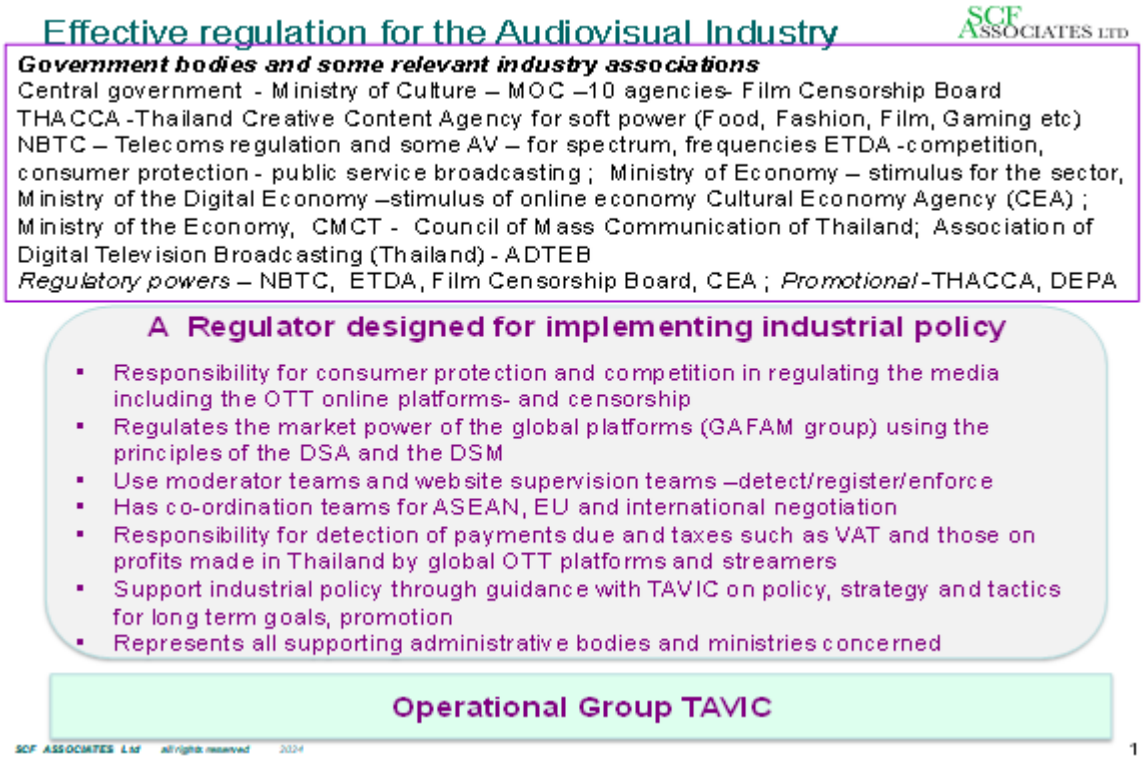
- Streaming and other subscriptions for Video-on-demand offerings (SVOD)
- Revenue streams from digital advertising and collection of customer data for resale, with assessments for its e-services taxation
- All online services in Thailand including video sharing and social media

RADAM works to protect audiences in an era digital social networking of major social issues affecting audiovisual OTT media and on online platforms, for:-:

- Protection of minors, respect for women's rights, combating discrimination,
- Accessibility and disability, with balanced representation (right to reply rules)
- The defence and promotion of consumer protection, public health and ecological transition
- Enforcing laws on restrictions of sales of smartphones to those over 17 years only, as recommended in the USA Surgeon General, declaration (17 June 2024)
- Media and information literacy for all audiences
- Awareness of legal and secure Internet use.
- Pluralism and ethics in media programming.

The agency, through its e-services tax collection, can also act as a limited financier for approved audivisual project subsidies especially for new creative projects that atre difficult to find finance for. The overall organisational structure with the new production industry administrative body (TAVIC) that will redefine the sector is shown below.

Figure 4-14 Move to an operational management centre – RADAM for governance and taxation, with creative centre TAVIC – the Thai Audiovisual Industry Council - transform AV sector into a major industrial profit centre



RADAM acts as counsellor, regulator and protector of the AV indusry. Its practical interface to the industry is through a further body, with which it works directly, for instance on campaigns to prevent the spread of illegal content over web and to stimulate new employment in the sector.

RADAM works to support this separate practical, operational body that manages industry production, with promotion nationally and provincially, through subsidy finances to stimulate creative material for new content. This is the **Thai Audiovisual Industry Council** (TAVIC).

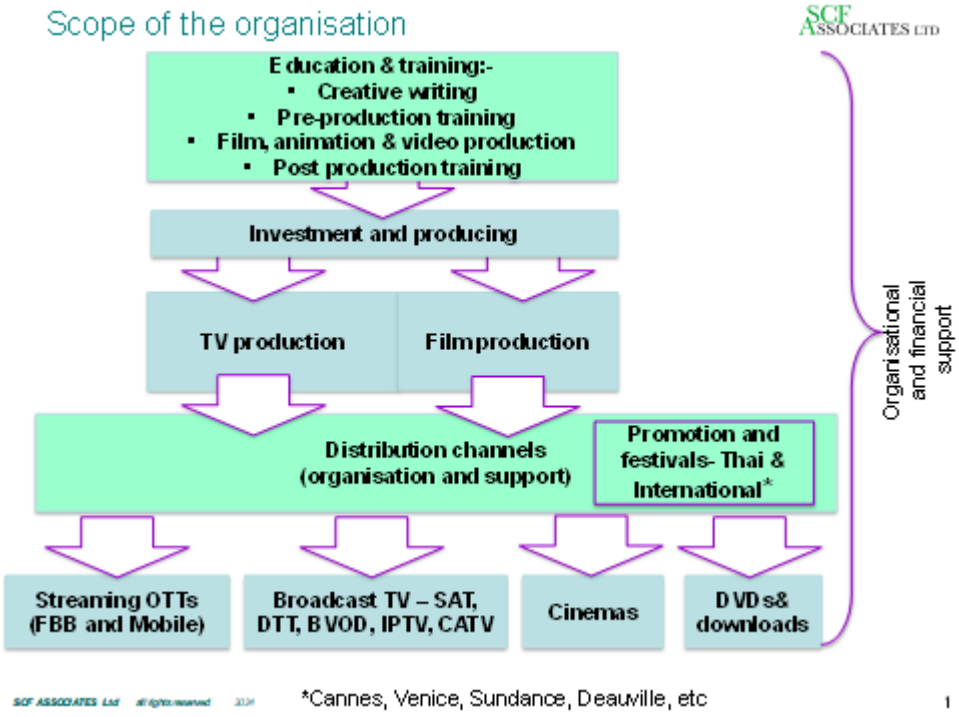
TAVIC has specialists in all AV technologies, including the latest VFX/'AI' for TV production and film, plus organisation and recruitment of crews, advice on financing, including tax breaks and subsidies and foreign production coordination, etc. It is entirely focussed on key professional AV sector issues in its single industry focus. Its role is to act as a catlyst in attracting new productions, bringing inward investments and exporting the results globally as well as nationally. Hence TAVIC, as an operational body, can support and intercede at each stage of the media industry value chain to ensure succesful creative productions and expand global export possibilities directly.It also has the traditional promotional role of CNC in organising major TV and film festivals and ensuring

attendance and promotion at the major international festivals for the AV industry (Cannes, Sundance, Venice, New York, Deauville, etc).

It is highly focussed on AV production/distribution for TV and film. As such it is quite unlike a national promotional body such as THACCA with its very wide soft power agenda of all the creative arts - Thai food, design in fashion and publishing, as well as promotion of Thai art and music as cultural icons through global promotional activities.

Moreover, TAVIC participates with RADAM as the operational body with the relevent ministerial industry bodies in drawing up 5 year and 10 years plans for funding and the AV industry expansion goals for global exports. TAVIC sometimes leads on issues with ARCOM - for example on pirated content. The scope of TAVIC in stimulating growth across the value chain is shown below:-

Figure 4-15 The sector will be supported by the Thai Audiovisual Industry Council (TAVIC) at each stage of the value chain



This model is based approximately on the roles of the CNC (since 1946) and ARCOM (newly created as a cross governing body for the AV sector to implement the DMA and DSA in France, really in 2022 / 2023).

4.4.4 How the new framework operates over its first 10 years in its industrial strategy role

Using an industrial strategy for revising the Thai film industry is the basis of expansion in the sector. The aim is to support creation of videos, films and animated works for an international market with the emergence of a success model through globalisation over 2024- 2034).

The industrial strategy model for global growth- the lesson of South Korea

Using its new organisation for stimulating creativity in the audiovisual sector, by 2035 through TAVIC and its financial instruments, the Thai audiovisual sector has expanded rapidly, working with all relevant bodies, especially operational agencies such as the Thailand Film Office and local administrations. Note that TAVIC unites its regional boards that manage and encourage local facilities for production, shoots and locations, throughout Thailand, promoting local employment needs, but also disburses funds for new regional film and TV programme-making within their territories. The regions are responsible for stimulating local creative projects and technical training and facilities. TAVIC does not try to centralise film production around the capital but deliberately spreads it regionally for a wider economic impact.

With its newfound creative talent, Thailand leads much of Asia - and the world - in implementing an industrial strategy for the audiovisual industry, largely through a series of 10 year plans with concrete, state funded goals, FDI encouragement from the global audiovisual industry and some investments from a group of large private Thai conglomerates.

To a limited extent this approach echoes the Korean experience using their business conglomerates (termed 'Chaebols') to carry them out[378] with strong investment financing. But the initiative above combines the new French audiovisual structure (ARCOM, 2023[379]) that is based on creative impetus from the CNC (Centre National de Cinéma) a state organisation that has carefully developed the French audiovisual domain since 1946 into a global exporter with all the major film and TV studios from the USA moving into France for production and post-production, as well as novel script creation from its highly reputed film schools.

[378] Forge, S.,& Bohlin, E.,,(2007) Managed innovation in Korea – the case of Alternative Wireless Technologies to move towards 4G mobile at a national level, Elsevier, Telematics & Informatics., doi:10.1016/j.tele.2007.10.002

[379] ARCOM en Action 2023, https://www.arcom.fr/actualites/2023-en-action-larcom-au-service-des-publics

The various Thai audiovisual investors have been directed by successive Thai governments to encourage inward investments and to implement a long term industry creation as has been followed in other key industrial sectors– eg car production, food processing, electronics.

However the nature of the sector also requires a finer granularity of investments for shorter term specific projects such as funding one film or setting up production studios with sufficient finance for a series of films. Here the new framework under the TAVIC (Thai Audiovisual Industry Council) comes into its own.

Note that the original Korean (and to a some extent French) industrial strategy is to invest large amounts in the development of products that are able to compete on a world scale, such as 5G and LTE mobile systems, memory chips, smartphones or cars, using the home market as a testbed before an export drive is pursued. Thus the Korean government's adoption of a globalisation policy for film exports has been the major catalyst for their growth[380], exports and IPR value and this should be recognised. It was not the industry itself that catalysed its expansion to a global player – it was the government's industrial policy. Largely, it began in the 1990's under the Kim Young-Sam administration, when the government revised its policy on the media, from being a secondary industry, just aimed for national consumption. When the Korean Government recognised that the film sector, with revenues equivalent to the exports of one million cars, was an unexploited cultural asset, with a profitable industrial capability[381] it imposed its industrial strategy model, used since the 1980's to expand the GDP/head to US$34,700, near to Japan's.

Impacts on the traditional broadcasters and other audiovisual services

Note that this focus on an export market for content in the K-Pop or Hollywood style does not preclude content that can be shown within Thailand and could return the TV broadcasters to more favourable viewing figures across all age groups if they use this expanded source of content to power twin revenue streams from adverting – the broadcast sector, with its need for content renewal and the use of a BVOD streaming platform.

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[380] Fisher, K. (2020) The Emergence of the South Korea Blockbuster through Globalisation: Creating Films for an International Market for Profit, 03 Mar 2020, https://katefisher.blog/2020/03/03/the-emergence-of-the-south-THAILANDxn-blockbuster-through-globalisation-creating-films-for-an-international-market-for-profit/

[381] Oakes, B 2018, 'New Korea Wave', Journal of Film & Video, vol. 70, no. 3/4, pp. 103–105, , Academic Search Complete EBSCOhost

4.4.5 Applying the model to Thailand's media production industry

Such an industrial strategy was applied to the Thai creative industries, especially film and TV from 2024 but first the Thai government decided to remove significant censorship barriers. Scripts for more realistic and evocative films closer to the reality of viewers are the results. However, Thailand previously has lacked international levels of quality and creativity in scripts and techniques and that has required revision of freedom of expression in film scripts (Han 2011).

As with all Thai industrial policy, the need for globalisation is intended to stimulate national economic growth – and here, perhaps surprisingly for Thailand, this was recognised by government as a creative culture that could be a revenue source- with a new cinematic wave. Previously this policy of major government-led creative support in technology had been pursued in cars and electronics assembly and goes back to food processing, built up since the 1980's.

The Thai film sector's success is a major factor in the expansion towards a global cinema trends since 2010, and video successes of its new realist genre – a form of 'Nouvelle Vague' for Thailand. It led to the creation of a Thai cultural global success, Xinual, a film about the reunification of a family lost between the countryside and the cities during the times of political divisions. In the past, such a controversial subject could not be considered. This follows the new 2023 new self-regulation bill to decentralise censorship by launching the Thailand Creative Content Agency and the placing of censorship decisions under a self-governing council of the film and video producers, announced by the Culture Minister.

The same occurred in South Korea with a film on understanding the unwilling plight of North Koreans but its telling, influenced by the style of 1980s Hollywood action blockbusters (such as Steven Spielberg and George Lucas, with Indiana Jones). In the Korean cases, as would be expected, the main Chaebols were encouraged to finance this – so the major success was partially funded by Samsung.

However today, as success is measured in box office receipts, there are potential new problems, especially in Thailand, in attempts to repeat past formulae which bring problems of saturation of the same content storylines, genres and characters for viewers.

Music is also coupled into the film genre and video production as parts of each film's cultural references – to change the whole feeling of various scenes(just as K-Pop is being brought into films). The Thai music scoring sector is given a major boost by expanding into video and film production, as well as for gaming. This requires complex financing, mixing FDI, government subsidies

and internal financing by the industrial groups creates a structure that encourages larger budgets than previously in Thailand.

It enables quality advances in script storylines, matched by techniques for new styles of narrative structures. Imports of the experts left over from the Hollywood strike against AI are imported for scripts and technical expertise. The combined effect is a new realism in the Thai cultural and style. It is a break away from productions up to 2024. The films that come after have been shown in film festivals worldwide.

Consequently, for the first time, Thai films begin to rely on the general global market for interconnection and can flourish in their own style with success both locally and internationally, creating their own reputation and so longer term success. That could not have been made without the government forming a globalisation policy that demanded local media producers and other domestic companies to invest in the local film industry, as well as changes to censorship of the media, all of which attracted local investment, as well as the international investors, intrigued by festivals.

The changes made intend to create profit by internationalising Thai film and leveraging the international film festival market to sell completely original films with much stronger storylines. Such a strategy results in Thai films, especially those provided with larger budgets, being designed to appeal cross-culturally. That keeps the local Thai film industry not just alive and profitable but expanding in content quality as well as revenues.

Such larger budget films are designed to present messages at several levels:-

- For the international viewers, as well as for the national audiences
- Having distinguishing themes linked to Thai values and scenes, with locations that constantly bring home the diversity of Thai values and life. Film genres are also expanded into shorts, documentaries, slow tales of family lives yet mixed with high action thrillers. Major successes are a highly varied, unpredictable yet ‘must see’ creations.

4.4.6 Introducing globalisation with government support

So globalising the scripts, production techniques and post-production quality can make Thai TV series and cinema highly successful as an export sector, with much larger budgets. But that relies effectively on government support of the industry, in orchestrating four main areas:-

- Investments – both subsidies from government and encouraging industry with tax breaks

- Major investments in educational facilities - most importantly - for creative writing for scripts and secondly of training in production technology and post-production techniques
- Major promotional efforts with festivals in Thailand and more important, globally. The international festivals offer major leverage points, as exceptional films exploit the international film festival marketplace to showcase and sell films; a profitable strategy that has expanded local industry to ASEAN and global audiences.
- Organisation and support of BVOD platforms for the linear TV Broadcast within Thailand, for both 'catch-up' linear programing and new TV broadcaster funded content.

To create an internationally appealing Thai film, three ingredients are used:-

- Asian cinematic techniques and styles to add to their Thai stories that can form a cultural amalgam with Hollywood mainstreams plus new and different cinema styles and characters.
- Hollywood style films – using the blockbuster approaches, while maintaining cultural cinema diversity – such as a Thai manga style
- BUT as always the real key is in an outstanding story line and script that is not only mesmeric but has global appeal. This may require more ingredients from the film noire, as Korea has used, it being natural in their culture, but it may also be the exuberance and spectacle of Bollywood or the suddenness and surprise of plot twists in the Nouvelle Vague.

Conversely, the persistently increasing production costs, and the constant search for higher quality of content for export, challenge successful profits. However, there is a balance – reached as commercialism becomes more important than the art of cinema itself. With the move to high quality content an expansion in the consumption of locally produced film and streamed video content occurs, moving away from dominance by content from the USA, with 60% market share while local content remains static at 20% and the rest is a diverse mix from China, and Japan, with gaming, social networking and Kung Fu from Hong Kong/China.

New writing styles for Thai storylines brings in more nuanced cultural influences and styles for the larger budgets (relative to current Thai budgets) within a stronger narrative structure for appeal to a much wider audience overseas.

As a result several Thai films can be entered as contestants in the International festivals (Cannes, Venice, TriBeca, Deauville, Sundance, Amsterdam etc) especially both specialist genre

films and the big budget blockbusters, will be entered into major international film festivals to promote emerging Thai films and find distribution (profits) across Asia and beyond. Jameson (cited Wilson 2001, p. 313) notes for Korea that "...the push towards making the `festival film' and winning international recognition becomes the means of a national-based film survival...". The Thai push towards festivals succeeds as the remake rights are sold.

This has the key catalytic effect of focussing the interest of Hollywood and more importantly, Netflix, on distributing Thai films. Then Netflix decides that commissioning new projects in Thailand could be successful due to the lower costs for highly skilled production and post-production. Thai producers accept this despite the problems of the Netflix model:-

- All the rights must go to Netflix
- There is very little promotion usually as the film will be part of the Netflix content library. This is aimed at each individual customer, using preference algorithms based on past choices "a market of one"

Eventually, with critical successes, the GAFAM group, and also Hollywood became more interested in distributing Thai produced films and the previously uninterested European film industry also wants a stake. Without the prestige and market of film festivals, it is unlikely that Thai films would become so popular outside of Asia.

Thus whether the financial success within their local industry would continue to flourish is debatable. Film festivals, such as, the Festival de Cannes, Venice, Amsterdam, London and Sundance offer opportunity for critical and global recognition of Thai films. Thus as the sector takes off, a first success is that a Thai contender in 2027 is nominated for the Palm d'Or and won the Grand Prix in 2004. Thailand continues to use the festival market to showcase their films and enjoy success.

Rising production costs mean fewer new filmmakers are given opportunities and formulaic storytelling is given precedence over new methods and ideas, restricting the industry's ability to evolve with the market and audience as the industry focuses more on profits than on artistic merit. This is ironic considering that the Thai film industry has become popular nationally using existing methods and models.

4.4.7 Reshaping the media sector for international competition for the long term

For the future, these must be reshaped into a new meaning and culture. The commercial focus of Thai film, that is profit-driven films along with the increasing production costs, damages

the quality of storytelling and dominates cinemas locally where small budget films aren't able to compete. This is evident where big budget films are considered higher quality and monopolise cinemas across the country, conversely often it is small budget films that are critically acclaimed.

Yet the biggest budgets fail also today. With the pressure of major global productions for the international streaming market, Disney's latest in its Indiana Jones series has flopped, possibly due to the two key dominating factors:-

- poor original script quality, due to the production strike –
- and possibly the overuse of AI chosen plots to try and boost the creative elements, leading to no real storyline, making for a boring production, turned out much too fast.

The Thai film industry originally evolved by making films for national consumption but it has not yet grown towards internationally appealing, yet uniquely Thai content. It has until now not been able to really leverage remake rights and distribution agreements, or sales to the streamers with large libraries, through the international film festivals. These are the showcases that could globally promote Thai film. The combined elements of global film production with new scale in Thai stories create a cultural hybrid, that becomes popular locally and internationally. While the Thai industry remains successful, its current blockbuster model is criticised for increasing production costs and reducing the artistic quality of films.

The sustainability of this early model is questionable when in competition with Hollywood and streaming services, though the Thai entertainment industry has not waned in popularity it must diversify to continue to rely on its other exports such as television and music if there are no changes made.

4.4.8 Taxation for tomorrow in the media industry

One of the potential financial supports is to examine the taxation model in use.

A model that has been most successful is the French taxation scheme, interesting for stimulating growth, which takes in revenues from the global platforms, with a tax policy on revenues[382] (termed le Taxe Netflix). It has been applied since 2018 to overseas streaming OTT

[382] Taxe sur la diffusion en vidéo physique et en ligne de contenus audiovisuels, https://fr.wikipedia.org/wiki/Taxe_sur_la_diffusion_en_vidéo_physique_et_en_ligne_de_contenus_audiovisuels

platforms with subscribers in France, so it applies not just to Netflix and other OTT content streamers with subscriptions and ads revenues.

Thus the tax regime in France is applied across the major players in the audiovisual markets – both French and international distributors that sell content in the country. The French parliament has levied OTT taxes on overseas platform operators who distribute video content since 2013 – such as - Netflix, Amazon Prime Video, Apple ITunes, Disney+, etc. As early as 2010, France tried to levy OTT taxes on the principal platforms, with varied success which is now being ramped up:-.

Figure 4-16 Example of revenues from French taxation of streaming platforms to 2019

Taxes paid for streaming platforms in France (in millions of Euros) by year									
2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
32.17	31.96	30.95	25.8	22.5	19.4	17.7	16.2	25.7	34.2

Source: CNC, 2022, Taxe sur la diffusion en vidéo physique et en ligne de contenus audiovisuels

Taxes are based on the revenues generated in France, which varied across the years by platform, due to levels of subscriber fees although the exact figures for platforms based abroad were difficult to gather accurately. Thus tax revenues vary and were generally declining up to 2017. Moreover some platforms gave value in other services – such as Amazon offering free delivery for items purchased from it online – a value not declared in the subscription.

However a revision of these taxes in 2016 eventually led to higher tax revenues The beneficiary of these taxes is the CNC, the French organiser and financier of the national audiovisual industry production – with its tax revenues used for production subsidies, festivals and education. Note that the French model is to accumulate high taxes on streaming from outside platforms and studios.

The TAVIC ruling council decides to follow this route of taxing foreign streaming platforms with the agreement of the Thai financial authorities. This agreement was set up in 2025 for immediate disbursements to new projects across Thailand at regional level as well as central. Note that some platforms, that act public news centres and also websites promoting new films, are excluded from these taxes.

However the taxation of the overseas and national streaming platforms requires analysis of four revenues sources, the major volume flowing to the overseas platform operators:-

- A tax on subscriptions for OTT video – on SVOD payments and also on pay-per-view content.
- Taxation of the main source of revenues for the global platforms such as Google and Meta/Facebook from the GAFAM group and also for the pure content streamers – financing from digital advertising. It may be it for FAST sites (Free Advertising Supported TV) or OTT services platforms such as Google Search or Amazon online ecommerce, with digital advertising and consumer profiling and tracking.
- Taxes from revenues on profits from gathering personal data on the users of OTT platforms and trading it with advertisers and product suppliers – for some global platforms such as Google and Meta Facebook this can be significant.
- Value added taxes (VAT) from items sold online in Thailand, such as apps from the online appstores of Google and Apple, as well as the ecommerce platforms such as Amazon for consumer goods eshopping.

These require all OTT operators to provide financial details on numbers of subscribers, the revenues from digital advertising and also revenues from the platforms trading in personal data of OTT users, sold in data broking auctions. Also revenues from ecommerce trade for VAT. Such taxes were expanded in 2025 to cover video sharing sites such as TikTok, YouTube, Twitch, Daily Motion, etc.

Far more significant taxes (25% to 70% of revenues) are applied to online betting, and for content judged by the family and minors protection council to be violent material and/or from pornography sites.

From the total, the TAVIC takes over 85% of the revenues collected from the OTT platforms and SVOD streamers. It spends the revenues on productions, promotion and education.

Some 5% is retained for the TV Broadcasters to support their conversion to a series of shared BVOD platforms while at the same time continuing their broadcasting of linear programming. The Thai PBS is the recipient of 5% also and a new verified news site for 24 hour global coverage receives 5%.

The TAVIC also takes taxes from cinema tickets, but to encourage audiences, this remains a smaller revenue stream – perhaps 5% to 10% of its income revenues and varies by year. It is kept low to encourage cinema audiences. Note that the TAVIC can also support new production projects from the TV Broadcasters to enable them to survive as independent sources of creative content

and build the TV production side, for streaming content in Thailand as well as for their linear programming.

The TAVIC funding planning found it useful to also take insights from Canada's platform tax policies as well. Its online streaming levy in 2024, Canada requires online streaming platforms to contribute a portion of their Canadian domestic profits to production of Canadian audiovisual content- as a cross-subsidy for cultural benefits. Overseas and national digital platforms are taxed at 5% of their net earnings generated within Canada. Again this policy aims to support and expand the national cultural and creative industries. It is part of a wider industrial strategy to level the playing field between Canada's traditional TV and radio broadcasters and the digital streaming platforms. This echoes those obligations for the Canadian broadcasters to subsidise Canadian content creation with a revenues percentage. Online streaming services are seen as reaping the benefits of the Canadian market without contributing to the cultural sector as do the TV broadcasters. Whether the streamers raise prices for this levy is yet to be seen[383]. The tax is expected to yield US$ 146 Mn/year. However this is a tax only on earnings, not on revenues, as the TAVIC model would be based on.

4.4.9 Positioning Thailand as a major international locations hub for film, video and animation

A future using the tax credits and global promotion in festivals really takes off after 2027, when TAVIC launches its new initiative to boost filming on location to Thailand. It is backed up by the production and post-production facilities it has invested in, with training and its new creative writing capabilities. With rapidly expanding studios and an enhanced tax credit, France is working hard to attract international film and high-end TV productions that rival the USA and France[384].

Financial Incentives are the key for the production side expansion

Via the TAVIC and its sister cultural bodies, potential overseas film and video producers are offered the Thai Subsidies and Tax Rebates (TSTR) scheme, a tax rebate system for international production. It offers a rebate of up to 30% of the production costs considered eligible, capped at $33m in 2026. To qualify for the full TSTR, a project must be in the genre of fiction genre, and pass

[383] Reuters, 2024

[384] Rebecca Leffler Screendaily 7 June 2023, France positioning as a major international locations hub, https://www.screendaily.com/features/how-france-is-positioning-itself-as-a-major-international-locations-hub/5182908.article

a cultural test and shoot for at least five days in Thailand for live-action production. A minimum of $276,000, or at least 50% of the production budget, whichever is lowest — must be spent on TAVIC's TSTR qualifying expenditures. The rebate increases to 40% on all eligible expenses when productions spend a minimum of $1m on post production, VFX, in Thailand. Productions can also benefit from regional aid thanks to the Thai system of strong networking via TAVIC of regional film commissions, who handle organisation and financing locally.

4.4.10 Gaining a major cost advantage

Over 2027 to 2033, TAVIC expands its appeal of Thailand for local and international productions. Its use of 'AI'- based pattern recognition and language translations make localised versions for Spanish, English, Chinese, Arab and Hindu as well as specialist audiences (Indonesian, Vietnamese) simpler and lower cost.

Thailand has always been a star location for its exotic and colourful panoramas but now TAVIC is changing the overall production cost base, with subsidies that include tax breaks, Thai production costs per day become far lower than the USA, and of most of Europe and Asia. Moreover the production costs for multi-language localisation make it increasingly attractive, with lip synching increasingly used. The prestige projects for the major international platforms are attracted by TAVIC's new investments under the industrial strategy which have increased studio space, training for technology and with its screenwriting education. This is combined with boosted subsidies and tax incentives. Its globally qualified production crews and technicians, encourage the major video feature and film makers to Thailand, for the complete shoots, plus post-production and VFX special effects at low cost.

A new side to this is in animation. Global Hollywood and Japanese studios, with the streamers that commission content, enter Thailand following its new creative thrust with the globally successful seven episodes of the children's animal series 'A story of one small fruit bat'.

Among the qualifying applications, TAVIC supported some 200 projects, with around two-thirds of total spending going to fiction projects ($790m) and suddenly over one-third to animation ($400m). The Dashiell Animation Studios took over the cartoon feature The Big Knock Over for the Disney / Netflix combined budget for an award-winning release, and go on to work on a follow up release, working on a second season. Companies like Purple Animation, Engine Limited, and the cyber animator, Thai Gorillas Group, expand their production for animated content for global major studios and TV broadcasters, driving Thai financial returns.

Expansion of the industrial strategy's business model

Over 2027- 2030, international direct export production budgets spent within in the Thai AV industry doubled from a $337m in 2027 to total $690m in 2030, up from $220m in 2025. Growth is often due to TAVIC's offers under of Thai Subsidies and Tax Rebates (TSTR), for international production with a rebate of up to 30% of the eligible production spend to a cap of $30m. The rebate rises 10% when VFX expenses exceed US$1Mn for Thai post-production studios.

Industry expansion has come with the TSTR - previously large international productions might shoot and process key scenes in Thailand over days or weeks, perhaps for the scenery. Then the post-production work would be moved abroad. However, the boosted tax credit has been a major factor in getting productions not only to come to Thailand - but then to move to post production in local facilities.

In 2030, 85 projects benefitted from TSTR, up from 42 in 2027. The increase has been driven by surging interest for features and series from all the international streamers producing multiple language versions. Of the $0.78Bn spent on Thai productions in 2033. General audiovisual production dominates with 82% of overall investment, up from $600m in 2031, bringing in $630m from general audiovisual production and the remaining $149m from specific feature films production

While 10 major projects qualified for the 40% rebate in 2032, it was only three in 2031, one in 2030 and one in 2029. Thus major films moved to having all VFX composition in Bangkok and in regional studios, including composite scenes for interiors and some exteriors.

As a USA based producer has noted in 2032 "The 40% tax rebate changes everything. Now our whole film can be made here, not just one or two piece. The financial dynamics of the business, thanks to these incentives, have made Thailand the place to go – it has one of the best tax credits in the world, particularly for series. We can shoot entirely on location in Thailand now and we have the set space for all scenes.

4.4.11 The Studios in Bangkok and the regional centres have matured by 2029

Thailand offered record levels of production in 2032, with 50 feature films and 30 series filmed throughout the year. While Bangkok and the regional locations offered 7,500 shooting days, up from 2031's 5,500. All of Thailand's region remains the prime location for filming, but other areas are emerging as production hubs, particularly in the south of Thailand and in its central Valley, with provincial studios in Phuket and the north (where a Netflix manga-type mini –series is made,

for Asia and global markets, on life at sea - The boats, the sea and the fish is being made). A major feature series on urban life in former centuries, based on the origins of a famed nineteenth century trading family, is being shot in the northern Thai regions, going into Cambodia, with new sets space for San Francisco, Saigon, Singapore and Shanghai in the 1920's, all built at Thai locations.

Thailand offers low costs assets, not only in terms of production, but also finding lodging for film crews and talent, so building a new backlot in regional location – for instance a former aerodrome can offer space of over a kilometre for whatever style-style streets- all ready for shooting.

Between 2025 and 2029, turning Thailand into a one-stop-shop for production appeals financially, but is also part of reducing the country's carbon footprint, as the global industry increasingly values more environmentally friendly ways of filmmaking. All projects benefiting from TAVIC investment must have an eco-production plan. This also keeps international projects from jetting off to shoot in other locations or to outsource VFX, acts that could reduce environmental impact.

New Infrastructure, training, technology, technicians and playwrights

To move forward, projected for 2031/2032 is a new investment is to be built around. a series of initiatives to build and teach with the newest technology as "The Future Great Film School and Image Factory", with a $250m investment from the government via TAVIC, which will also incorporate major Thai and ASEAN private investors for a total of at least a $500m budget.

It will include not just the creative academy, but major soundstages, digital labs for virtual and physical production, VFX, animation with education. All will be networked across Thailand for VFX and animation, with training and creative education for the necessary industry trades to ensure strong creative talent as well as qualified crews.

The heart of the project is the creative storyline production with a specific department, financed by TAVIC, based on a study of the creative process globally to give a new impetus to Thai content with globally attractive levels of storyline, which echoes the creative writing efforts in film schools in UK, USA, Korea and France.

TAVIC will also expand its one-stop new agency for helping outside global production companies and investors to take advantage of this new initiative, managing location search and licencing, hiring technicians and whole crews, arranging for work permits, reserving studio facilities and creative labs. These are fully equipped for co-production in real time also with its four new

centres across Thailand, outside the capital, with expansions to 50,000 square metres of stages and set space.

Thus Thailand will offer 20,000 shooting locations, also heritage sites and with qualified crews in addition to studio facilities, digital labs and VFX labs. A $2.2bn (€2bn) national investment plan through 2030 continues to fund construction of soundstages, with virtual and physical production.

4.4.12 SVOD platform production is also a key segment for the Thai audiovisual sector by 2035

Looking forward, at SVOD markets in 2035:-

- 7.5% of films available on SVOD platforms globally in 2035 were made with Thai production largely or wholly, including the localisation by market
- More than 3,000 films wholly or largely produced in Thailand were available on SVOD platforms in 2035
- In a sample of 102 international platforms reviewed excluding Thailand, 8% of the series on SVOD platforms worldwide have Thai production, largely or completely. Thailand is thus the fifth most represented country of production for series available on SVOD platforms in the world in 2035.

4.4.13 FESTIVALS are used as shop windows – success becomes fully apparent by 2031

TAVIC will be supporting the Bangkok Film Festival annually but also promotes Thai media and content globally with significant budgets. Here it is very successful, so by 2031:-

- 11% of the total number of films in the official selections of the 10 major festivals were Thai (up 2.5% over 2029)
- 41 Thai films made the official selections of the 10 major festivals (up 8% compared tor 2027)
- For the second consecutive year, Thailand was the 8th country with the most films selected, and which picked up the most awards, across the 10 festivals considered:- Cannes, Busan, Sundance, Locarno, Rotterdam, San Sebastian, Toronto, BAFICI, Berlin, and Venice.

Overall by 2035, Thailand has emerged as a global player with its own creative writers, storylines, production facilities and much increased revenues, profits, employment, and a global position with cultural icons.

TAVIC then announces the funding and concours for two new Thai festivals – in a 'winter' event, in Phuket for animation and gaming with a summer one on the southern coast for drama, musicals, and new non-scripted works.

4.5 Summary

4.5.1 Comparison of scenarios

Here we briefly compare the outcomes and probability of each scenario and explain which scenario is the most appropriate, given the Thai context:-.

Scenario 1 – Laissez-Faire, continue as today

The first scenario is the result of the divide between:-

- OTT regulation (very light, effectively unregulated, proprietary infrastructure) and
- The regulation and its obligations for the TV broadcasters – many commitments and duties – for licences, with their costs, also privacy and consumer protection, legal protection with the expenses of licences and must carry obligations, etc with open access to infrastructure
- Inaction from the authorities on balancing the new streaming market with the TV broadcast

In consequence the regulator is more restricted in a socially supportive role, both for content and financial backing for the TV broadcasters in their public service role. The scenario takes this essentially official ignoring of the new market and its operators of OTT services, while carefully regulating the competing TV broadcast market, as effectively a recipe for a slow decline in TV broadcasting as the main driver for the scenario.

The TV broadcasters suffer major losses of digital advertising revenues to the unregulated streamers. Without suitable support for their own streaming platforms (for a competitive diversification into streaming) and also by selling off their content production studios, to compensate for their loss of digital advertising revenues, the TV broadcasters slowly give up and fail financially, largely between 2029 and 2034, or before. As a result:-

- The poorest in Thai society, who cannot afford streaming, no longer have access to free to air TV and thus for many, to any TV. These viewers may fall back on recorded content – DVDs, etc, perhaps AVOD streaming over mobile if they can afford and have a

broadband connection. As many may be in rural areas, FBB coverage is less likely, if they can afford it.

- In contrast, led by the major streamers (Netflix, the GAFAM group, Hollywood bunch, TikTok and Asian platforms – Viu, Line, etc) streaming becomes dominant over the years 2025-2029, entering over 50% of households. The largest streamers take over the Thai streaming platforms that are most successful and letting the rest go bankrupt.
- The outcome is a failed TV broadcast segment and a large streaming market dominated by the international global platforms (the GAFAM group), Netflix and Hollywood streamers with the largest Asian platforms (Viu, TikTok, Line, etc)

2 Scenario 2 - Mixed Markets

Here a more proactive regulatory authority looks closely at the market and attempts to tax and manage the OTT players from the point of view of two forces

- Protection of the consumer in the OTT market especially in terms of fraud, child protection, fake news,
- Balance in competition in the OTT market, between the streamers and between the TV broadcasters

In consequence a socially supportive regulator is more restricted in content and financial freedom. The scenario takes this effectively official ignoring of the new market and its operators of OTT services, while carefully regulating the competing TV broadcast market, effectively a recipe for a slow decline in TV broadcasting.

Without suitable support for their own streaming platforms (for a diversification into streaming) and also selling off their content production studios, to compensate for their loss of digital advertising revenues, the TV broadcasters give up and fail, largely between 2029 and 2034, or before. As a result:-

The TV broadcasters are reduced but some can survive, from perhaps 15 remaining today, reduced by 2030 may be 7 to 10 that survive via:-

- BVOD for their own shared streaming of channels, plus
- Better content, from shared TV content studios and production for the overseas markets

The streaming market is healthy and creative but may eventually be dominated by major global players from the USA and/ or from China as the market is seen as stable and attractive for investment.

3 Scenario 3 – Implementing an industrial strategy for the Thai Audiovisual sector

This scenario takes a much stronger and apparently ambitious line.

It aims to have an export capability by 2030 that can service the demands from the global streamers such as Netflix spending 65% of its global budget for content (US$17BN in 2024) outside the USA – across the world. This seems impressive, perhaps over-impressive.

However it is based taking lessons on implementing an industrial strategy from two countries that have seen the AV industry as a serious national export resource. They have constructed two specialist government bodies to:-

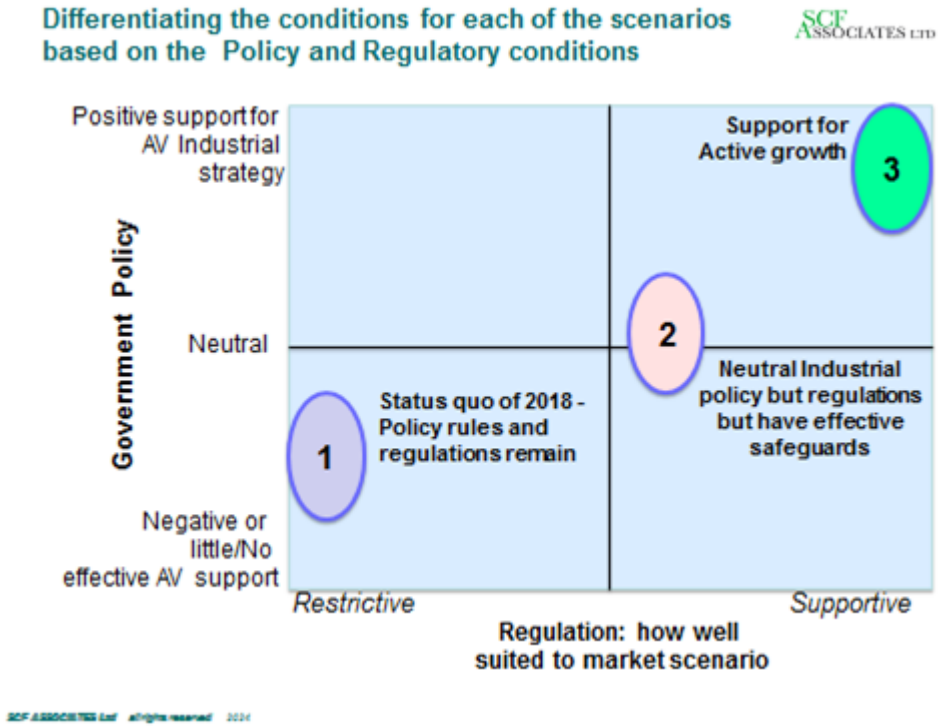
- Regulate and implement the industrial strategy across all relevant government bodies
    - Stimulate, fund and promote the AV content products in a global market, attracting Netflix and the Hollywood streaming studios, to produce new content in Thailand, holding festivals and funding promotion of Thai content at festivals globally as well as financing new works and using a regional operation for disbursement of funds to build reginal centres of excellence and new employment, as well as financing film schools for creative writing especially, the major area required for improving original Thai production.

4.5.2 Contrasting the scenarios

It is useful to compare probability of each scenario and explain which scenario is the most appropriate, given the Thai context. This is largely a question of possible regulation and realistic extents of changes in government policy as each is quite attuned to a specific setting of these 2 variables

The scenarios can be compared on expected losses of taxes on profits generated in Thailand by international platforms and streamers and also on the long term growth rates expected (CAGR) in the sector to 2035 as shown below:-

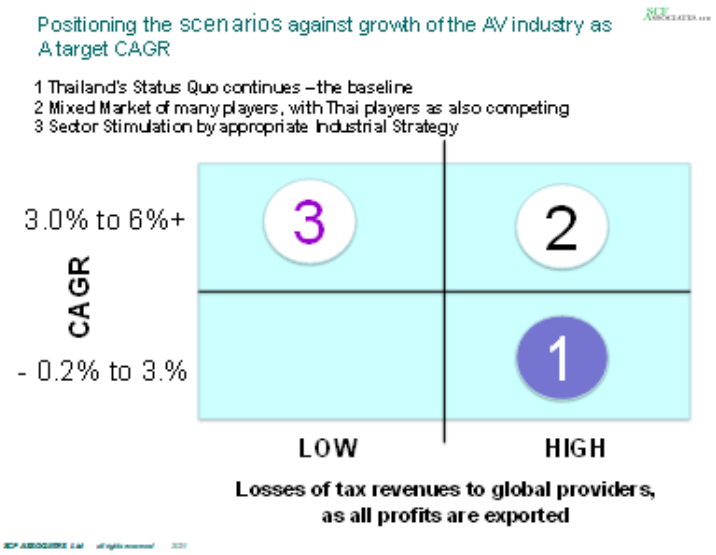
Figure 4-17 Comparison of the three scenarios in terms of Policy and of Regulation and of consumer.



Source: SCF Associates Ltd

Further ways of viewing this are in a common parameter the rate of growth which can be applied to a sector (such as the audiovisual sector), a national economy measured in its GDP growth annually and that can be used as a measure for the sectors in the national economy. Thus, it is common to expect that most sectors may be growing at least at a rate of the economy – but that is the minimal rate. Thus scenario comparison with the national economy can give an indicator of the impacts of the actions taken in the scenario. The Thai national economy has been growing at around 2% and this is expected to continue in 2025. This gives a comparator for a sector in decline, due to current conditions in the market, dictated by the regulatory regime and government policy (also reflected in the regulatory regime).

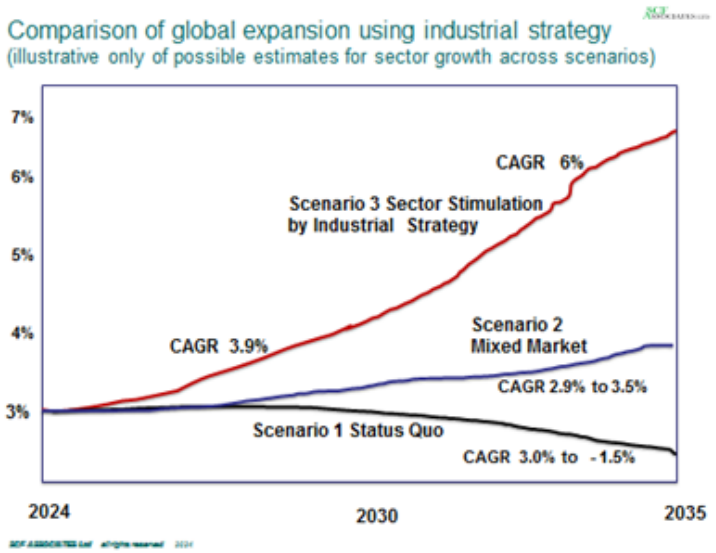
Figure 4-18 Comparison of scenario in terms of growth and tax losses.



Expectations of the target growth rates as CAGR and the comparisons of industry revenues across the scenarios are illustrated below, with Scenario 3, exploiting an industrial policy approach to sector growth, leading in two areas:-

- Global exports of high quality video media of all kinds – features, animation, technical post-production finishing
- Building of Thai platforms for distribution – both TV broadcast as well as SVOD, with support for a BVOD platform for the TV broadcasters

Figure 4-19 Projections of expected potential growth rates across the scenarios



Scenario 3 is the only one expecting a CAGR faster than the national GDP growth of 2% to 3%.

Chapter 5 Knowledge Transfer Seminar for NBTC

Bangkok 13 – 16 August 2024

5.1 A training course for NBTC executives and stakeholders

DAY 1: Date:13 August 2024 Venue: Room Fortune I-II,Grand Fortune Hotel, Bangkok

Number of participants for NBTC executives and related government agencies was over 60 attendees

Objective: To enhance the awareness and knowledge of television/audio-visual service regulation necessary to cope with technological and environmental change on key topics, that were presented including:-

- Consumer demand trends in types of content, device preferences, modes of viewing, average session lengths, etc
- Scenarios of future market developments within the expected social, economic and technology frameworks
- Consumer protection for a platform dominated online world
- Future trends and business models in television/audio-visual services including OTT, examining Thailand's international competitiveness,
- Technological changes that affect television/audio-visual services such as digital platforms, online video services for entertainment and social networking
- Regulatory developments for improvement of relevant policies and regulations on TV/AV services to cope with technological change in television/audio-visual services.
- Lessons learnt from markets around the world in which audiovisual demands, technologies and business directions are evolving with the arrival of OTT media and streaming in a broadcast TV world
- Regulatory guidelines for effective stratagems to supervise television/audio-visual content regulation today and in future expected market situations

Some of the Key messages:

The seminar commenced with an overview of the Thai market, followed by comparative analyses of international markets, regulatory frameworks, and potential scenarios. Industry reflections were presented across six key areas: market dynamics, consumer behavior, regulatory landscape, media technology, content, and organizational structure.

Thailand's media ecosystem comprises four primary actors: content producers, service providers, network providers, and consumers. Beyond the NBTC, several government agencies regulate and promote audiovisual services. The Ministry of Culture and MDES serve as policymakers, while ETDA, CEA, and DIP support the sector through various regulatory measures.

The seminar explored the status of television licensing, revealing a predominance of non-spectrum television service licenses. Revenue trends for DTT, channel, and network licenses are projected to decline, while Mux network and facility providers are anticipated to maintain relatively stable revenue streams.

Audience survey results offered insights into consumer behavior, highlighting a crisis in content quality and a need for diversification. Comparative analysis of 2022 and 2024 data revealed significant growth in news and news-entertainment programming, moderate growth in dramas/series, and stable documentary film consumption. Conversely, entertainment, informational, and children's content experienced slight declines.

DTT channels demonstrated adaptability to current challenges through organizational restructuring, content distribution strategies, audience engagement initiatives, and revenue diversification. The creative potential of Thai production houses was explored, with a focus on glossy and dilemma series, regional cultural themes, and fan-based content. These areas were identified as promising avenues for future development.

Comments and discussion from the attendees

On the first day of the workshop, participants were asked to vote on their preferred scenario.

Most participants selected scenery option 3, with scenery options 1 and 2 being the subsequent choices. Further rationale and observations are presented below.

Scenario 1:

- **Reasoning**: The current situation is a realistic reflection of the industry's challenges, and it's unclear how to address these issues effectively.
- **Research Team's Response**: The team encouraged participants to imagine a future where they could move beyond Scenario 1, particularly if they wanted to maintain

television broadcasting. This would require significant regulatory changes and support for industry development.

Scenario 2:

- **Feasibility**: Some participants believed Scenario 2 was achievable.
- **Concerns**: However, they expressed uncertainty about how to implement the necessary regulatory changes and support mechanisms.
- **Research Team's Response**: The team discussed the potential for collaborations to promote industry growth and develop talent.

Scenario 3:

- **Key Questions**: Participants questioned how to implement this scenario effectively, especially regarding regulations and negotiations with international platforms.
- **Regional Cooperation**: The importance of ASEAN-level collaboration was highlighted to strengthen bargaining power with global platforms.
- **Oversight Body**: The need for a comprehensive oversight body to support both traditional broadcasting and new platforms was emphasized.

The views of the industry and the NBTC when DTT was first rolled out a decade were full of hope for a new multiplex technology that brought more channels than the previous analogue technology could deliver. However these hopes were overtaken by the digital technologies of fibre broadband for interactive selection – and that fits the needs of today. It is especially the choice of the younger generations and so leaves broadcast TV to become a technology for older viewers and sometimes for the younger.

NBTC should encourage and if necessary, lead, inter-agency research, dialogue and policy development to ensure that Thailand is able to respond to pressing industry requests for AV sector support, but do so in ways that are driven by public interest, not the lobbying of specific interests. Maintaining balances in real competitiveness, innovation and opening up market entry is also basic for assuring a lively AV market.

Pictures from the 1st day












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5.2 A workshop for NBTC's staff on scenario construction for forecasting (SCF)

Date:14-15 August 2024 Venue: Room Fortune III, Grand Fortune Hotel, Bangkok

Number of participants for NBTC is over 50 attendees

Objective: To provide insights into the future market structure mechanisms, the major financing and AV supply chains, expected technologies and coming consumer trends. This will provide the basis for analysing future regulatory demands for the consumer protection side as much as for the market and player regulation to stimulate the Thai AV industryto enhance the awareness and knowledge of television/audio-visual service regulation necessary to cope with technological and environmental change on key topics as NBTC executives learned

The day started with pres

Key message: see the workshop slides (attached file)

Main comments and discussion from the attendees

Very Enthusiastic participation in five difficult subjects areas by workshop participants:-

– the key questions (below) were dealt with competently by the participants in moving from the initial conditions to key drivers to assumptions and assertions for these major issues for the NBTC. These scenarios were used to exercise some 50 participants and teach them the methodology using subject areas currently on the agenda of the NBTC.

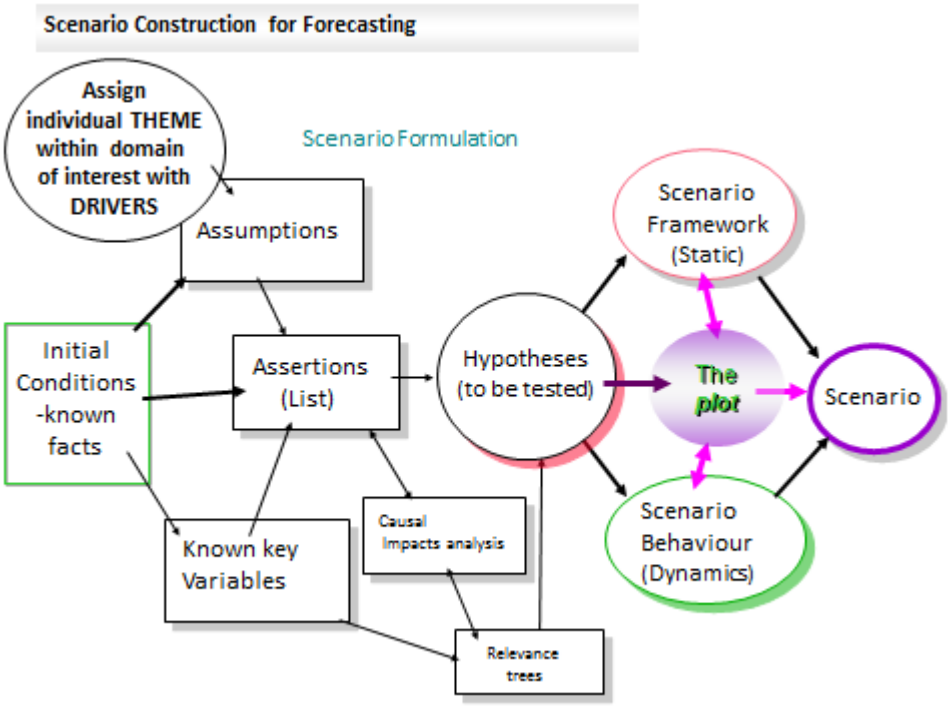
The subject areas for scenario formation were chosen from the following selection:-



The programme of work:-

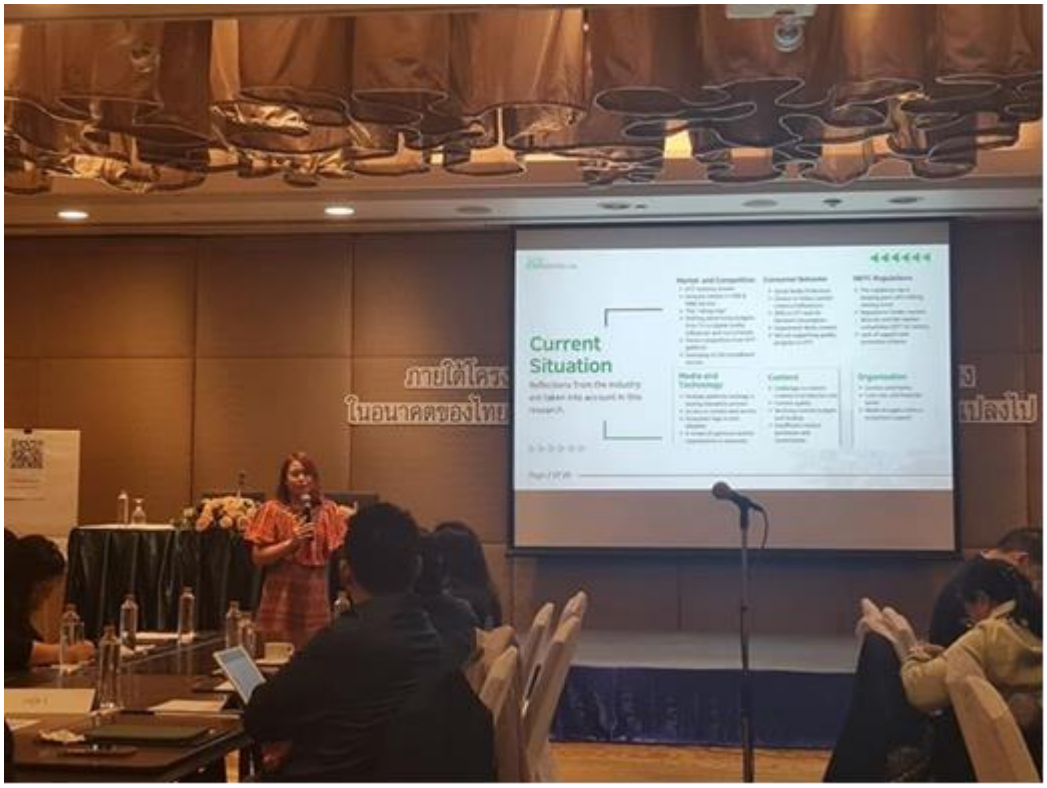
Day 1 Instruction to explain the methodology of scenario construction

Day 2 Practice with real problems facing the NBTC solved in working groups using the Scenario Construction for Forecasting (SCF) for an interactive dialogue that sets out the initial conditions, the drivers and then the assumptions, etc. and towards a working scenario using the various working steps:-



Pictures of the 2nd & 3rd day the workshop for NBTC staff :-

The Thai markets study explained by Dr Sakulsri Srisaracam



Examination of the country cases from Australia to Japan, Malaysia, France and further- with Dr Tambini from the LSE



Regulatory issues in the Thai AV market - Professor Martin Cave considers competition from the viewpoint of a practicing competition and markets regulator with much telecommunications and AV experience







DAY 3

The scenarios workshop starts with the formation of 4 groups who then choose their strategic question to consider:-



The groups chose subject areas and start off



Overall, 4 groups of approximately 8 to 15 participants tackled each question in a morning and two afternoon sessions, absorbing the methodology fairly easily and with great energy



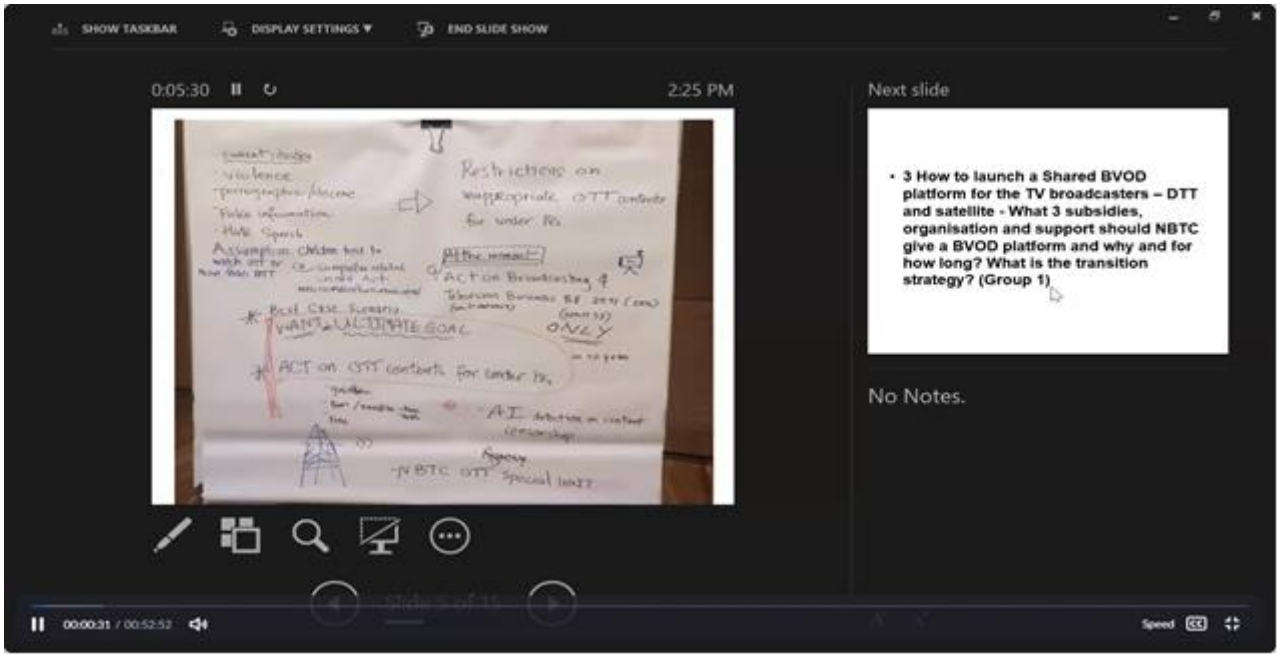


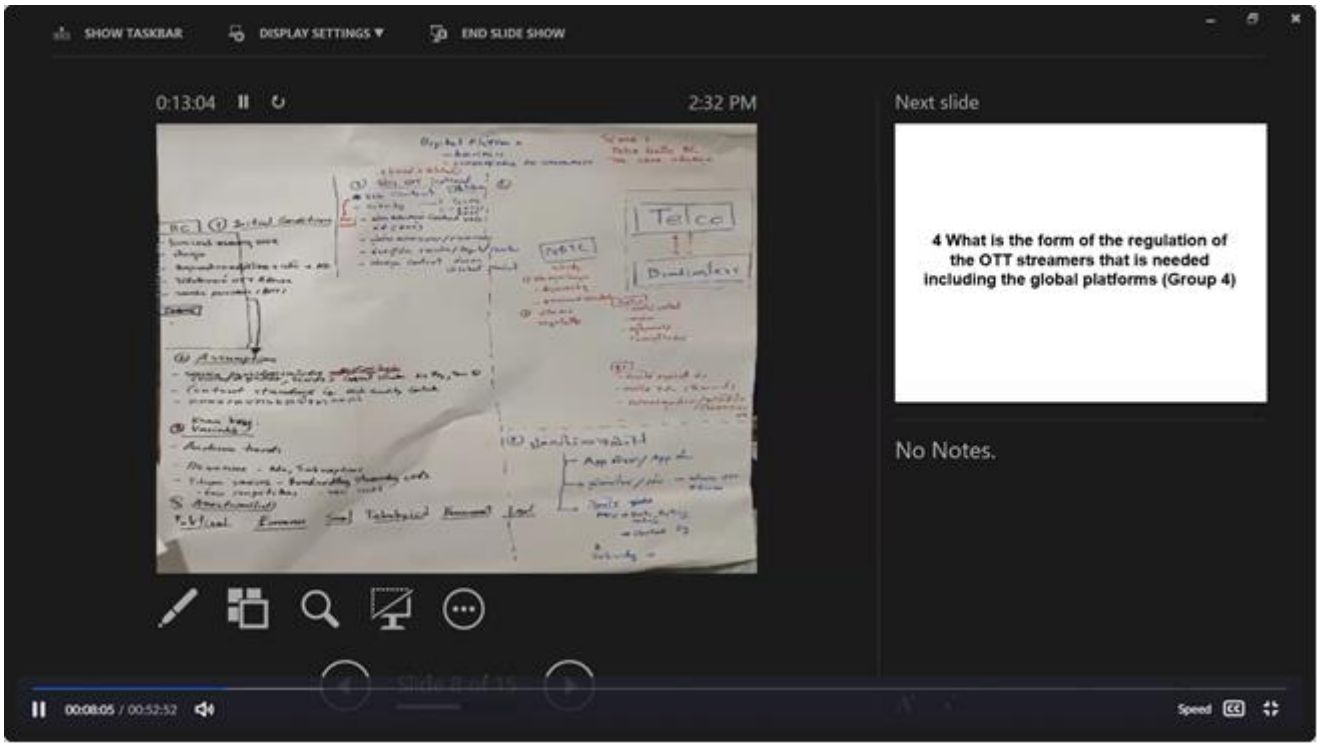


Presentations finally begin at the end of the afternoon with a chosen presenter. Results begin to be shown as each group has prepared various slides - and presents them with a spokesperson in some very persuasive and intuitive arguments showing a strong

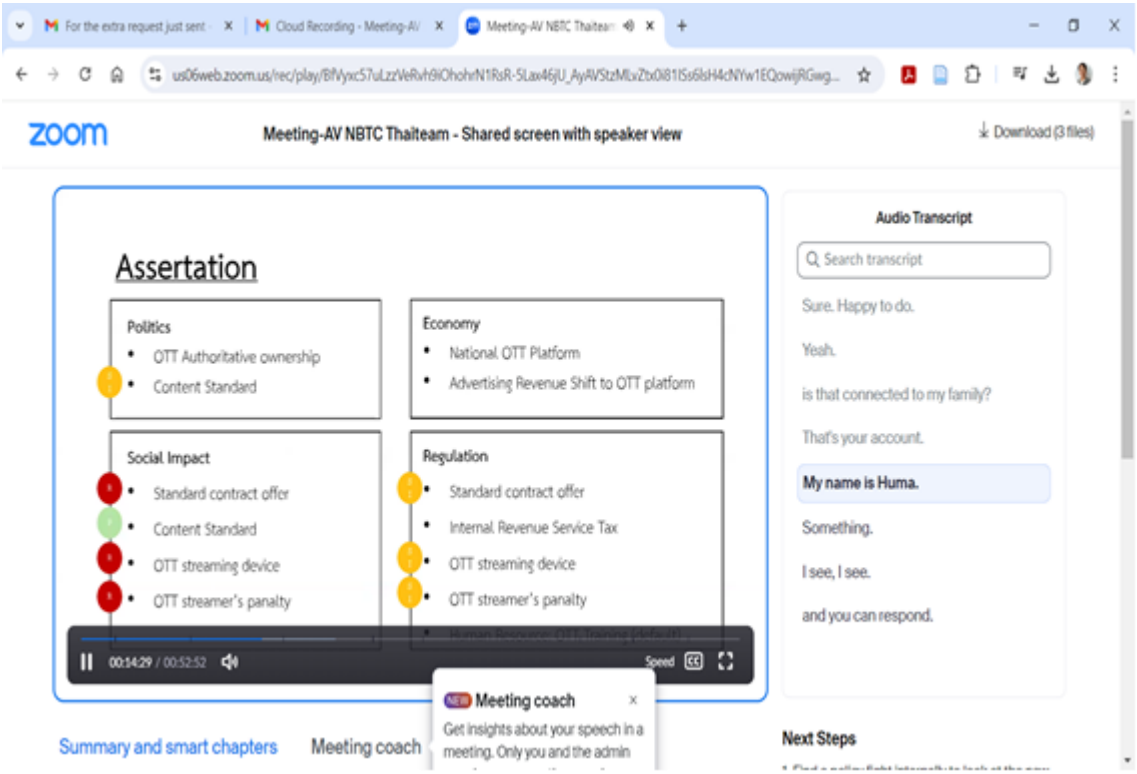
understanding of two key areas – the grasp of the methodology and the forms of their solutions.

Some are practical rapid analysis

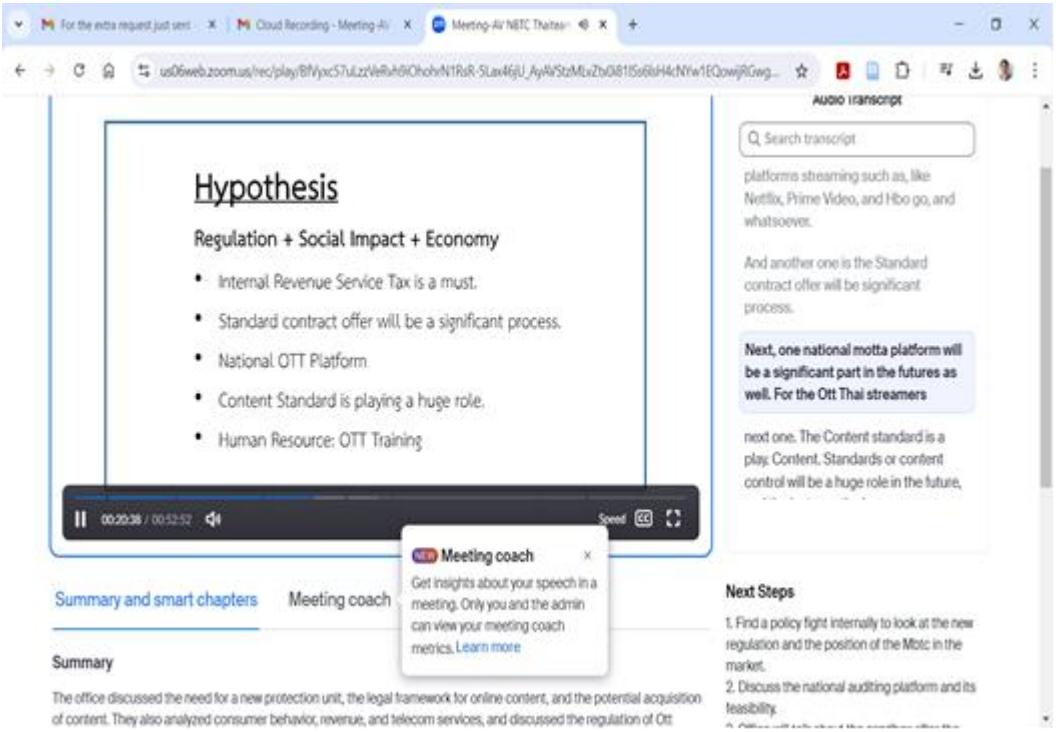




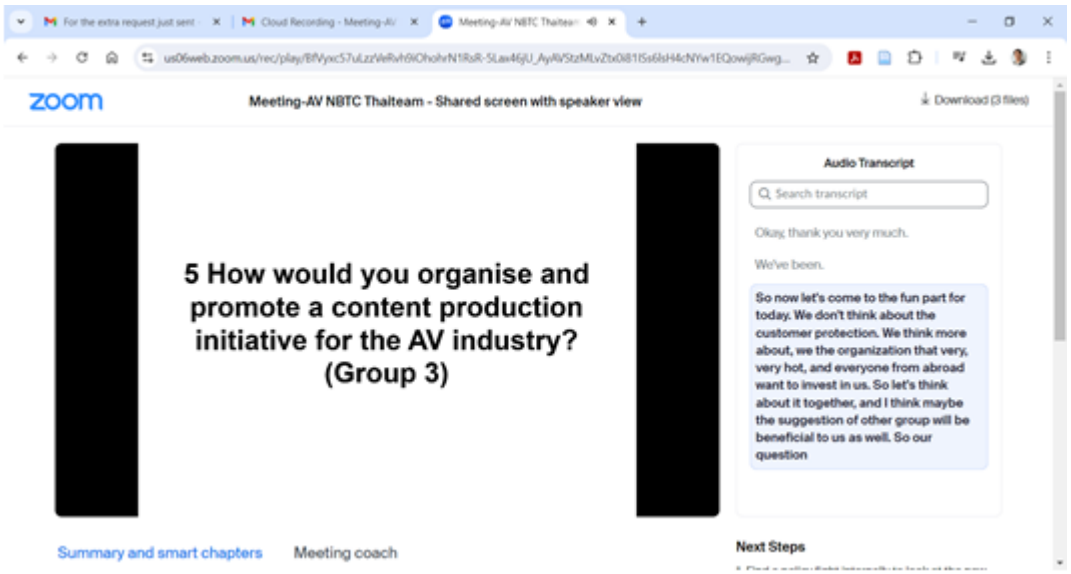
Others are sensibly calibrated assessments with an analytical breakdown



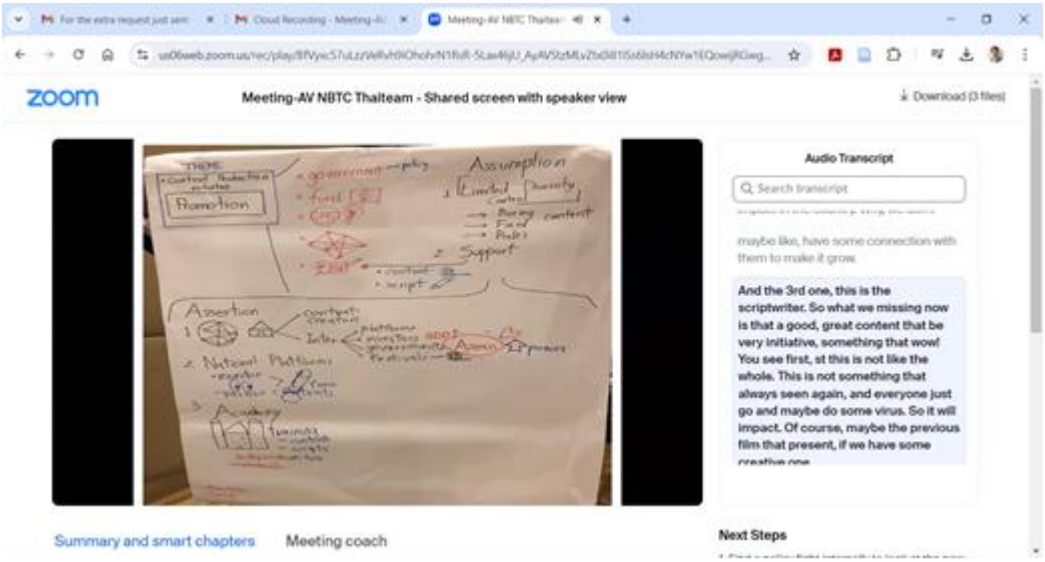
Showing the hypotheses carefully supported



Others are energetically defined to solve major novel challenges



With the group's thought patterns fully worked out



Workshop Highlighted

- Regulatory Challenges: The workshop delved into the complexities of adjusting regulations and driving industry change.
- NBTC's Limitations: Participants acknowledged the challenges faced by the National Broadcasting and Telecommunications Commission (NBTC) due to various factors.
- Collaborative Solutions: The research team proposed collaborative approaches, such as working with other agencies and regional partners, to address these challenges.

- Regulatory Standpoint: The participants questioned whether the NBTC should model its regulations after the EU or the US. Given the study's EU focus, more US case studies should be examined to inform the NBTC's decisions

5.3 A Public Forum to share the results of the final report

Date:16 August 2024 Venue: Room Fortune I-II,Grand Fortune Hotel, Bangkok

Number of participants for DTT providers and stakeholders is over 120 attendees

Objective: To share the results of the final report and raise awareness of NBTC policies and intentions in the fields of TV/AV regulation to protect the consumer while stimulating the Thai economy on key topics as as NBTC executives and staffs learned

Key message: see the attached files for the study

Main comments and discussion from the attendees

Discussion was centred on the problems of succession and movement from the current state of the sector, with those present anxious to know the future considerations of the NBTC, the future of the TV Broadcasters. Many were interested in the future governance for instance, continuation of the DTT licences auctions and the strength of bidding expected in 5 years, and whether by a beauty contest, open or sealed bids and support for streaming platforms.

Specifically, The Digital TV transition in Thailand has been plagued by a series of foundational flaws, stemming from the initial design of the licensing framework. The oversegmentation of channel categories, the auction-based licensing process, and a lack of adequate support for the transition—including insufficient distribution and promotion of digital TV coupons and the prevalence of low-quality set-top boxes—have all contributed to a prolonged and uneven transition. Despite a decade since the launch, over 60% of viewers still rely on satellite for digital TV services. A significant gap exists where broadcasters, despite substantial investments, have been unable to effectively manage viewer access. Upon completion of this study, the National Broadcasting and Telecommunications Commission (NBTC) should utilize the findings to design a clear roadmap for future operations and promptly convene a meeting with digital TV operators and relevant stakeholders.

Picture from the Opening of the 4th day- the PUBLIC FORUM

Commissioner Professor Pirongrong Ramasoota (centre) opens the session, addressing the 120 attendees with an insightful, detailed analysis of the sector status, capabilities and problems.








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Research Team


The National Broadcasting and Telecommunications Commission
A Study on the Future of the Television Broadcast / Audio-Visual sector in Thailand under a rapidly changing digital evolution
Regulation –
Is there currently a market power problem in the Thai AV sector?
Professor Martin Cave










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Chapter 6 Appendix

Appendix 1: TV & Video Market- Overview for Thailand

Thai market conditions today and going forward

The Thai TV and video market segment is in slowly expanding with the only growth being in the OTT segment while linear TV is static and overall value has slow growth :-

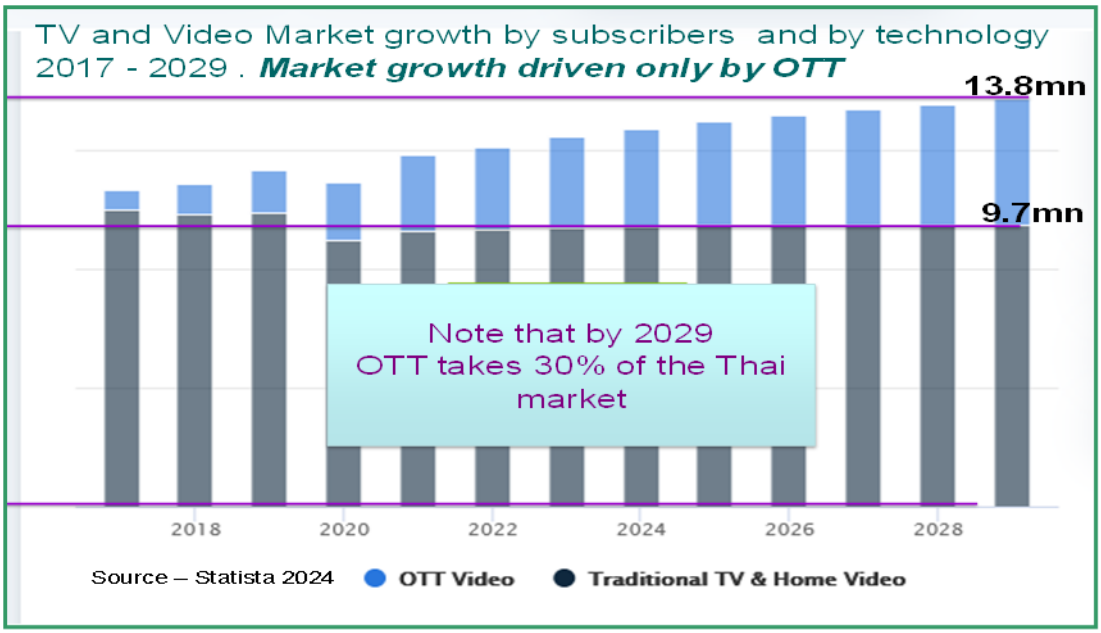
- In Thailand, revenue in the TV and Video market is forecast to reach US$3.18bn in 2024, leading to a projected market value of US$3.44bn by 2029 – very low growth.
- This is a CAGR of 1.58%, leading to the market volume of US$3.44bn by 2029.(Statista)
- This CAGR is less than the average core Thai inflation rate average of 2.35% over 1985 - 2024 (Source Trading Economics, 2024 - Thailand, Core Inflation Rate). So in effect the gross linear Thai TV and video market is shrinking in value.
- For the last year, for Thailand in 2023/ 2024, overall TV and video market revenue was 3.18 bnUS$, up 2.2% since 2023 (Aug 2024)
- The average revenue per user (ARPU) is estimated to be US$277.30 in 2024.
- Users (measured as households or as single persons) is projected to reach 13.8m points of consumption by 2029 in the TV & Video market in Thailand,.
- Thailand's TV and Video market is experiencing a surge in demand for OTT streaming services, challenging traditional cable and satellite providers. For a global comparison the USA TV and video consumption revenues forecast is US$279.50bn for 2024. Source: Statista 2024, accessed 10 August 2024

The film industry in Thailand generates revenue of 18.5 billion baht and is poised for further growth in major markets. The Commerce Ministry is promoting Thailand as a hub for the digital content industry as it generates income of roughly 250 billion baht, and is aiming for 15-20% growth from the previous year. Film is one component of the digital content industry which the government promotes in terms of exports. [Bangkok Post, 12 Mar 2024]

The linear TV and OTT market is shown below for 2017 to 2029 as the net TV and video market growth. The projected state of the Thai market assumes a slow growth rate in value, below that of inflation, due to an equally slow rate in traditional TV viewers with net growth due to OTT take-up as traditional TV numbers are static.

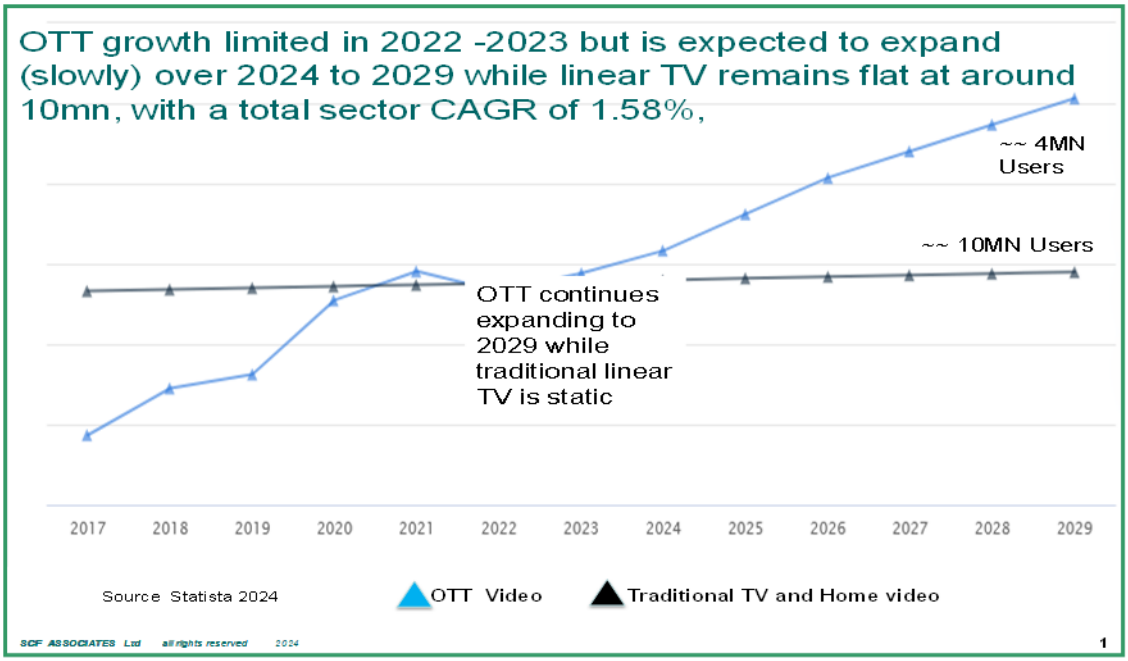
This raises questions of preservation of traditional TV consumption, as the younger age-groups expand, who increasingly reject linear TV, while the traditional aging cohorts reduce:-

Figure 6-1 The projected state of the Thai market assumes a slow growth rate with flat traditional TV viewers with all growth due to OTT take-up



A drive towards an increasing TV and video OTT world is for content and social networking is expected - at least 30% of the market moving to OTT in the current structure, shown below:-

Figure 6-2 The expansion of the OTT segment to 2029



That would be dictated by advertising revenues. If these ads switch to the OTT market segment far more, for reasons of time format, content quality, viewing device and mode plus consumer targeting, then the TV segment would suffer further. In terms of expected OTT take-off.

The Film, Media and Entertainment Market

- Looking at the wider market, exports for film production media products are expected of 800BN Thai Baht in 2028
- The market growth is estimated at CAGR of 3.5% to 2028
- Current 2024 revenues are estimated at 664 BN THB.
- Internet advertising in Thailand is expected to rise 13% to 58 BN Thai Baht in 2024

(all from PwC global outlook, 2024)

Appendix 2: Content Trends in Thai Audiovisual Services

The evolving landscape of digital technology, consumer behavior, and the Thai broadcasting market has presented significant challenges for the quality and diversity of content, particularly in free-to-air television, which reaches the majority of the Thai population.

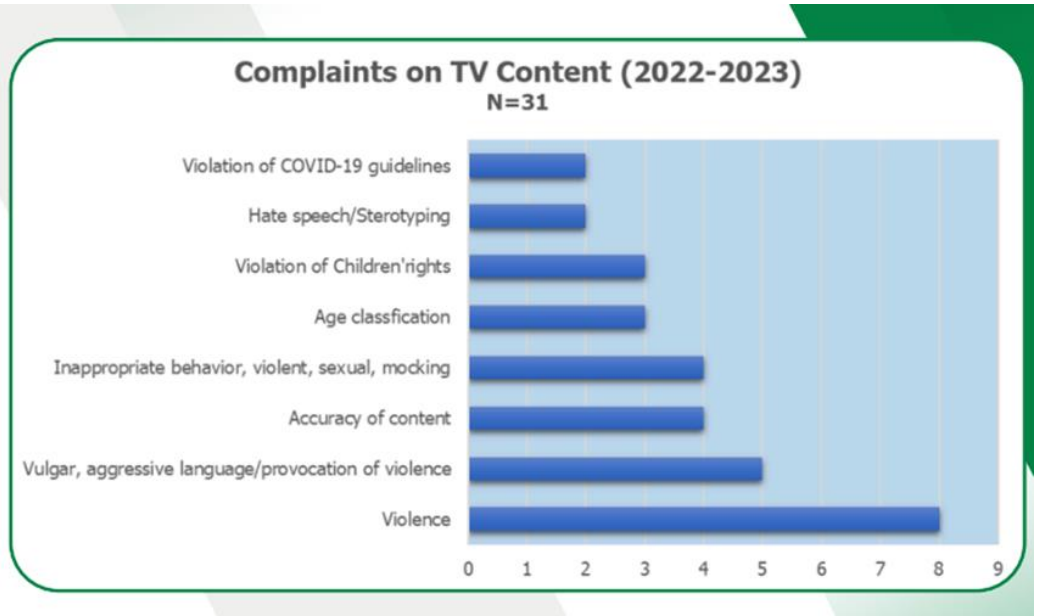
A decline in the quality of television programs is evident, primarily driven by intense competition within the media industry. This competitive pressure has contributed to a crisis in program content quality, as evidenced by the 31 viewer complaints submitted to the NBTC's content complaints consideration process during 2022-2023. These complaints highlighted significant issues, as illustrated below:

Digital TV

- **News Programs:** Excessive violence, use of vulgar, violent, and inappropriate language, and violations of the rights of news subjects, particularly children and youth, both as perpetrators and victims.
- **Entertainment Programs:** Content that is inappropriate and may be harmful to children and young people. Inconsistent age-appropriateness ratings compared to the content presented.

Cable and Satellite TV Programs

- **Predominance of Teleshopping and Exaggerated Advertising: Most programs fall into these categories, with advertising content often deemed exaggerated.**

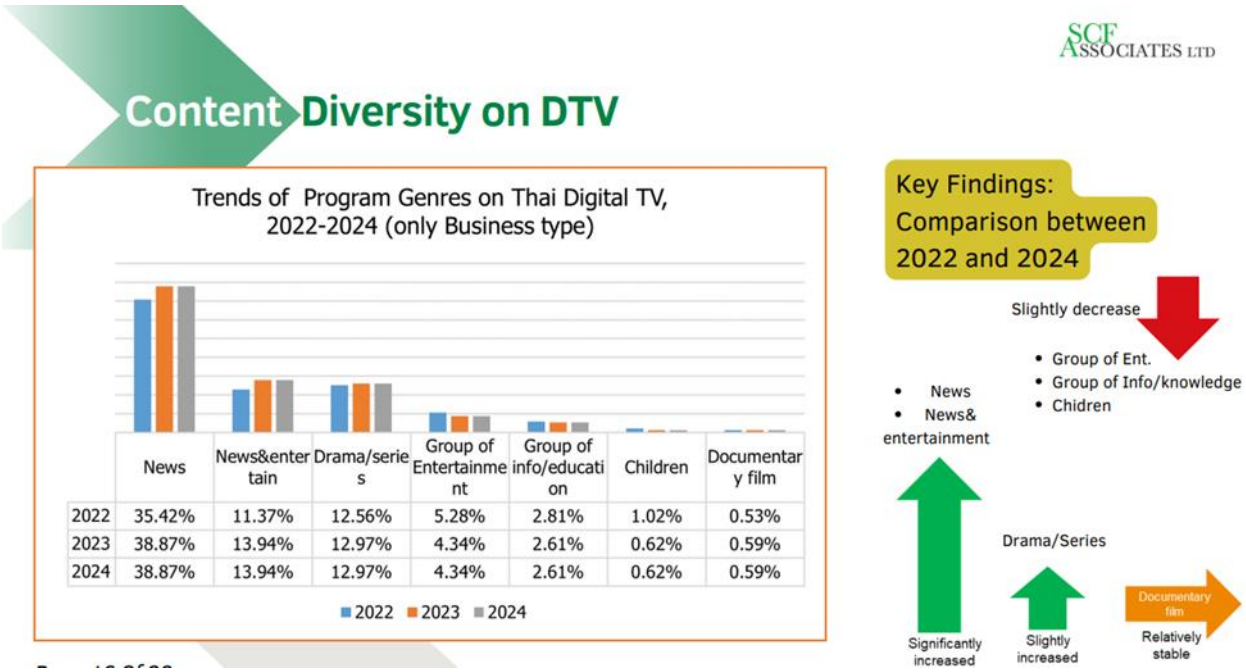


Source: Statistics on complaints about program content 2022-2023, NBTC Office.

Television Programs Lack Diversity

Beyond the issue of declining TV quality, the variety of TV program types on Thai television also poses a concern. An analysis of program schedules submitted annually to the NBTC by digital TV licensees from 2022 to 2024 reveals the following distribution:

- **Program Type Distribution:** News programs account for the largest share of programming (37.72%), followed by news and entertainment programs (13.08%), dramas and series (12.83%), entertainment programs (4.65%), knowledge programs (2.67%), children's programs (0.75%), and documentary films (0.57%).
- **Broadcast Time Trends:**
  - News and news and entertainment programs have seen significant increases in airtime.
  - Dramas and series have experienced slight increases.
  - Documentary films have remained relatively stable.
  - Entertainment programs, information and knowledge programs, and children's programs have shown slight decreases.



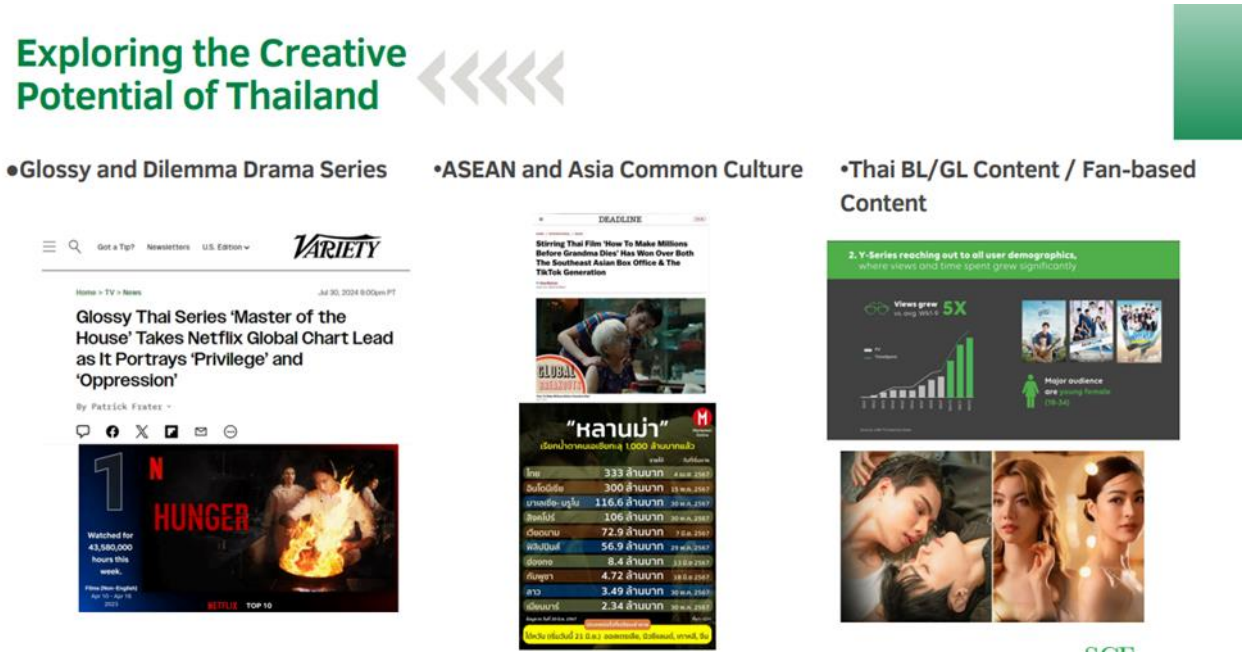
	News	News&entertain	Drama/series	Group of Entertainment	Group of info/education	Children	Documentary film
2022	35.42%	11.37%	12.56%	5.28%	2.81%	1.02%	0.53%
2023	38.87%	13.94%	12.97%	4.34%	2.61%	0.62%	0.59%
2024	38.87%	13.94%	12.97%	4.34%	2.61%	0.62%	0.59%

Adapting to Challenges and Leveraging Creativity

Despite the challenges posed by evolving digital technology, consumer behavior, and the market, Thai broadcasting operators and producers have been proactive in adapting their strategies, particularly focusing on generating income through creativity. Several examples demonstrate the

potential of creativity as a valuable asset in fostering economic value and cultural influence on a global scale:

- Netflix Series "Hunger": This series explores complex social conflicts through the characters' dilemmas, presenting them in a visually appealing and thought-provoking manner.
- The Film "Lan Ma": By delving into shared cultural values across ASEAN and Asian countries, this film has achieved significant commercial success in these regions.
- Boys'Love (BL) and Girls'Love (GL) Dramas and Series: These genres have cultivated dedicated fan bases, enabling continuous income generation through targeted marketing efforts.



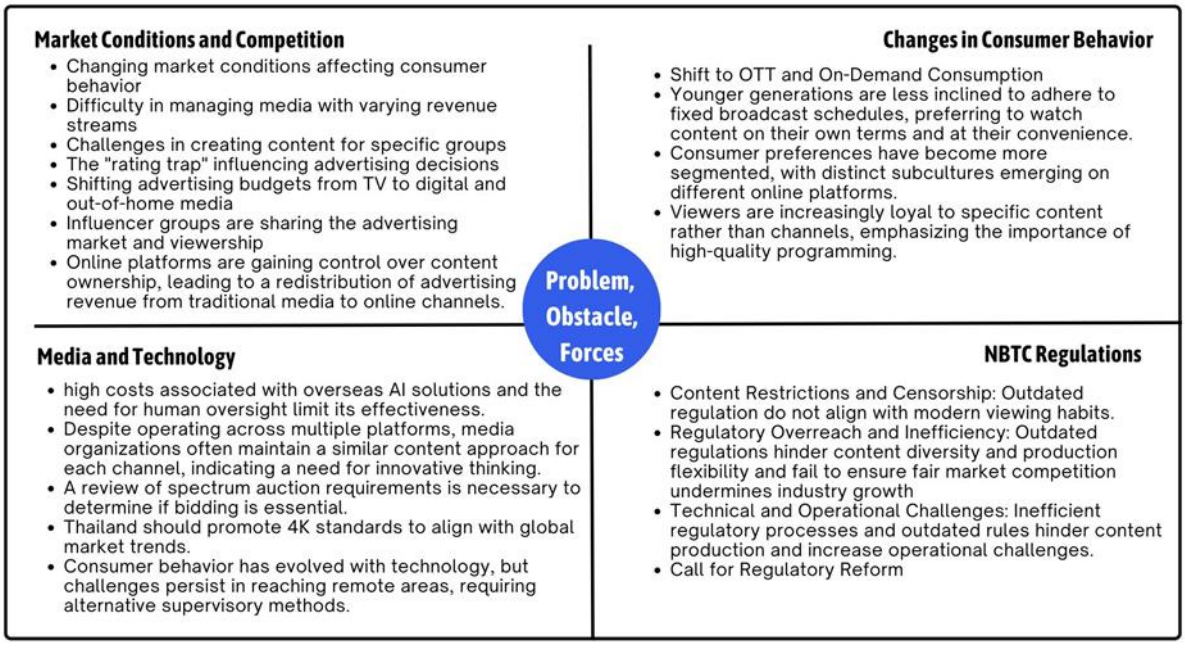
Appendix 3: Results from focus groups meeting and in-depth interview

This report presents an analysis of data collected through focus group discussions and in-depth interview conducted with key stakeholders including DTT service providers, Cable TV service provider, Satellite TV service providers, MUX network providers, domestic and international content production houses, OTT providers, Telecom service providers, Telecom suppliers, related goverment agencies and media associations. The findings of this research provide valuable insights into the pivotal moment the DTT industry in Thailand is experiencing, influenced by multiple interacting forces.

1) Problem, Obstacle, Forces

Participants in the focus group and interview explained the problems, obstacles, and forces that are currently challenging the DTT industry and creating uncertainty about its future. There are 4 main forces:

Figure 6-3 Problem, Obstacle, Forces



1.1) Market Conditions and Competition

Competition from both direct and indirect competitors. Changing market conditions affecting consumer behavior

Income, Costs, and Production

- Challenges in balancing income and costs to support production and development opportunities
- Difficulty in managing media with varying revenue streams due to market fragmentation and increased platform competition
- Declining television viewership coupled with rising production costs
- Challenges in creating content for specific groups, such as the disabled, due to high production costs and low audience numbers

Advertising and Media Landscape

- Shifting advertising budgets from TV to digital and out-of-home media due to higher costs and faster returns on online advertising
- The "rating trap" influencing advertising decisions

Specific Issues

- DTT Challenges: The need for government support (NBTC) to fund content production for specific groups, such as the disabled, due to high costs and low viewership.

Pressure from Competitors: Creators, Influencers, Native Online Content, OTT

- Direct and indirect competitors are expanding their reach through various online platforms. While DTT focuses on content for specific groups, online platforms are adapting content to reach diverse target audiences.
- Influencer groups are sharing the advertising market and viewership with traditional media and independent content creators. Due to a lack of control over this emerging sector, the advertising landscape is becoming increasingly competitive.
- Influencers are creating concise online content, such as online dramas and variety shows, to cater to the preferences of younger generations.

Advertising Landscape

- Advertising formats are evolving rapidly with the introduction of live broadcasts and tie-ins, disrupting traditional TV advertising and intensifying competition within the TV industry.
- The rise of content creators, particularly the growing desire among young people to become content creators, is creating a significant impact on the advertising market. The

absence of a regulatory body for this career path poses challenges for industry professionals and affects the distribution of advertising dollars.

Shifting Power Dynamics

- Online platforms are gaining control over content ownership, leading to a redistribution of advertising revenue from traditional media to online channels.

1.2) Changes in Consumer Behavior

Shift to OTT and On-Demand Consumption

- The increasing popularity of Over-the-Top (OTT) platforms has led to a decline in traditional television viewership. OTT operators often face fewer regulatory restrictions compared to traditional television channels.
- Younger generations are less inclined to adhere to fixed broadcast schedules, preferring to watch content on their own terms and at their convenience.
- Consumer preferences have become more segmented, with distinct subcultures emerging on different online platforms.

Content-Centric Consumption and Short-Form Content

- Viewers are increasingly loyal to specific content rather than channels, emphasizing the importance of high-quality programming.
- Advancements in technology have eliminated the need for viewers to follow fixed program schedules, as they can easily search and access content on demand.
- The growing popularity of short-form video content, exemplified by platforms like Reels, has impacted consumer viewing habits. Additionally, live streaming platforms like YouTube Live have disrupted traditional broadcasting models for events such as concerts and sports.

1.3) Media and Technology

Content and Platform Challenges

- The inability to develop or compete with other platforms stems from a reliance on a traditional TV-style content framework.
- AI technology can support production, especially for challenging areas like content for the disabled, but high costs associated with overseas AI solutions and the need for human oversight limit its effectiveness.

- Despite operating across multiple platforms, media organizations often maintain a similar content approach for each channel, indicating a need for innovative thinking.

Technological Standards and Infrastructure

- Thailand should promote 4K standards to align with global market trends.
- Consumer behavior has evolved with technology, but challenges persist in reaching remote areas, requiring alternative supervisory methods.

Spectrum Auctions and Regulatory Considerations

- A review of spectrum auction requirements is necessary to determine if bidding is essential.
- Instead of direct regulatory control, the establishment of a support fund could be considered to assist the media industry.

1.4) NBTC Regulations

Content Restrictions and Censorship

- Media outlets face limitations due to security-related content filtering, hindering competitiveness.
- Outdated regulations, such as strict children's programming times, do not align with modern viewing habits.
- The N13 and N18 rating system may be ineffective in preventing children from accessing mature content, given the availability of platforms like Netflix.
- The dual regulation of television and online content creates inconsistencies and challenges for media companies.

Regulatory Overreach and Inefficiency

- The NBTC's lack of oversight over global platforms and content creators creates an uneven playing field for domestic media.
- Outdated regulations hinder content diversity and production flexibility.
- Copyright restrictions imposed by the NBTC on funded projects limit creative freedom and potential for commercial success.
- The NBTC's failure to ensure fair market competition undermines industry growth.

Technical and Operational Challenges

- Enforcing regulations like AD sign language and screen blackout prohibitions can be impractical due to technical difficulties and unforeseen circumstances.

- The mandatory carriage of satellite and cable TV channels imposes additional costs and operational burdens on broadcasters.
- Inefficient regulatory processes and outdated rules hinder content production and increase operational challenges.

Call for Regulatory Reform

- A comprehensive review of regulations is necessary to address outdated provisions and create a more conducive environment for the media industry.
- The government should consider reducing regulatory burdens and fostering innovation.
- Fair competition and support for the media industry should be prioritized in regulatory policies.

2) How Organizations Are Adapting to Change

Organizational Structure and Operations ■ **OTT Partnerships:** Media organizations are forming strategic alliances with Over-the-Top (OTT) platforms like VIU and iQIYI to expand revenue streams. These partnerships not only provide additional funding for content acquisition but also increase global audience reach. ■ **Talent and Workforce Adaptation:** Redefining job roles and responsibilities within departments is crucial for producing content tailored to online platforms such as TikTok.	**Content Distribution Strategies** A multi-platform distribution approach is essential to reach diverse target audiences. Creating versatile content suitable for various channels and markets is becoming increasingly important.
Audience Engagement and Relationship Building ■ **Direct Website Traffic:** Organizations are focusing on driving traffic to their main websites rather than solely relying on social media platforms. ■ **Proactive Audience Engagement:** A shift towards a more proactive approach is	**Revenue Generation and Business Models** ■ **Diversification of Income Streams:** Expanding revenue beyond advertising includes ventures like artist management, concert organization, and content licensing to platforms like Netflix.

necessary to capture and retain audience attention in the digital age. ▪ **Content Personalization:** Tailoring content to specific audience segments and preferences is crucial for building a loyal fanbase.	▪ **Celebrity and Influencer Marketing:** Leveraging the popularity of actors and other public figures to generate income through endorsements, merchandise, and other commercial opportunities. ▪ **Business Model Innovation:** Adapting to the digital landscape involves transitioning from a traditional broadcasting model to a subscription-based model with a focus on producing content for online platforms. ▪ **Additional Revenue Channels:** Exploring new revenue streams such as content sales to OTT platforms, international distribution, and live events is essential for financial sustainability.

3) **Participant Recommendations for NBTC**

Industry Support and Development:

- Develop projects to foster growth and sustainability among Thai entrepreneurs in the media industry.
- Promote the creation and export of creative content to international platforms.
- Provide financial support for the production of soft power dramas with potential for global markets.
- Create a level playing field for advertising, including regulations for foreign advertisers on platforms like YouTube.
- Implement measures to address online piracy and platform control.
- Invest in human capital by supporting media professionals in Thailand.

Regulatory Framework:

- Develop effective strategies for online revenue generation.
- Establish regulations for foreign-owned online platforms such as Facebook, YouTube, and Netflix.

- Mandate specific content distribution through terrestrial TV to ensure reach for underserved populations.
- Implement a fair revenue-sharing model for Over-the-Top (OTT) platforms.
- Anticipate the impact of AI on the industry and develop appropriate guidelines.
- Create a regulatory environment that supports the long-term viability of terrestrial television while considering consumer needs.

Content and Audience:

- Develop content strategies that balance commercial interests with public service obligations.
- Explore opportunities to create content that is both entertaining and informative, such as educational programming.
- Address the challenge of generating sufficient revenue from content to ensure profitability.

4) Television Business License and the Future of Television

Television Licensing and Industry Consolidation

There is uncertainty surrounding the future of television business licenses in Thailand. While an auction is a potential option, it's unclear if it's the most effective approach. To ensure the industry's sustainability, any licensing process should prioritize the ability of licensees to produce high-quality content.

Industry consolidation through mergers or partnerships between channels could lead to more efficient operations and stronger content offerings. However, the overall number of channels needs to be carefully considered to avoid creating a market with limited competition.

TPBS, as a public service broadcaster, should continue its dual role while adapting to the evolving media landscape. Similarly, the Public Relations Department should maintain its regional focus while exploring new opportunities.

The Role of Television in Society and the Economy

Television remains a crucial medium for reaching a wide audience, particularly those with limited internet access. It plays a vital role in shaping public opinion, driving economic growth, and fostering national unity.

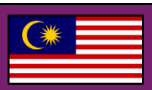
To ensure the long-term viability of television, the government should consider providing financial support for content creation and distribution. Additionally, a regulatory framework that balances the interests of broadcasters, consumers, and the public good is essential.

While the media landscape is rapidly changing, television still has a significant role to play. By strategically investing in the industry and implementing effective policies, Thailand can harness the power of television to drive social and economic development.

Key recommendations:

- Careful consideration of television licensing models
- Support for industry consolidation and collaboration
- Government investment in content creation and distribution
- Balanced regulatory framework promoting competition and public interest
- Recognition of television's role in national development

Appendix 4: Summary of Key Information of Overseas Market

Country							
	Australia	South Korea	France	The UK	Japan	The European Union (the EU)	Malaysia
Key examples of Policy Initiatives and relevant Legislation							
General competition law and sector specific competition laws, where applicable	Treasury Laws Amendment (News Media and Digital Platforms Mandatory Bargaining Code) Act 2021 Competition and Consumer Act 2010	Monopoly Regulation and Fair Trade Act (MRFTA)	All the relevant EU law and Law on the Modernisation of the Economy 2008-776	Digital Markets Competition and Consumers Act 2024	Act on Prohibition of Private Monopolization and Maintenance of Fair Trade Act on Prohibition of Private Monopolization and Maintenance of Fair Trade (Antimonopoly Act) and Act on Improvement of Transparency and Fairness in Trading on Specified Digital Platforms	Enshrined in EU treaty; Digital Markets Act	Competition Act 2010 as amended in 2016 covers all, but sectoral competition issues covered by 1998 Communications and Multimedia Act

Country							
	Australia	South Korea	France	The UK	Japan	The European Union (the EU)	Malaysia
Licensing Free-to-air services	Communications Legislation Amendment (Prominence and anti-siphoning) Bill 2023.	Telecommunications Business Act 2019	Law on Freedom of Communication 1986	The Communications Act 2003	Telecommunications Business Law and Broadcast Law (Authorisation)	N//A	1998 Communications and Multimedia Act
Auctions of frequencies for broadcasting (DTT & Radio)	Radiocommunications Act 1992	Telecommunications Business Act 2019	Law on Freedom of Communication 1986	The Communications Act 2003	Radio Wave Law	N/A	1998 Communications and Multimedia Act
Subsidies and support	Australian Screen Production Incentive Scheme. Open to film and television production and includes grants, tax incentives, and rebates on expenses such as locations, infrastructure and producers.	Korea Creative Content Agency which supports film, TV, music, games and other types of production with production support and promotion/export support and runs the incubator	Centre National du cinema et de l'image animee (CNC) Supports film and audiovisual production for all kinds of distribution systems through grants, tax incentives, distribution and	The British Film Institute provides support for film, television and 'new forms of story-telling" through a variety of means – grants for production, support for training programmes, help with promotion and	The Cool Japan Fund includes a fund for supporting the creation of Japanese content for international distribution. UniJapan offers a platform for connecting Japanese film and audiovisual producers with	Creative Europe Programme is a pan-EU multi-year programme that builds on previous similar programmes. It has a strand that provides grants, loans, distribution support and training support for	the National Film Development Fund (FINAS), which gives grants and loans as well as makes available studios and equipment for local film and TV production, and it supports the film festival.. The Malaysian Digital

Country							
	Australia	South Korea	France	The UK	Japan	The European Union (the EU)	Malaysia
		programme Content Korea Lab Korean Film Council, which provides direct support to production, distribution and international promotion of Korean films	promotion assistance, help with co-production organizing and training. This is funded primarily by a tax on media including OTT players (e.g. 2% of revenues for normal; 10% for pornographic).	distribution, and career assistance for those in the industry. Additionally the Finance (No.2) Act 2024 sets out tax credits for certified British productions	investors for domestic and international co-production.	film and other audiovisual production called MEDIA and it has a cross-sectoral strand that provides funds to support collaboration across audiovisual and cultural sectors.	Economy Corporation (MDEC), which provides funds for digital industry development including digital content.
Export promotion (in addition to support in column above)	'Revive' National Cultural Policy	Korea's Culture and Contents Centre			Visual Industry Promotion Organisation		National Film Development Corporation FINAS co-production and export support. Multimedia

Country							
	Australia	South Korea	France	The UK	Japan	The European Union (the EU)	Malaysia
							Development Coorporation
Quotas	Broadcasting Services Act 1992. Broadcasting Services (Australian Content and Children's television) Standards 2020. 55% Australian Programming between 06:00-00:00.	N/A	60% of VoD catalogues and broadcast transmission time must be European works, 40% must be French (Order No. 2020-1642 of December 21, 2020 transposing Directive (EU) 2018/1808 amending 1986 Law on Freedom of Communication.	The Communications Act 2003 as amended by the 2020 Audiovisual Media Services Act. 50% European works (including UK origin) on television; 30% in VOD catalogues. In addition the BBC has obligations for 25% independent productions and additional requirement for regional content.	N/A	Audiovisual Media Services Directive (2010/13/eu as amended by 2018/1808) 50% European works (including UK origin) and 10% independent production on television; 30% European works in VOD catalogues.	No explicit quotas, but there are language requirements in licenses, which are specific to each service

Country							
	Australia	South Korea	France	The UK	Japan	The European Union (the EU)	Malaysia
Intellectual property protection	Copyright Act of 1968 Copyright Amendment Act 2006	Korea Creative Content Agency the Culture and Contents Centre	Droit d'auteur – Author's Right; EU Copyright law	Copyrights, Design and Patents Act 1988	The Copyright Law of Japan	Copyright Directive 2019/790 and 96/9/EC and 2001/29/EC	Copyright Act 1987 as amended in 2012
Co-regulatory codes	Broadcasting Services (Australian Content and Children's television) Standards 2020.		ARPP – advertising code;	Ofcom Broadcasting Code (regulatory code, not co-regulatory) UK Advertising standards Authority Code of Advertising Practice;	Japanese Advertising Agencies Association Code of Ethics	Code of Practice on Disinformation; Code of Conduct on Countering Hate Speech	2022 Content Code Advertising Standards Malaysia Codes of Advertising Practice
Change in policy and regulations for traditional television							
Key changes in policy and regulations for traditional television	Quotas, prominence and must carry extended to OTT	In 2023, the license fee that funds KBS, the public broadcaster was separated from the	Change in funding of PSB; extension of quotas and investment	Relaxation of advertising time limits for linear; extension of quotas for European works	Discussions are underway on changes to PSB	Relaxation of advertising time limits for linear; extension of quotas for	Government efforts to encourage co-productions with countries in the region; Policy to

Country							
	Australia	South Korea	France	The UK	Japan	The European Union (the EU)	Malaysia
in the context of technological change		electricity bills complicating its collection.	obligations to VoD services	to VoD services; new rules for prominence of public service channels and protections for major events	arrangements but not concluded. In 2023 the NHK significantly reduced the license fee paid by households to support its operations.	European works to VoD services	enable micropayments encourages domestic pay-per-view
Approaches for promoting the broadcasting/audio-visual industries							
Key approaches for promoting the industries	Using competition policy to intervene in the relationship between platforms and media; Industrial policy of quotas, subsidies, tax breaks; export support	Industrial policy of direct investment in creative hubs, skills building, subsidies, and cooperation with SMEs; export support and cultural policy promoting content abroad	Content quotas and obligations on linear broadcasters and VoD services to invest in French productions; extensive film fund investment; enforcing transparency in advertising markets and compensation	License fee supported PSB heavily investing in AV industries; Industrial policy of quotas, subsidies, tax breaks; rules to ensure UK channels are prominent on OTT services	Heavy investment in PSB, subsidies and export support	Quotas on broadcasters and VoD services for European Work and independent production. Creative Europe Programme for subsidies, loans,	Film in Malaysia co-production treaties and National Film and Multimedia Development Corporation support; State broadcasters and government investment in DTT and broadband access

Country							
	Australia	South Korea	France	The UK	Japan	The European Union (the EU)	Malaysia
			to publishers for content used by platforms; direct funding of PSB			support for export and skill building	
National Streaming Platform							
National streaming platform in each country (either run by government agency or broadcasting /tele-communications operators)	No	No	No	Yes, 1) BritBox – run by public broadcasters 2) Freely	No	No	MYTV – connected to the Digital Terrestrial TV provider
Lesson learned (successful traits & unsuccessful aspects)							
Lesson learned	Using competition policy regulator and tools to improve position of domestic media may help level the playing field	Direct investment in skills and creative hubs can generate attractive content demanded internally and as export.	Using competition policy regulator and tools to improve position of domestic media Protectionist measures such as	Strong independent PSB can drive creative industries. Television can engage in advertising innovation with	Strong PSB investment with USO can drive development. Relying on unique culture to maintain demand for domestic content	A combination of liberalization and protectionism encouraged large conglomerates, but competing with US-based content and	State investment in infrastructure can support development of domestic services and enabling mobile micropayments can

Country							
	Australia	South Korea	France	The UK	Japan	The European Union (the EU)	Malaysia
	but is not without risks.		quotas and investment obligations can ensure audience for domestic content/channels in long term	programmatic and addressable offers.	may be unsustainable.	transnational services remains a struggle over decades.	help decrease piracy. Obligatory state advertising and constraints on advertising for domestic broadcasters hinders them in competing with transnational players.

Appendix 5: Online survey of viewing trend in Thailand, 2024

The survey employed a quantitative method, utilizing a non-specific online questionnaire. We received responses from 786 participants, with the following breakdown by generation: Gen Z (ages 14-26) comprised the largest group at 57.6% (453 people). Gen Y (ages 27-43) made up 24.9% (196 people), followed by Gen X (ages 44-58) at 13.5% (106 people), and Baby Boomers (age 59 and over) at 3.9% (31 people).

Figure 6-4 Survey Participants: Age Breakdown

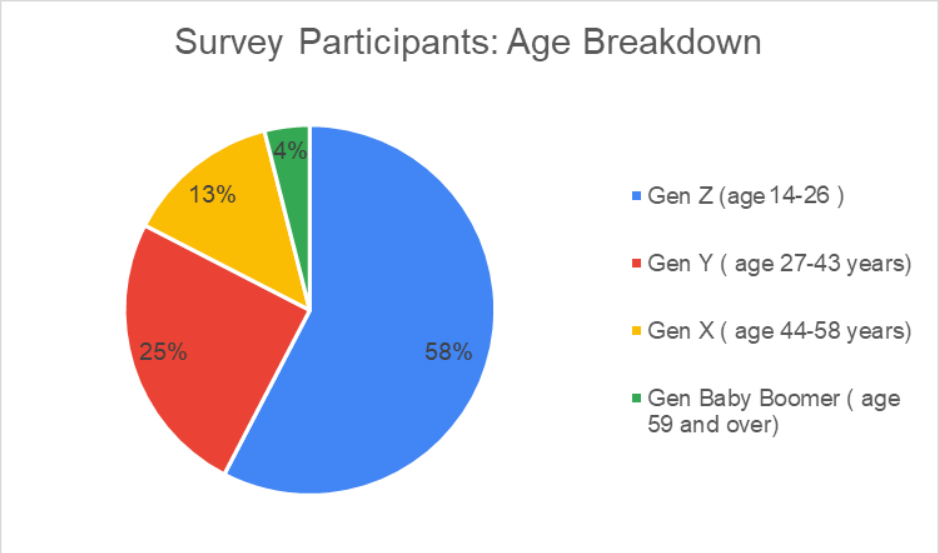


Table 6-1 Table of age and gender proportions

Age range	Male	female	LGBTQ +	Total
Gen Z (age 14-26 years)	162	220	71	453
Gen Y (age 27- 43 year)	62	111	23	196
Gen X (age 44-58 years)	29	69	8	106
Gen Baby Boomer (age 59 and over)	9	22	0	31

The survey results revealed interesting trends regarding content viewing frequency across different channels. Social media emerged as the primary source of information, with a significant portion of respondents reporting daily content consumption.

Table 6-2 reveals that social media is the dominant platform for daily content consumption, with YouTube leading the way at 69.08%, followed by Line, Facebook, Instagram, and TikTok. In contrast, television viewership is relatively lower, with 37.91% of respondents reporting no

television consumption. For those who do watch television, the most common frequency is 1-2 days per week (32.19%).

Similar trends were observed for television station applications, with 44.78% of respondents indicating no usage and 35.37% watching 1-2 days per week. Regarding SVOD platforms (such as Netflix, Viu, iQIYI, Disney+, Prime Video), the most common viewing frequency was 1-2 days per week (27.23%), followed by 3-4 days per week (24.94%).

Table 6-2 Proportion of frequency of viewing content through various media channels

	1-2 days/ week	3-4 days/ week	5-6 days/ week	every day	Not viewing
television	32.19	8.40	4.20	17.30	37.91
Subscription video on demand (SVOD) (such as Netflix, Viu , iQIYI , Disney+, Prime Video)	27.23	24.94	12.72	21.88	13.23
Application of television stations such as OneD , BUGABOO.TV, CH3Plus, MONOMAX, VIPA)	35.37	9.29	5.34	5.22	44.78
Facebook	11.32	9.16	12.60	62.47	4.45
YouTube	7.76	7.00	14.89	69.08	1.27
TikTok	14.38	5.98	12.85	55.60	11.20
Instagram	12.47	8.02	11.45	58.65	9.41
X (Twitter)	25.57	13.74	10.56	31.30	18.83
Line	7.63	8.14	15.78	62.72	5.73

When classified by age group, distinct media consumption patterns emerged. Gen Z, Gen Y, and Gen X exhibited a strong preference for daily social media engagement. Instagram (75.5%), YouTube (71.35%), TikTok (67.8%), Facebook (54.5%), LINE (53.6), and X (36.9%) were the most popular platforms for Gen Z. Gen X relied primarily on Facebook and LINE (77.4%), followed by YouTube, TikTok, Instagram, and X. Gen Y displayed a similar trend, with LINE (74.5%) and Facebook (73.0%) as top platforms, followed by YouTube, Instagram, TikTok, and X.

Television viewing habits varied significantly across age groups. While Gen X maintained the highest proportion of daily television watchers, both Gen Y and Gen Z exhibited a declining interest in traditional television. Gen Y primarily watched television 1-2 days per week, with a notable

segment (29.1%) abstaining from television altogether. For Gen Z, television consumption was minimal, with over 47.9% not watching at all and 34.7% limiting viewing to 1-2 days per week.

In contrast, the Baby Boomer generation demonstrated a continued affinity for television, with 61.3% watching daily. However, this group also actively engaged with social media, particularly LINE (71.0%), Facebook (61.3%), and YouTube (51.6%).

Figure 6-5 Frequency of Viewing through various channels for 14-26 years old (Gen Z)

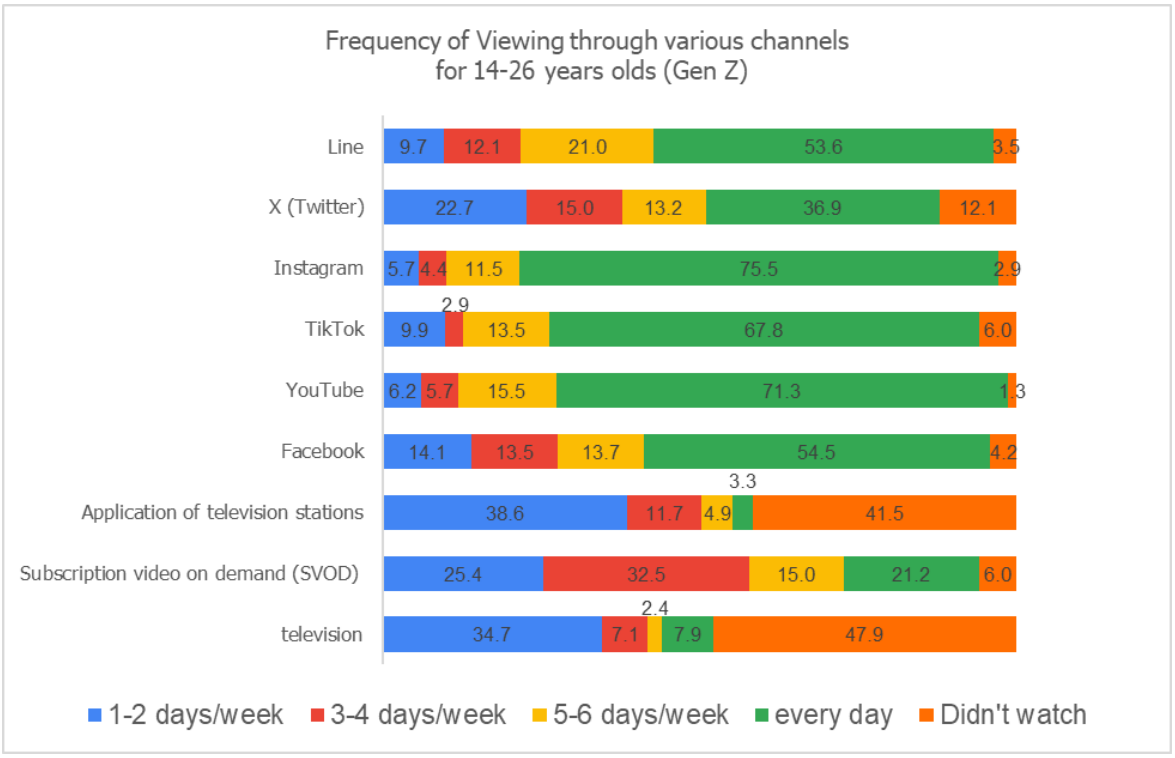


Figure 6-6 Frequency of Viewing through various channels for 27-43 years old (Gen Y)

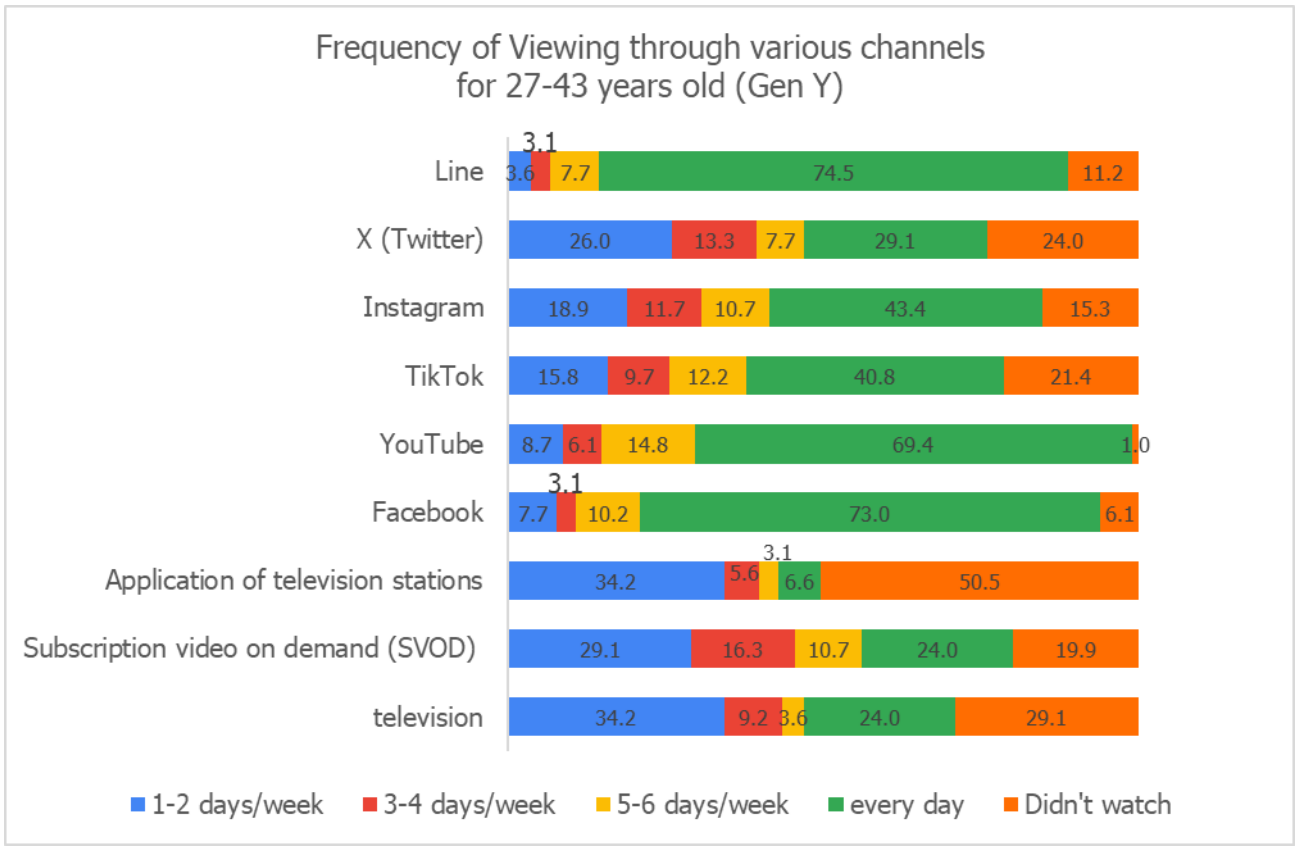


Figure 6-7 Frequency of Viewing through various channels for 44-58 years old (Gen X)

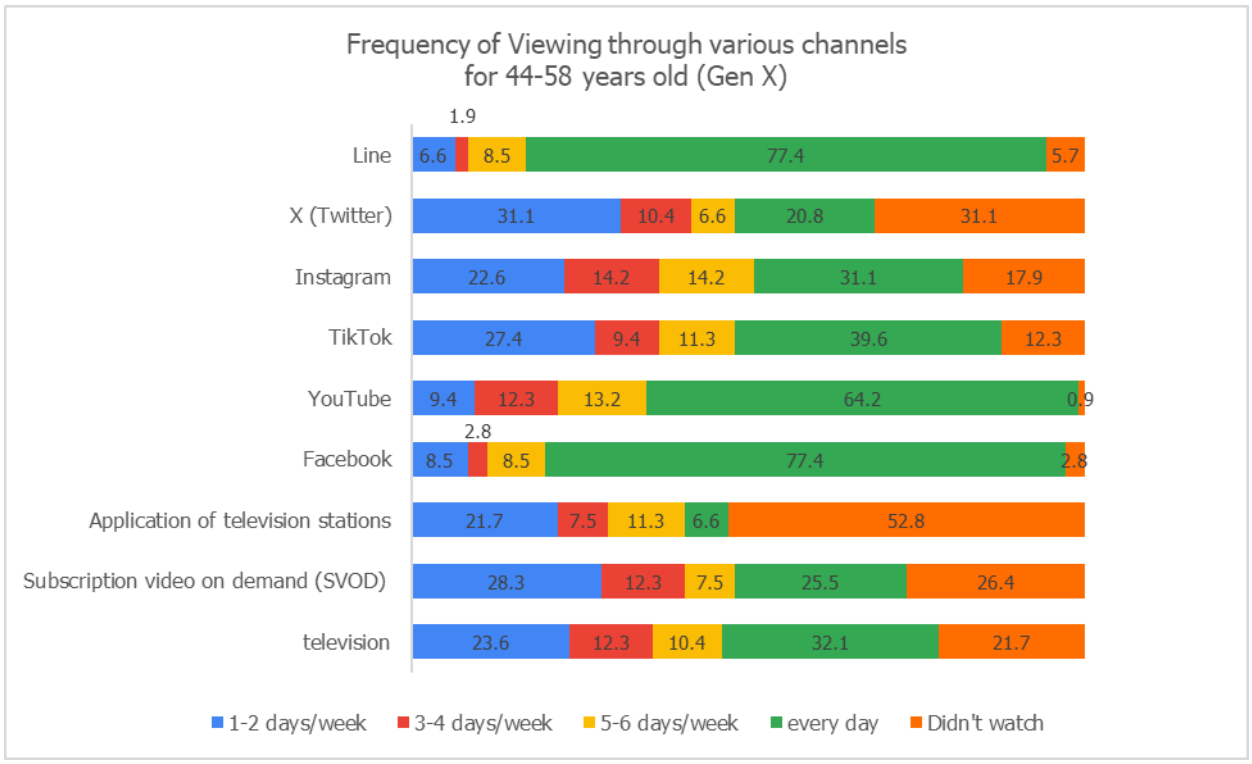


Figure 6-8 Frequency of Viewing through various channels for 59 years and over (Baby Boomer)

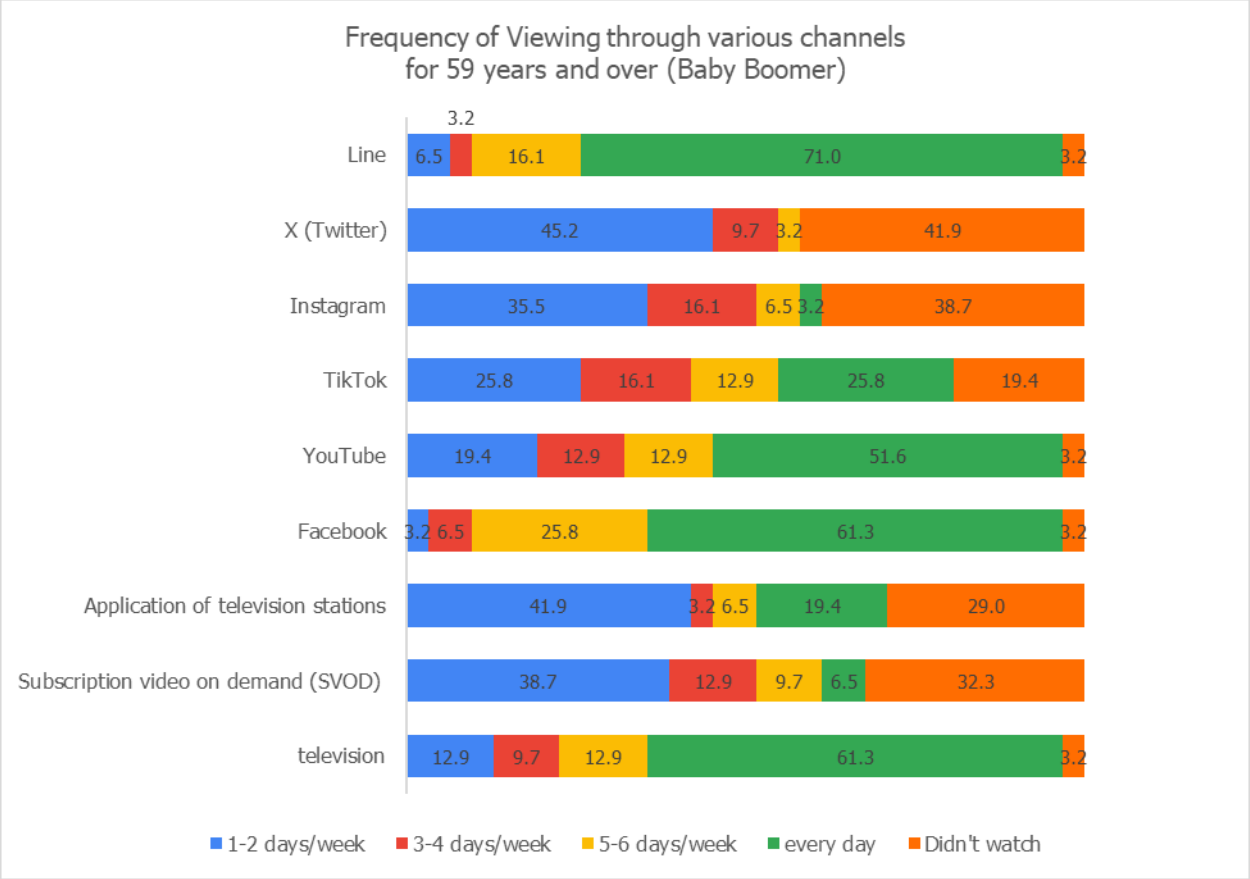


Table 6-3 Time spending on each platform

channel	14-26 years (Gen Z)					27-43 years (Gen Y)					44-58 years (Gen X)					59 years and above (Baby Boomer)				
	Less than 1 hr. per time	1-2 hrs. per time	>2-4 hrs. per time	>4-6 hrs. per time	More than 6 hours per time	Less than 1 hr. per time	1-2 hrs. per time	>2-4 hrs. per time	>4-6 hrs. per time	More than 6 hours per time	Less than 1 hr. per time	1-2 hrs. per time	>2-4 hrs. per time	>4-6 hrs. per time	More than 6 hours per time	Less than 1 hr. per time	1-2 hrs. per time	>2-4 hrs. per time	>4-6 hrs. per time	More than 6 hours per time
television	20.3	10.8	4.6	0.9	1.8	18.4	26.0	7.1	4.1	3.6	21.7	31.1	17.0	2.8	2.8	19.4	38.7	16.1	3.2	6.5
Subscription video on demand (SVOD) (such as Netflix, Viu, iQIYI, Disney+, Prime Video)	11.0	27.2	33.3	12.1	6.8	8.2	30.1	28.1	5.6	2.6	7.5	30.2	26.4	3.8	3.8	9.7	25.8	9.7	3.2	0.0
Application of television station	23.2	15.5	6.2	2.9	1.5	13.3	16.8	4.6	0.5	3.1	17.0	17.0	4.7	2.8	6.6	19.4	32.3	3.2	6.5	0.0
Facebook	35.5	25.6	18.3	6.2	9.9	35.2	26.0	17.9	8.2	6.6	34.0	30.2	12.3	11.3	5.7	35.5	35.5	22.6	0.0	6.5
YouTube	9.1	28.5	31.3	13.0	16.1	24.0	36.2	20.9	10.7	7.7	26.4	42.5	20.8	2.8	3.8	22.6	32.3	12.9	12.9	3.2
TikTok	10.8	22.1	28.7	14.1	17.0	30.6	20.4	15.3	3.1	5.1	40.6	16.0	10.4	4.7	1.9	45.2	9.7	9.7	0.0	6.5
Instagram	19.0	22.5	28.0	11.7	15.5	49.0	15.3	8.7	2.0	4.6	54.7	10.4	1.9	1.9	0.9	35.5	6.5	0.0	0.0	6.5
X (Twitter)	31.6	20.8	18.1	4.4	6.4	38.8	10.2	7.1	2.6	4.6	37.7	8.5	1.9	0.0	5.7	22.6	3.2	0.0	0.0	6.5
Line	45.9	21.2	13.7	5.3	6.6	38.3	19.4	13.8	10.2	7.7	44.3	20.8	16.0	6.6	6.6	25.8	38.7	12.9	6.5	12.9

Table 6-3 provides insights into the duration of media consumption across different platforms for various age groups.

Gen Z participants demonstrated a strong preference for longer social media sessions. While subscription video-on-demand (SVOD) platforms were most popular for more than 2–4 hour blocks, YouTube, TikTok, and Instagram also garnered significant time investment. Television consumption, when it occurred, was typically less than an hour. Facebook usage among Gen Z leaned towards shorter sessions, with 35.5% of users spending less than an hour per visit.

Among the Gen Y respondents, the majority spent more than 2-4 hours per media consumption session. The most popular platform for these extended sessions was SVOD, accounting for 28.1% of total usage, followed closely by YouTube. For sessions lasting between 1-2 hours, YouTube emerged as the most preferred platform, capturing 36.2% of usage. SVOD (30.1%), Facebook (26%), and television (26%) followed. Gen Y respondents, on the other hand, tended to spend less than 1 hour per session on platforms such as Instagram, LINE, TikTok, X, and Facebook.

Among Generation X respondents, those who spent more than 2-4 hours consuming media per session primarily used SVOD (26.4%) and YouTube (20.8%). For sessions lasting between 1-2 hours, YouTube was the most popular choice at 42.5%, followed closely by television (31.1%), SVOD (30.2%), and Facebook (30.2%). When it came to shorter sessions of less than an hour, Generation X individuals tended to use various social media platforms.

Among the Baby Boomer respondents, most individuals spent 1-2 hours per session on television (38.7%) and LINE (38.7%). Following closely were Facebook (35.5%), television station applications, and YouTube (32.3%). For sessions lasting less than an hour, Baby Boomers tended to use other social media platforms.

Content Discovery and Platform Preference

The survey revealed that when seeking out content, respondents primarily utilized specific channels or platforms as their starting point. YouTube emerged as the most popular discovery platform, with 36% of participants selecting it as their first choice. TikTok followed with 20.9%, and Facebook with 17%. In contrast, television was chosen as the initial content discovery platform by only 4.6% of respondents.

Figure 6-9 Primary Platform Choice for Content Discovery

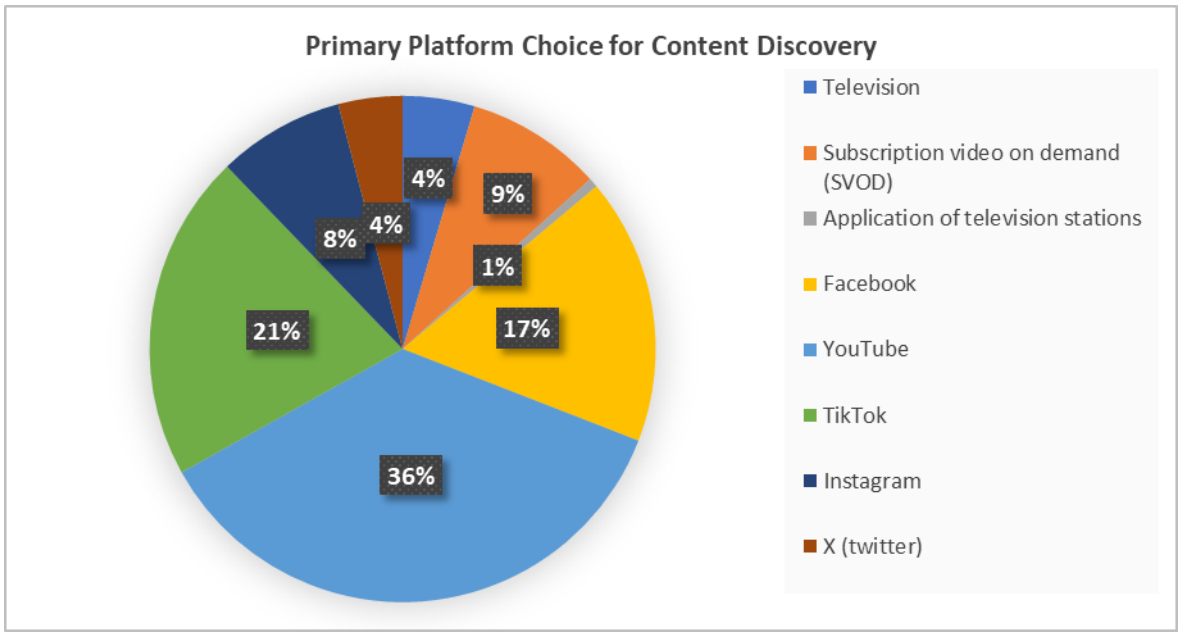
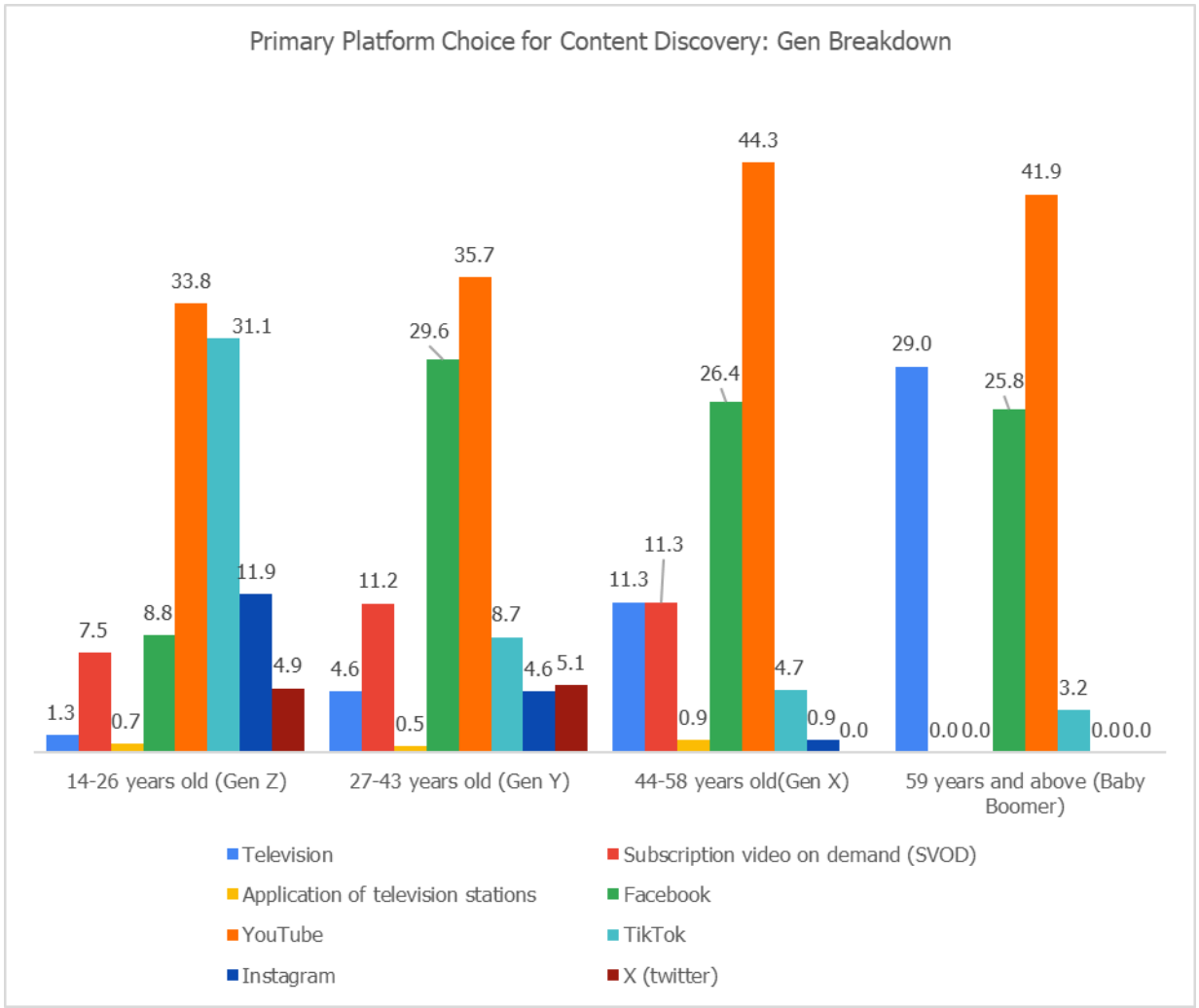


Figure 6-10 Primary Platform Choice for Content Discovery: Gen Breakdown



When segmented by generation, YouTube consistently emerged as the most preferred platform for discovering new content.

- **Gen Z:** TikTok (31.1%), Instagram (11.9%), Facebook (8.8%), subscription-based video-on-demand (7.5%), and X (4.9%) were also popular choices among Gen Z for content discovery. However, traditional television and television station applications saw minimal usage at 1.3% and 0.7%, respectively.
- **Gen Y:** Following YouTube (35.7%), Gen Y frequently turned to Facebook (29.6%), subscription-based video-on-demand (11.2%), TikTok (8.7%), X (5.1%), Instagram (4.6%), and television (4.6%) for content discovery. Television station applications were used by a very small percentage (0.5%).
- **Gen X:** While YouTube remained the top choice (44.3%), Gen X also relied on Facebook (26.4%), subscription-based video-on-demand (11.3%), television (11.3%), TikTok (4.7%), Instagram, and television station applications (0.9%) for content discovery.
- **Baby Boomers:** YouTube (41.9%) was the primary platform for content discovery among Baby Boomers, followed by television (29.0%), Facebook (25.8%), and TikTok (3.2%).

These findings indicate a strong preference for digital platforms, particularly among younger generations. While television still holds some relevance, especially for older generations, the dominance of social media platforms like YouTube, TikTok, and Facebook in content discovery is evident. The increasing popularity of subscription-based video-on-demand services further highlights the shift in content consumption habits towards digital platforms.

When it comes to news consumption, respondents primarily turned to Facebook as their initial source of information, accounting for 39% of responses. Following behind were X and TikTok, both at 18%. Television captured 9% of the audience, while YouTube and Instagram each claimed 7%.

Figure 6-11 Primary Platform Choice for News Consumption

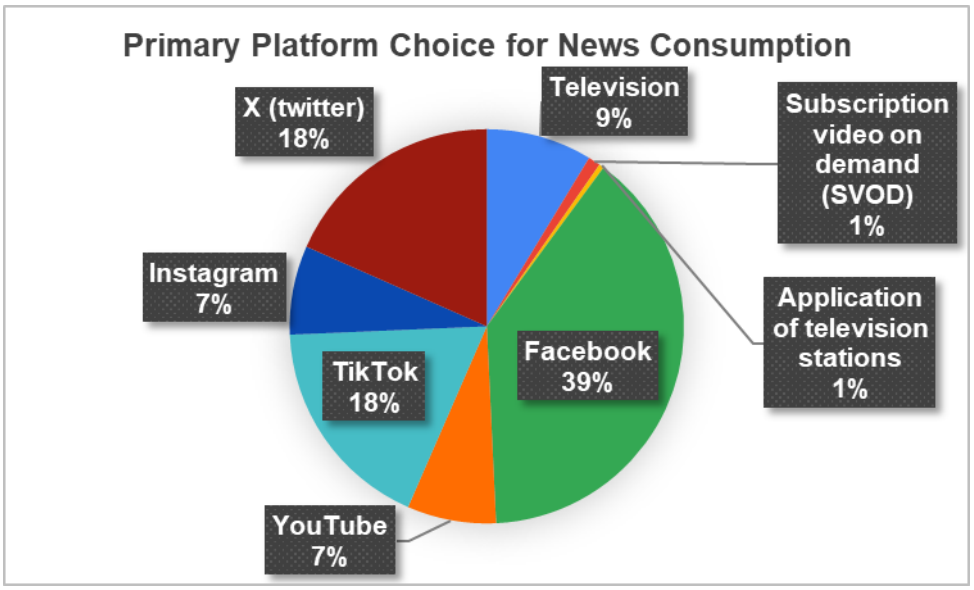
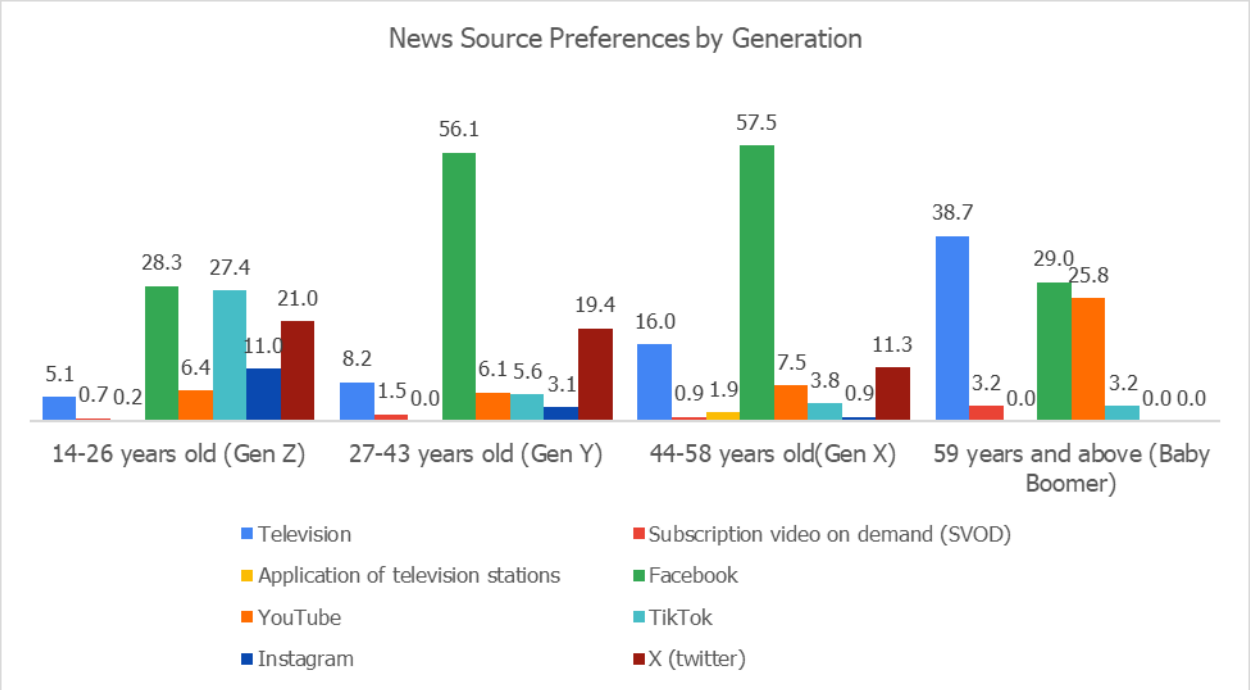


Figure 6-12 News Source Preferences by Generation



The primary news sources varied across different generations:

- **Gen Z:** Facebook (28.3%), TikTok (27.4%), and X (21.0%) were the top three platforms for Gen Z to get their news. Traditional television was a less preferred choice, with only 5.1% of Gen Z individuals selecting it as their primary news source.
- **Gen Y:** Facebook was the dominant platform for news consumption among Gen Y, accounting for 56.1% of respondents. This was followed by X (19.4%), television (8.2%), YouTube (6.1%), TikTok (5.6%), and Instagram (3.1%).

- **Gen X:** Similar to Gen Y, Facebook was the primary news source for Gen X (57.5%), followed by television (16.0%), X (11.3%), YouTube (7.5%), and TikTok (3.8%).
- **Baby Boomers:** Unlike younger generations, Baby Boomers relied more on traditional television as their primary news source (38.7%). Facebook (29.0%) and YouTube (25.8%) were also significant sources of news for this demographic.

While the above data highlights the primary news sources for each generation, a separate finding revealed that when seeking more in-depth information or specific details about a news story, respondents most commonly turned to Google Search (56.9%). This was followed by searching on X or using hashtags (11.8%), and searching on TikTok (8.7%).

Figure 6-13 Channels searching for additional news and information

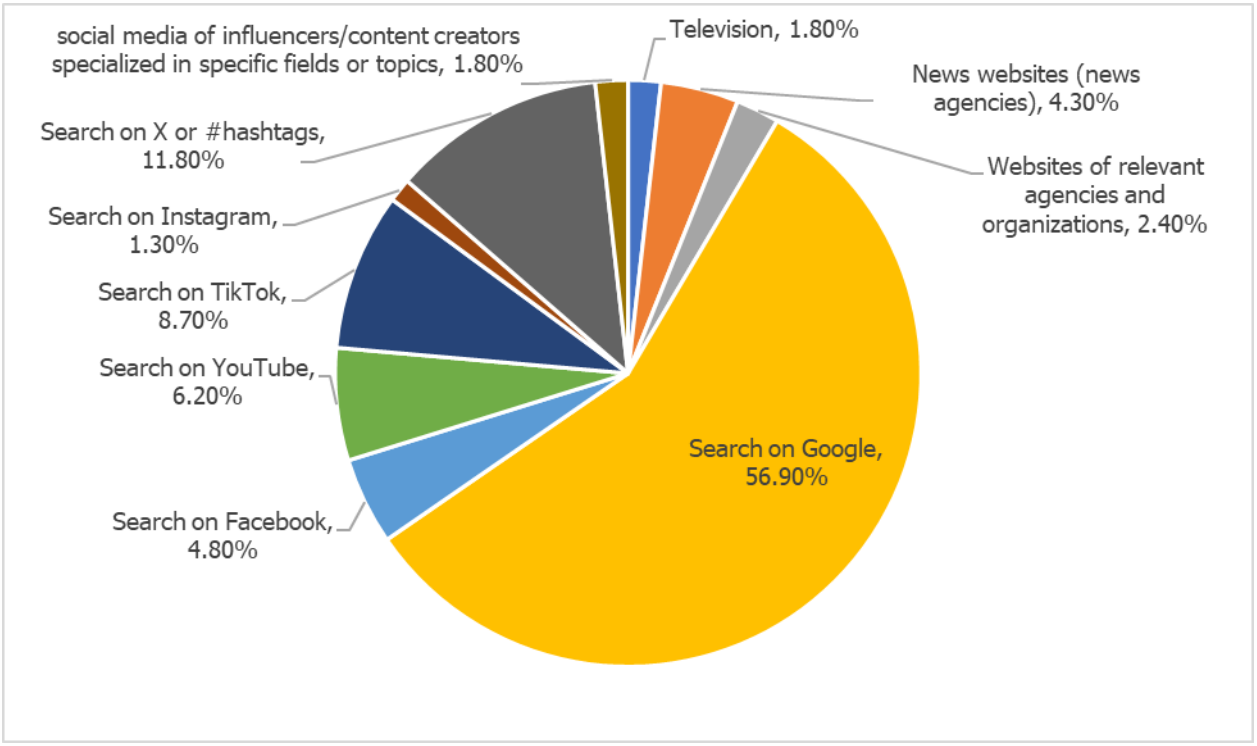


Figure 6-14 Gen Breakdown: Preferred Channels for Additional Information Search

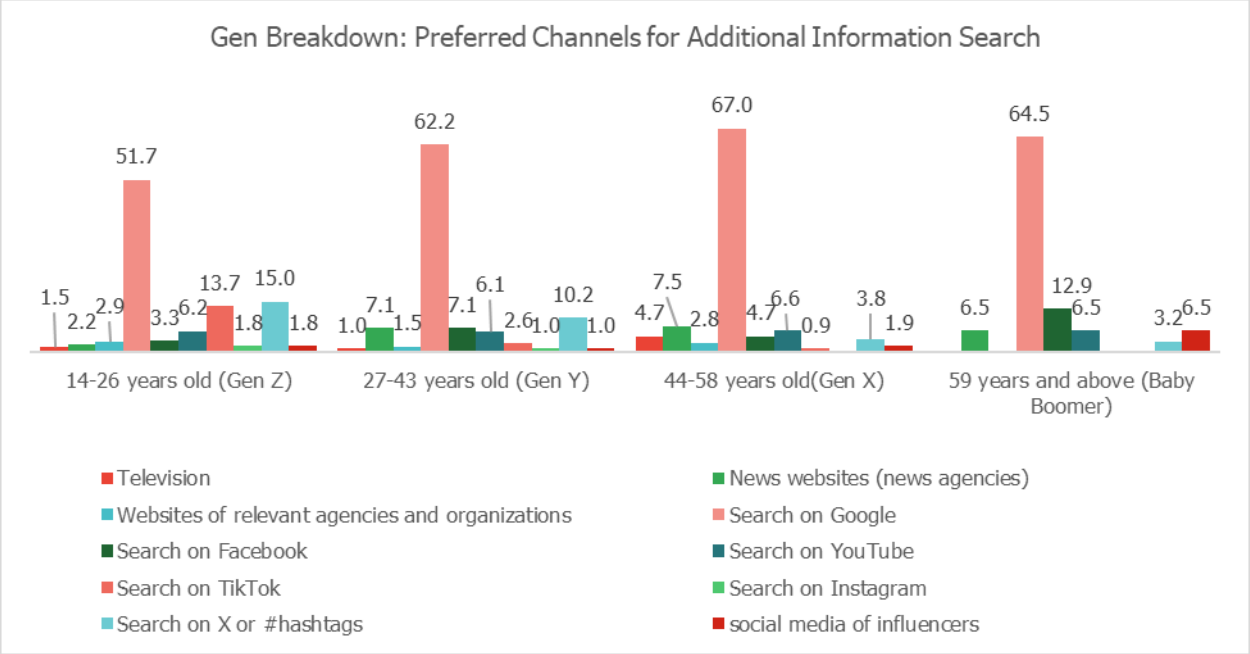


Figure 6-14 illustrates the primary channels used by different generations to search for additional information on news or topics of interest.

- **Gen Z:** Primarily relied on Google Search (51.7%), followed by searches on X or using relevant hashtags (15.0%), and TikTok (13.7%). Television was minimally used for this purpose (1.5%).
- **Gen Y:** primarily uses Google Search to find information (62.2%), followed by searching on X or using various hashtags (10.2%). They also visit news websites (7.1%), while television is used by only 1.0% of them.
- **Gen X:** Also heavily relied on Google Search (67%), with news websites, YouTube, and television serving as supplementary sources (7.5%, 6.6%, and 4.7%, respectively).
- **Baby Boomers:** Primarily utilized Google Search (64.5%), followed by Facebook searches (12.9%). Additionally, seeking information from specific influencers or content creators on social media, news websites, and YouTube were also common practices (6.5% each).

While television viewership has declined overall, when individuals do watch television, news programs remain the most popular content (38.9%), followed by dramas, entertainment programs (variety, game shows), fillm, live sports, kids programs, interview programs, documentaries, and educational programs. However, a significant portion of the population (20.6%) does not adhere to a strict television schedule.

Figure 6-15 Proportion (percentage) of programs audience choose to watch on linear TV

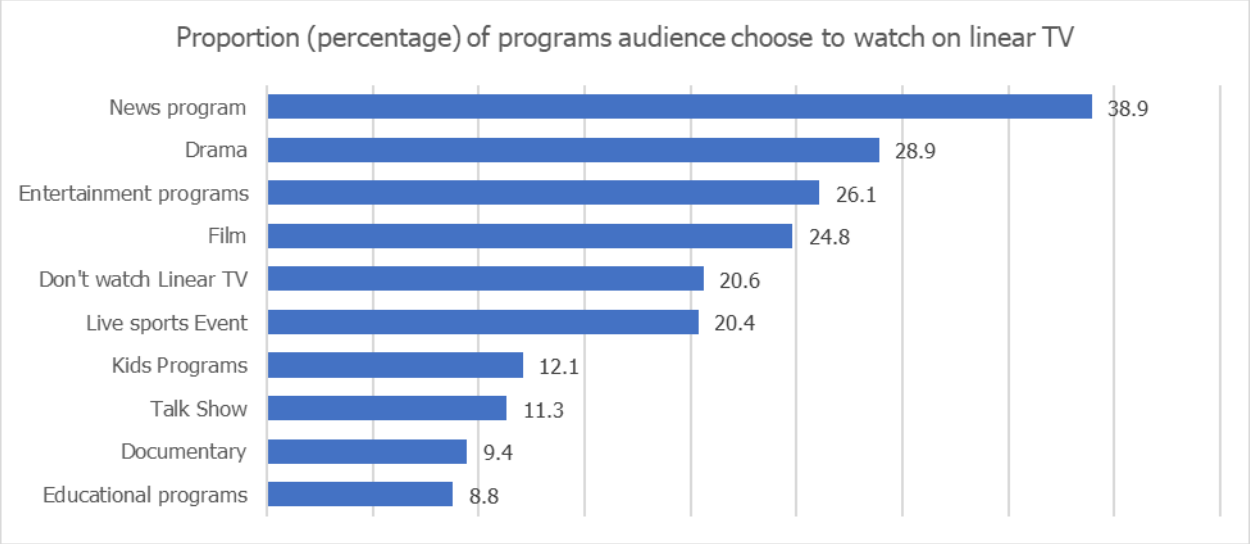


Figure 6-16 Programs Preferences for Linear TV by Generation

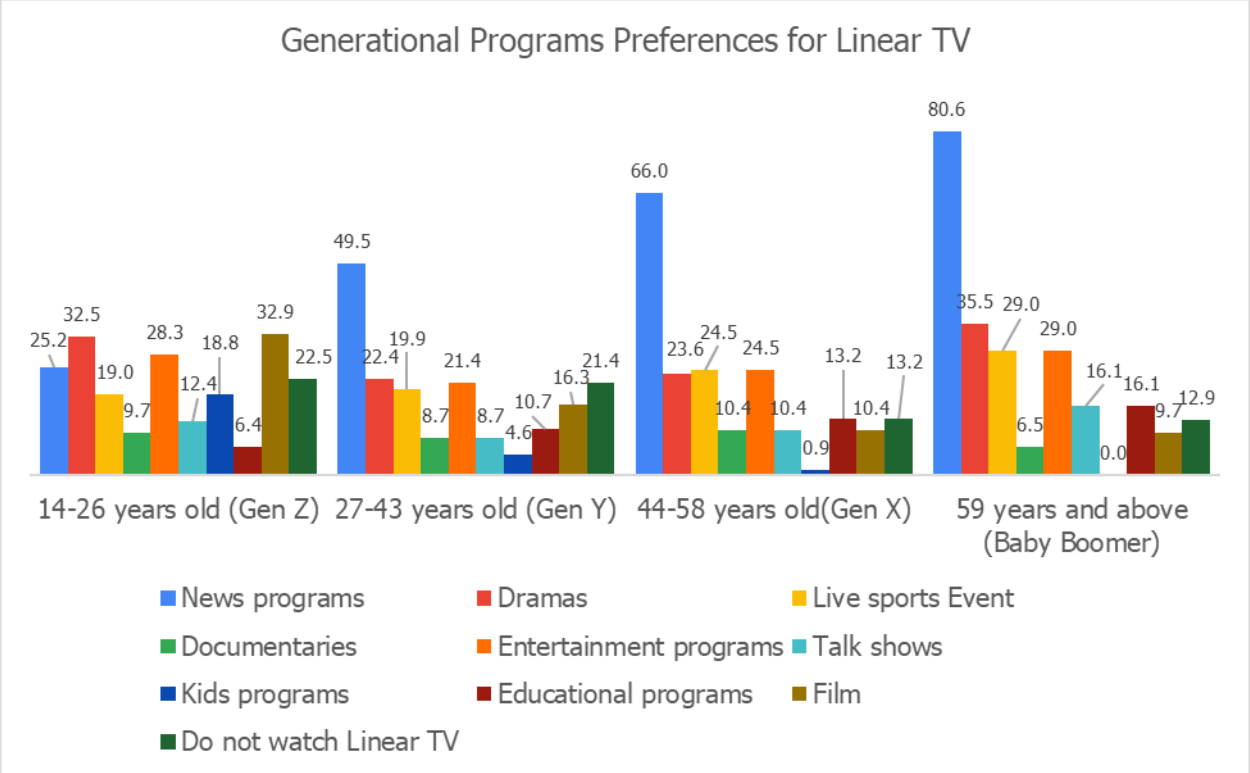


Figure 6-16 presents a breakdown of television viewing habits by generation based on adherence to broadcast schedules.

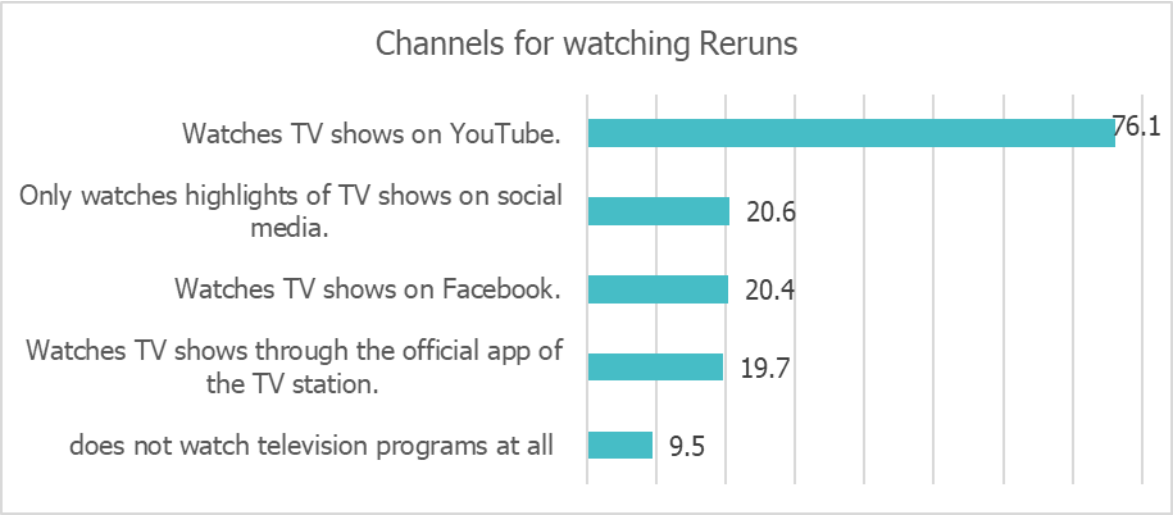
- **Gen Z:** Demonstrated a preference for film (32.9%) and dramas (32.5%) when watching live television, followed by entertainment programs (28.3%) and news (25.2%). A significant portion of Gen Z (22.5%) did not watch live television according to the broadcast schedule.

- **Gen Y:** Showed a strong inclination towards news programs (49.5%), followed by dramas, entertainment programs, and live sports event.
- **Gen X:** Primarily watched news programs (66.0%), with entertainment programs, live sports event, and dramas also being popular choices.
- **Baby Boomers:** Exhibited the highest preference for news programs (80.6%), followed by dramas, entertainment programs, and live sports event.

While there were slight variations across generations, news programs, dramas, entertainment, and live sports broadcasts consistently emerged as the most popular live television content.

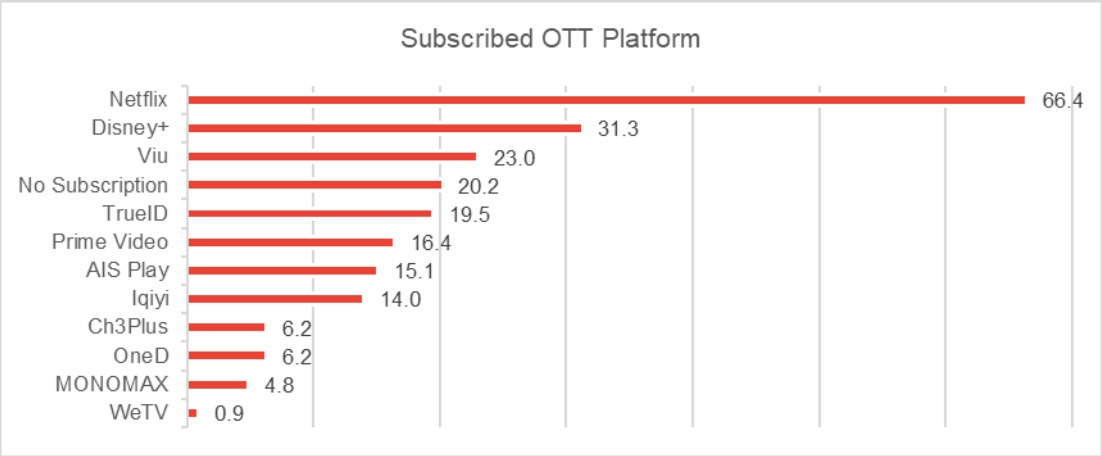
Despite a portion of the population not adhering to broadcast schedules, this does not equate to a complete avoidance of television. Instead, viewers often opt for reruns or highlights through various platforms. YouTube (76.1%) was the most popular platform for watching reruns, followed by social media (20.6%), Facebook (20.4%), and the station's application (19.7%). A smaller percentage (9.5%) did not watch television programs at all (either live program or rerun).

Figure 6-17 Channels for watching Reruns



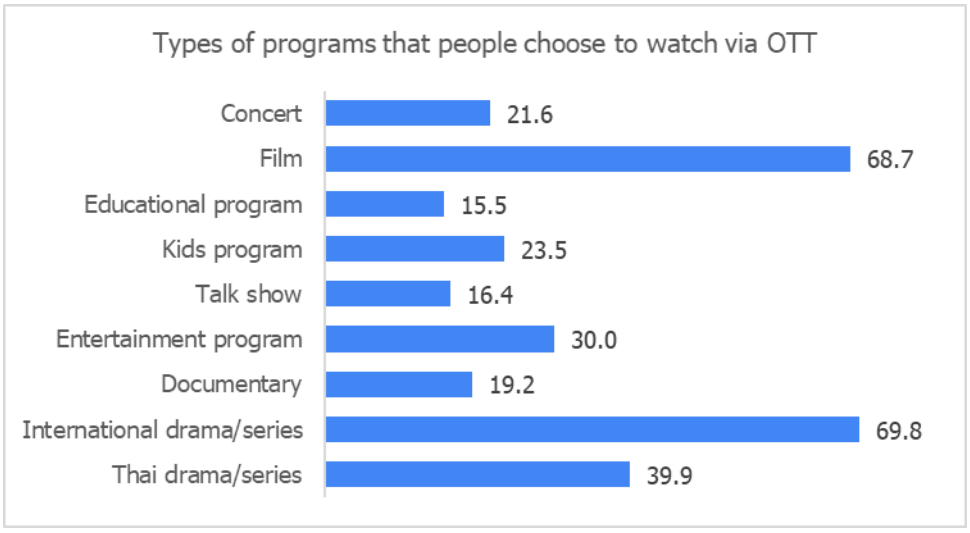
OTT subscriptions

Figure 6-18 Subscribed OTT Platform



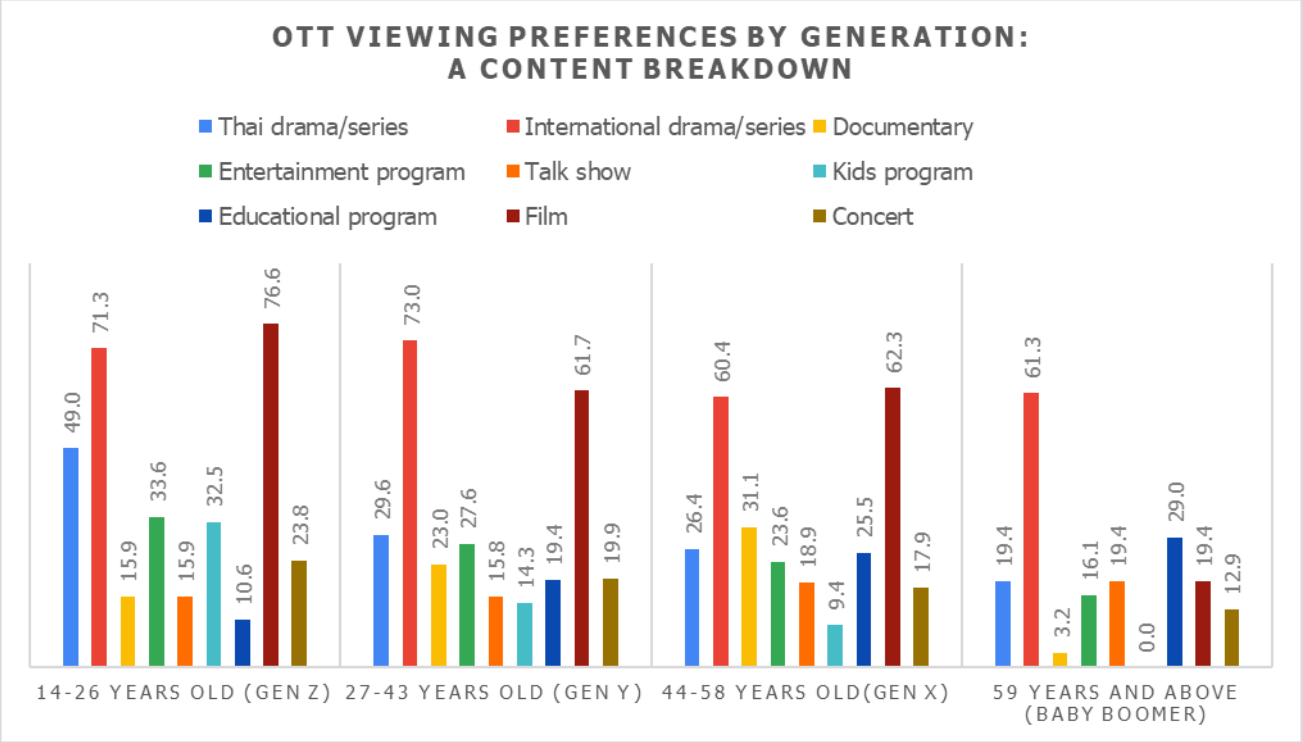
OTT subscriptions have become popular for accessing programs and content tailored to individual preferences. Netflix, with a 66.4% market share, is the most subscribed OTT platform. However, subscription rates for OTT services offered by Thai television stations significantly lag behind those of foreign platforms.

Figure 6-19 Types of programs that people choose to watch via OTT



The primary reason for subscribing to OTT platforms is to watch foreign dramas/series (69.8%) and film (68.7%). Thai dramas/series follow at 39.9%, with variety/game shows at 30.0%, kids programs at 23.5%, concerts at 21.6%, documentary at 19.2%, talk programs at 16.4%, and educational programs at 15.5%.

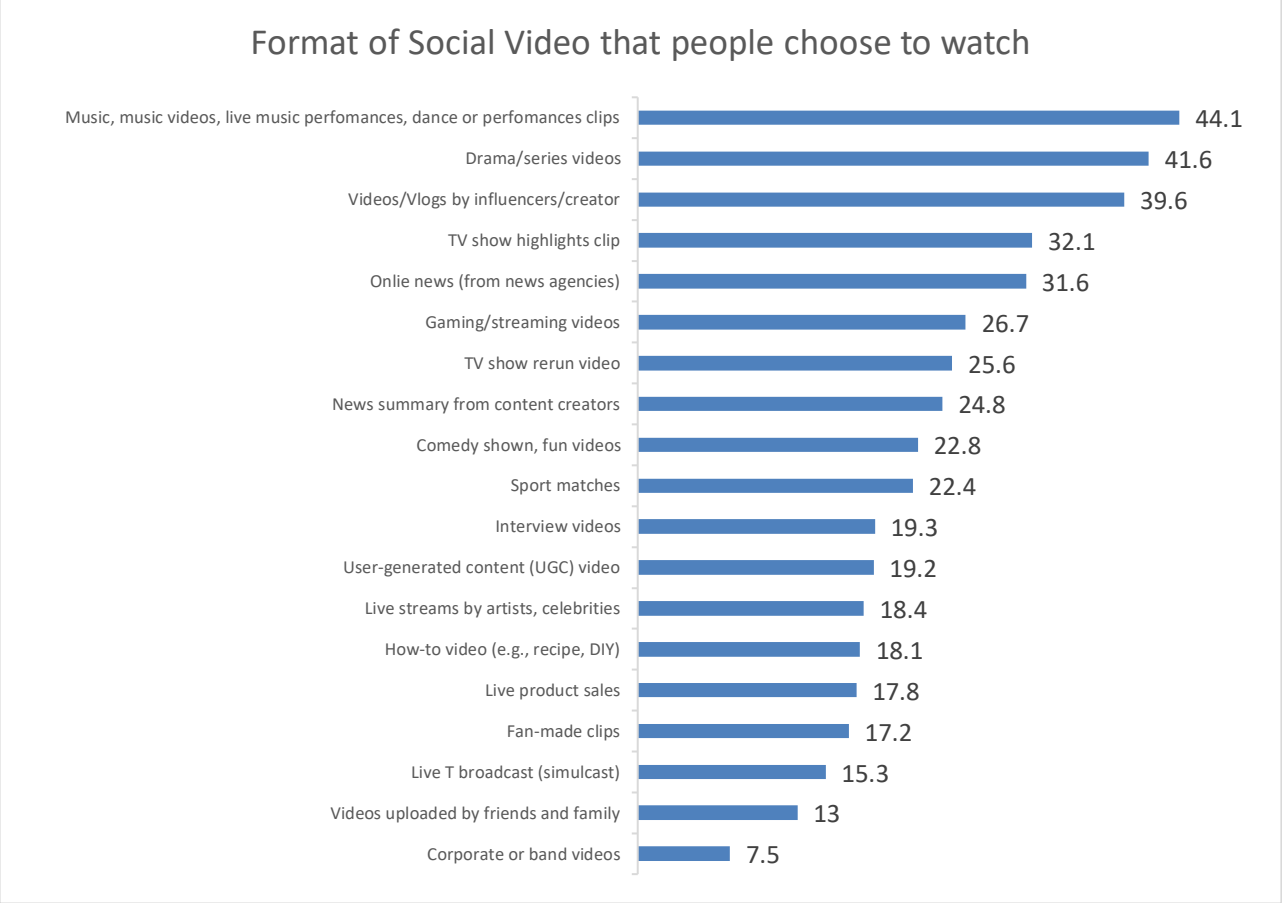
Figure 6-20 OTT Viewing Preferences by Generation: A Content Breakdown



When segmented by generation, distinct preferences for OTT content emerged.

- **Gen Z:** Exhibited a strong preference for film (76.7%) and international dramas/series (71.3%), followed by Thai dramas/Series, entertainment programs, Kids programs, concerts, documentary, Talk Show, and Educational programs.
- **Gen Y:** Prioritized interanational dramas/series (73.0%) and film (61.7%), with Thai dramas/Series, entertainment programs, documentary, Educational programs, Talk Show, and Kids programs following in popularity.
- **Gen X:** most frequently watches film (62.3%), International drama/series (60.4%), documentary (31.1%), Thai drama/series (26.4%), educational programs (25.5%), entertainment programs (23.6%), talk shows (18.9%), concerts (17.9%), and kids programs (9.4%).
- **Baby Boomers:** Primarily sought foreign dramas/series (61.3%) and educational programs (29.0%), with film, talk show, entertainment programs, concerts, and documentary rounding out their preferences.

Figure 6-21 Format of Social Video that people choose to watch



Beyond traditional OTT content, social video has emerged as a popular format. The most consumed social video content includes music, music videos, live music performances, dance or performance clips (44.1%), followed by videos related to dramas/series (41.6%), content from influencers/creators (39.6%), television program highlights (32.1%), and online news (31.6%).

Figure 6-22 Format of videos on social media that each Gen chooses to watch.

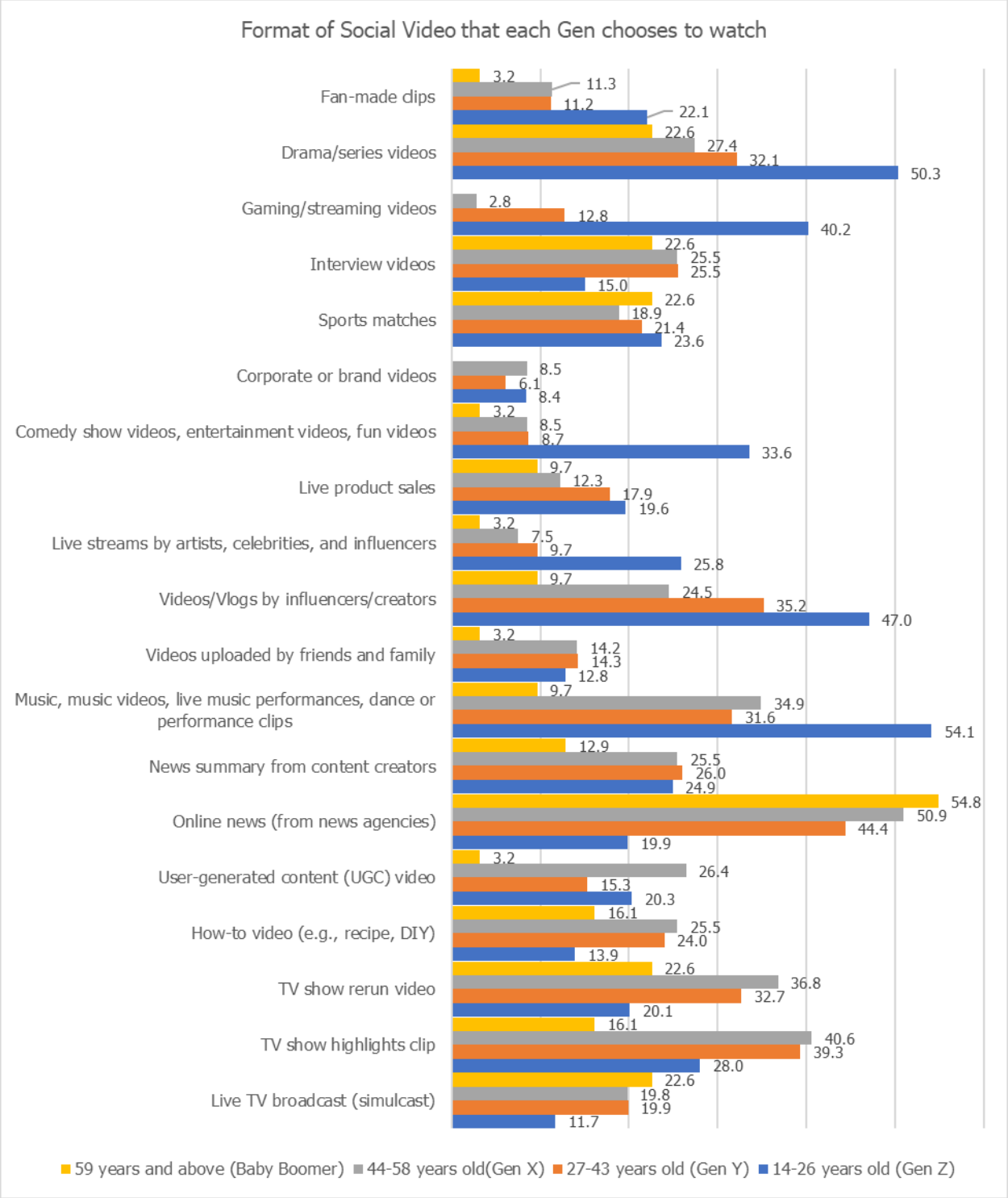


Figure 6-22 details the preferred social video formats for each generation

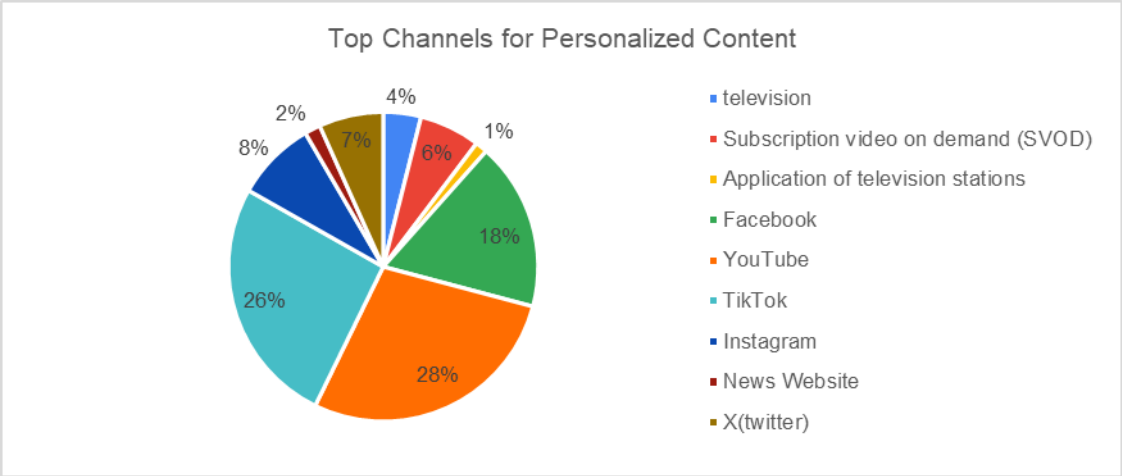
- **Gen Z:** Demonstrated a strong preference for music, music videos, live music performances, dance or performance clips (54.1%), followed by videos related to

dramas/series, influencer/creator content, gaming/streaming, and comedy/ entertainment/ fun videos.

- **Gen Y:** Showed a higher interest in online news (44.4%) and television program highlights (39.3%), with influencer/creator content, past television programs, and dramas/series also being popular choices.
- **Gen X:** Prioritized online news (50.9%) and television program highlights (40.6%), followed by past television programs, music, music videos, live music performances, dance or performance clips, and drama/series related content.
- **Baby Boomers:** Primarily consumed online news (54.8%) and live television programs broadcast simultaneously with television, with reruns, sports, interviews, and drama/series-related content sharing similar levels of interest (22.6%).

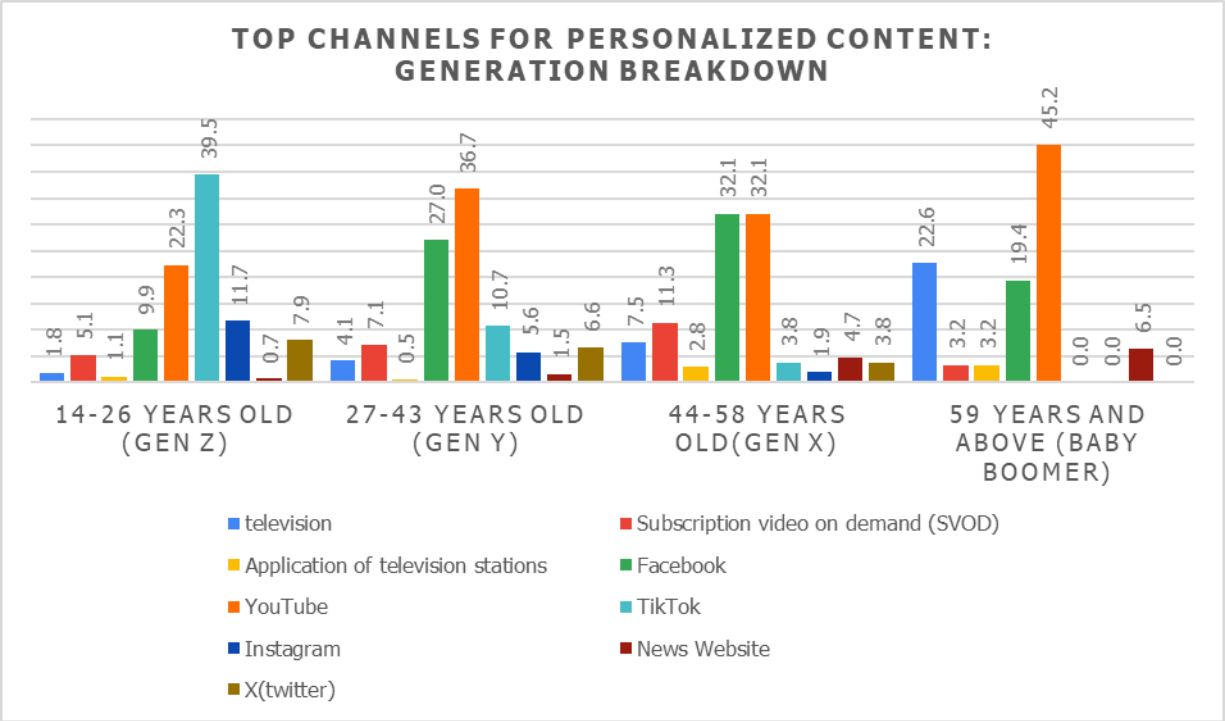
In terms of platforms for discovering content aligned with specific interests, YouTube emerged as the most popular choice (28%), followed by TikTok (26%) and Facebook (18%). Television fulfilled this purpose for only 4% of respondents.

Figure 6-23 Top Channels for Personalized Content



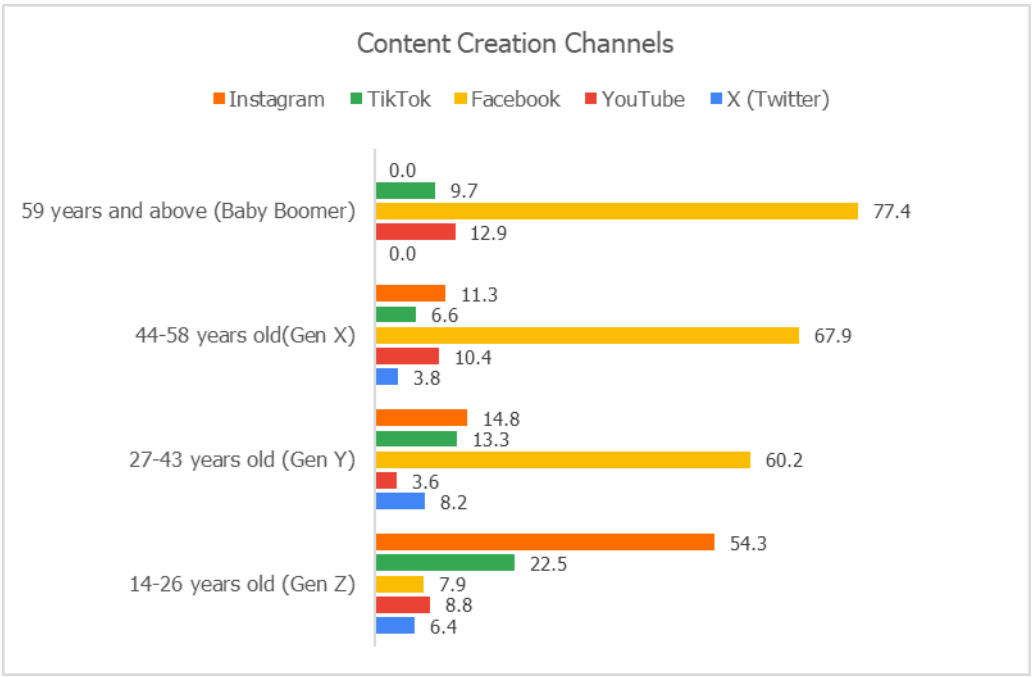
When analyzing data by generation, TikTok emerged as the most relevant platform for Gen Z's interests, capturing 39.5% of responses. YouTube followed at 22.3%. Conversely, YouTube was the platform of choice for other generations, particularly Baby Boomers at 45.2%. Television also played a role for Baby Boomers at 22.6%, but its relevance diminished significantly among younger generations.

Figure 6-24 Top Channels for Personalized Content: Generation Breakdown



To understand audience interaction and content creation behaviors, participants were asked about their primary platform for communicating and sharing content. Facebook emerged as the dominant platform for content creation and sharing among Gen X, Gen Y, and Baby Boomers. In contrast, Gen Z favored Instagram and TikTok for these activities.

Figure 6-25 Content Creation Channels



In conclusion, audience data reveals a shift away from television as the primary media platform, particularly among younger demographics. While social media has become the dominant source of content consumption, traditional television still holds relevance for certain age groups.

Despite the growing popularity of online platforms, television programs, especially when distributed through online channels, continue to attract a substantial audience. To cater to viewer preferences, content in the areas of news, dramas, entertainment, and sports should remain a focus for broadcasters.

Appendix 6: Indications from the UK of future viewing trends by age-group, as input for a future market in Thailand

OFCOM UK 2024- Annual Study England– Media watching– 04 AUG 2024

- Gen Z swerves traditional broadcast TV as fewer than half tune in weekly to TV, radio and on-demand
- For the first time, less than half of 16-24-year-olds are now watching broadcast TV in an average week,
- https://ofcom.cmail19.com/t/i-l-fpktkk-wklhththd-j/

OFCOM 2024- For England only – media watching

According to Ofcom's annual study into the nation's media habits.

- Just 48% of young audiences tuned in to Broadcast TV, in an average week last year, down from 76% in 2018. Children aged 4-15 are tuning out at a similar rate, with only 55% watching broadcast TV each week in 2023, compared to 81% in 2018. Overall, the weekly reach of traditional TV fell by a record amount in the last year.
- Younger audiences aged 16-24 aren't just watching broadcast TV less frequently, they're also watching for shorter periods at only 33 minutes each day – down 16% year on year. Of this, a mere 20 minutes is spent watching live TV.
- In comparison, they're spending three times as long each day (1 hour 33 minutes) watching video-sharing platforms such as TikTok and YouTube.

Other findings include:-

1) TV and video

- Overall, people in the UK watched more TV and video content at home in 2023, averaging 4 hours and 31 minutes a day (an increase of 6 minutes/2% since 2022). This was primarily driven by an increase in daily viewing of video-sharing platforms (up 12% to 49 minutes) and to broadcasters' video-on-demand services, such as iPlayer and ITVX (up 29% to 20 minutes).
- TV screens are rapidly becoming more popular for watching YouTube content. Thirty-four % of time spent watching YouTube at home is now on a TV set – up from 29% in 2022. This increases to 45% among children aged 4-15 – up from 36% in 2022.
- Daily viewing to subscription video-on-demand (SVoD) services saw more marginal growth in 2023 (up 6% to 38 minutes). Netflix remains the most popular service –

watched for an average of 21 minutes per person per day, and accounting for more than half of all SVoD viewing.

2) Radio online is climbing rapidly

- The first quarter of 2024 saw the highest number of weekly radio listeners across all devices in the past twenty years (just under 50 million). Listening time is also up year on year to an average of 20.5 hours per week.
- Much of this is down to commercial radio's continued success - just over seven in 10 people aged 15+ tune into commercial stations at least once a week (70.4%) compared to 55.6% for BBC stations.
- Online radio listening continues to grow steadily, overtaking analogue radio (AM/FM) for the first time this year and now accounting for over a quarter (28%) of all live radio hours, mostly through smart speakers.

Appendix 7: Assessment of Numbers of DTT Broadcast TV Operators competing in a broadcast licence auction in 2029

Simon Forge and Martin Cave

Introduction

We have been asked to express an opinion on a particular regulatory issue concerning the number of licences to be made available in the DTT licence auction to take place in 2029.

For this purpose we are assuming that the NBTC's objectives include a desire to ensure that DTT broadcast frequencies are made available to those firms which can use them most efficiently, and at the same time that there is greater certainty that DTT broadcasts continue in the future, especially to the benefit of those households who rely on the relevant linear (ie scheduled, rather than on demand) programming for their access to audio-visual services by whatever means of delivery they employ.

How broadcasting licence auctions are supposed to enhance the economic efficiency of the broadcasting sector.

One somewhat idealised description of how a broadcast licence process is intended to achieve an efficient assignment of a limited number of licences to a greater number of applicants is as follows:

- The auctioneer specifies i) the duration of the licences, ii) how many are available, iii) how many a single company can have, and iv) what rights and obligations go with them.
- A potential bidding company forms expectations about the expected value of the revenue stream it will receive minus the expected value of the costs it will incur over the lifetime of the licence; this will be discounted over time by the firm's cost of capital in % points - set equal to the annual rate at which it can borrow money from its investors. The above expected values will take account of all forms of monetary revenues and costs, including help received from public bodies, or additional burdens imposed by them.
- The difference between these revenue and cost estimates is the maximum which the firm is prepared to bid; it should not bid more, as it would mean making a loss, but the firm hopes that any successful bid it might make would yield a significant additional profit.

- It is also possible to change the auction rules to include 'negative' bids. The winner would be the firm willing to provide the programming for the smallest subsidy.
- The auction then takes place according to rules set by the auctioneer. If the licences are identical, a simple method is to ask all bidders to make a sealed bid for a single licence : ie. to submit in a sealed envelope the amount they are willing to pay; the envelopes are opened and licences are assigned, starting with the highest figure and working down until all licences are assigned. All the successful bidders pay the 'clearing price' - the lowest amount paid by a successful bidder, or possibly the highest unsuccessful bid. If the licences differ considerably, a more complicated process has to be adopted.
- Care must be taken to prevent bidders colluding on their bids, to keep prices down and enhance their profits.
- The calculations firms are asked to make in (2) above are subject to grave uncertainties, including: how consumer behaviour will change over the lifetime of the licences; what strategies other broadcasters will adopt over this period, whether successful in the same auction or competing on another basis; whether the government or another public body might changes its policies, subsidies or other charges over the course of the licence, in response to the profits or losses made by the licensees or otherwise; whether auction payments are made upfront for the whole period in advance, or annually in instalments (and hence avoidable by exit); and so on. Bidders may respond to these residual uncertainties by a variety of means; one short-cut is to increase the cost of capital used to discount future costs and benefits.
- In terms of the availability of frequency, as the number of broadcast DTT channels DTT, so more multiplexed spectrum will become available and possibly surplus to demand. Thus there is an inverse ratio between the number of Multiplex channels and, the capacity of each for a given bandwidth. In this situation, the possibility of using the spectrum made available by reduced DTT broadcasters for higher definition channels becomes practical. There is thus the possibility of simulcasting multiple channels for the same DTT TV station for multiple different screen resolutions – for instance channels for SD, HD and 4K.
- Forecasting the potential revenues for post 2029 operations of the DTT channels is defined by the audience size, and its social ranking, as that defines the advertising revenues that can be expected. If DTT is not considered as a healthy market after 2029,

advertising revenues may shrink and be transferred to streaming platforms and to the major global platforms (such as Google/YouTube, Amazon, Meta/Facebook etc as well as the two Thai FBB/mobile operators if they have AVOD offerings as well as subscriptions, for SVOD). The number of years to cover spectrum fees etc may be low, especially if the DTT sector is seen as in decline and so high risk. Thus the introduction of a beauty contest to help preserve a DTT business may be useful.

It is clearly impossible for us (or anyone) to predict with confidence and so anticipate the overall outcome of the process described above, more generally, because the audiovisual sector in Thailand and elsewhere is in flux, and a period of five years will elapse before the DTT auction will take place.

So a more heuristic approach is required based on experience and significant contributing factors. Thus below we give an account of our general expectation, based on currently available data, of the consequences of the capacity of the DTT supply side to successfully assimilate varying numbers of licences in the range 0 to 20 - and on the basis of that discussion, to indicate a preferred level. But first we look at how the current situation emerged, and at the revenue prospects of the DTT component of the Thai audio-visual sector.

Taking in the DTT auction landscape - the preceding 2013 auction

The starting position today is of 15 DTT operators, down from over 20 earlier, in the original 2013 DTT auction in which 24 bidders won licences.

That required 22 million converter boxes to be paid for out of auction receipts for licences. The NBTC had noted that auction revenues bid were 50,862 million baht. Fees were reduced when some of the channels decided against entering the DTT auction. Other reductions are due to waiving the licence fees in some cases as well as those costs of honouring the 'must carry' fees.

Seven digital TV channels owned by six operators submitted letters of intent to exit the sector to the NBTC on the May 10th submission deadline. The TV channel operators, with licences from the 2013 auction, obtained compensation dependent on the winning price of each licence auction and the exact date of being permitted to go off air.[Advanced TV, 2019]

Prospects for the revenue potential of the DTT sector.

We can consider a set of factors which will determine how many DTT stations can be supported, depending on the following factors

- GDP growth – 3 % per annum?

- Share of GDP in the AV sector as whole - reducing
- Choice of viewing, including linear vs non-linear viewing and age-group as the younger age-group concentrate on nonlinear,
- The online OTT platforms vary by:-
  - Age group.
  - But with growth of OTT use across the net population – all age groups.
  - Growth in use of social media
  - Aging audience for DTT TV watching DTT - and so shrinking.
- Reliance on advertising while subscription is also growing for Subscription Video on Demand (SVOD)
- Rising programme costs as the competition from OTT drives higher content quality.

Conclusion: the general conclusion is that this is not indusive to DTT licence bidding - but how injurious could this be in terms of numbers of bidders for licences? See the final discussion below of where the range lies.

First Analysis of the case ranges identified

1) Ten to twenty DTT operators

This takes the numbers back to the levels of DTT licence bidders towards that of the original in 2013.

The OTT incursion would seem to rule this out on current evidence as:-

- The advertising revenue is not there to share among this number of DTT operators for a viable business lasting 10 years. That is why so many have withdrawn.
- The current quality of content is below that of the international streamers (particularly Netflix, the Hollywood bunch and also some Chinese and Japanese platforms that have streamers) making sales more difficult.
- The audience is shrinking since our research has shown that the younger age-groups increasing rely on a wide variety of OTT services for news, drama and sport as well as for social networking and search.

2) Six to ten DTT operators

From our current reckoning from the study research and the factors involved, this is at the top end of a feasible range: it would require a reversal of the slow trend of decline in DTT revenues.

Going further than the above in the numbers of would require some major factor to enter the market and change its composition.

3) For three to six operators

This may be possible but is unlikely - due to:-

- The pressures of revenues from DTT advertising descending against those of the OTT operators,
- The operator can support a portfolio diversion into the DTT market, using higher quality content taken from the OTT content production investments.
- At this level of provision, a question arises as to whether households relying entirely on DTT channels will get a significant range of choice of content to keep them viewing.

Thus this relatively high number of operators would require an advertising stream to justify their existence. That seems unlikely.

4) For one to three DTT operators

Here it is possible, unless OTT streaming prices have fallen for the mass of viewers. There are two reasons to consider a major cost model revision for the streamers, that absorbs more FTA viewers:-

- A price fall in FBB infrastructure cost due to regulatory interventions:
  - Perhaps firstly - through a competition policy of opening a wholesale market in FBB capacity by the two FBB infrastructure owners and operators.
  - Other FBB networks for the remotest and poorest in society could also be brought into play such as Net PRACHARAT as it has a vital component – the wayleaves rights for infrastructure.
- In addition, only a major transformation in viewing habits driven by quality of content might reverse the trend to zero. But this may be unlikely without a policy change requiring new thinking about this network's valuable infrastructure assets.

If the OTT streamers stimulate the Thai production segment to produce better content, that could be the decisive factor.

While the DTT multiplexes may fall idle, that does not include the other TV broadcast medium, geospatial satellites. It is possible that this market segment could continue, especially for

the poorest and remotest in society, if it carries suitable quality of content. Otherwise it will be similarly eroded.

The question may be – if LEO systems of constellations did arrive in Thailand over all the land mass (from China and the USA, and already present in areas of Myanmar) and thrived to cover the country and with their interactive web links, that would supplant non-interactive TV for SVOD at low cost - perhaps as AVOD.

Beauty contest not auction

It may be that only PSB operators remain in the DTT market and presumably they would have a licence in a beauty contest

Other factors that must be considered – 1 spectrum

The future is becoming more complex as the available spectrum moves towards the new allocations in the international spectrum management scheme, with:-

- The removal of some DTT spectrum for mobile in the latest IMT policies of the ITU – the ITU at WRC 2023 decided that some frequencies below 1 GHz could be transferred to mobile operations, for rural 5G use in the 470 to 694 MHz range. That must be considered as a future factor in assessing the DTT offering.
- The transfer of the C-band at 3.7 GHz and upwards from geostationary satellite to Mobile IMT use, requiring use of the K, Ku or Ka band, by the satellite operators all of which have problems in high rainfall countries. This may also translate into new satellites, unless the existing satellites have reprogrammable transmitters on the satellite for the new frequencies, and suitable antennae (software defined satellites). In the absence of that, the USA satellite operators have ordered new satellites, with their launches for the Ka band – a significant cost

Reductions in spectrum availability might possibly mean expensive migration for both DTT and satellite broadcasters, also requiring changes to TV interfaces in the home, unless they are easily reconfigurable to the new frequencies. That is an additional cost consideration and risk for the bidding DTT (and satellite) broadcasters, which could discourage bidders in favour of FBB streaming connectivity.

Other factors that must be considered –

The receiving television resolution and its spectrum demand.

One the problems of the current DTT technology were that the multiplexes were really designed for standard definition (SD) displays. Moving to high definition which may use 4000 pixels in width and approximately 2000 pixels in height (the '4K' standard) to give a widescreen format is that the bandwidth required is approximately 5 times as high. So the for the given bandwidth available, 25 Broadcasters could shrink to 5, unless further bandwidth is made available. The alternative is fairly complex signal processing for the bandwidth available with compression algorithms such as MPEG-2 and MPEG-4[385] possibly with a set top box, for HD and SD decoding.

Note that the OTT streamers using the wide broadband bandwidth available to them over FBB, do not have this problem (and possibly some satellites). That would tend to give the advantage to the OTT providers for high definition viewing and may militate against the DTT FTA signals in serving the HD TV audiences.

For zero (0) DTT operators in the market in 2029 and so there are no licence considerations

For: Supporting a market of zero DTT operators in 2029

- Rapid rollout of new OTT streamers with greater FBB coverage and introduction of cheaper 5G streaming tariffs puts pressure on the DTT's, so they all fail, especially as they fall into the trap of maintaining low quality content.
- A dwindling older DTT watching population, which is aging quickly, rapidly shrinking.
- Digital advertising (interactive, targeted selection etc ads switches off DTT and satellite TV termed 'smart digital advertising) so over the preceding years, DTT advertising shrinks rapidly towards zero
- With competition in streaming, the content streaming price comes down either via AVOD or via reduced subscriptions for SVOD. This streaming video subscription squeeze is happening in the UK as the disposable income shrinks.
- By 2029 all the DTT broadcasters have moved into streaming as FBB coverage expands, with both shares of the original BVOD shared server rebranded now as just another streaming platform.
- Zero licences are given out in 2029 since below four contenders, beauty contests are used

[385] MPEG: Motion picture expert group, for digital display standards

Against: Reversing the trend to abandon the DTT market with economic factors

One potential scenario might be: the global economic forces react to a major meltdown on the USA investments markets, precipitating a shrinkage of demand with lower disposable income across the ASEAN region, So demand for Free To Air satellite, CATV and DTT broadcast recovers,. This is also due to a second factor – the content quality massively improves under pressure from the competition with OTT streamers.

These two factors in combination meet the search by lower income customers for FTA with content improvement. That might recover the chances of broadcast TV for DTT (and satellite) continuing but it would have to happen in a timeframe before the DTT operators have vacated the market, as returning when all is abandoned could be too expensive. That would provide additional choice, with the PSB broadcasters in addition, whose licences would be presumably free.

In conclusion **-** there are strong economic arguments for there being zero DTT Operators left, in 2029, most likely as the DTT operators may have largely converted to OTT streaming only, as coverage by fibre FBB expands. Moreover, the pricing of this fixed telecommunications infrastructure could perhaps fall if the regulators introduce competition measures for the FBB infrastructure, through a launch of wholesale streaming markets, as well as price controls for OTT service providers.

A review of the evidence

Looking across these estimates there are some common factors

- The price of DTT advertising, the costs of DTT reception as against that of OTT streaming
- The quality of the content – especially against the global streamers – but without new content laws, there be little change or encouragement to change.
- The growing younger population prefers OTT content and services as one package.

These factors emphasise lower numbers of bidders and so in conclusion:-

a) If conditions are, as we suspect, not positive for the remaining DTT operators, with high competition from other technologies with concentrations of the viewing public on OTT streaming- as are the advertisers who are also focussed on the OTT market. Then the number of bidders would be in the range of zero to three bidders; so a beauty contest may be appropriate.
b) If the OTT market drives higher content quality from the DTT broadcasters then they may hold on to the FTA market, but aimed for a shrinking older population, which is

aging quickly, so the range might be one to six bidders. Six could be a fairly optimistic estimate.

c) Some bidding might be assured with a beauty contest, based on content quality and variety, coverage and technical quality.

d) The above situation also introduces the consideration for the regulator of the poor, deprived of FTA TV - and so the move to possibly consider negative bids, in a reverse auction, may be useful.

e) On the HD TV question, without moving to new signal compression technology, or to far greater signal bandwidth, for the moment, the SD format remains. That may indicate that HD TV users and above (4K, 8K) will tend to favour the OTT channels.

The use of HDTV has been a driver of the move to digital TV for Japan, the UK and the USA. Options for the use of different high resolution wider display screens moving to 4000 pixel width and also to 8000 pixels. This has been approached using signal compression technology for DTT multiplex channels. In the UK for its digital switchover explored in 2007. Established techniques for DTT channel compression have used quadrature amplitude modulation (QAM) in various ratios from 16 times to 128 times compression and above but possibly with higher interference rates.

The DTT multiplexes have to be optimised for coverage as well as number of channels in terms of the data rates as well the number of channels, set by the signal compression ratio selected. The settings chosen must take into account coverage areas and degrees of interference experienced when in service. That is set by testing trials for each coverage area, with aim of having commercial services with a satisfactory quality, reliably, for rooftop aerials, in order to drive the digital advertising sales. That is dependent for spectrum either on higher bandwidth per channel, and so less channels and less competition, or on multiplexes that have been modified to carry compressed signals. Decompression is required, in the smartTV or in an intervening set top box that is suitable for the display resolution of the TV screen.

That implies some form of coordination between the TV set production industry and the broadcasters. The move to HDTV also implies some commercial risk for the broadcasters, including the problem of ensuring content that is of a high enough technical standard that finer resolution images make a difference for the viewing experience. Thus there needs to be some coordination between the broadcast content and the quality of image, in order to make broadcast TV (satellite or DTT) worth watching on widescreen in high resolution.

The number of DTT channels accorded to each type of screen resolution (standard, high definition and 4K and 8K pixels) requires projections of the take-up of higher definition TV sets, with the overwhelming majority today being standard definition (SD). Migration rates are a combination of price point for new TV sets and disposable income, with possible emphasis on the quality of DTT broadcasts. The number of channels per screen resolution would then be a moving combination, evolving from perhaps 80% SD and 20% HD progressively to 20% SD and over 60% HD, as at least 10% 4K appears, largely being driven by the streaming market. Maintaining the lower value of resolution (SD) is driven by the disposable income of the elderly and rural poor who may form a substantial proportion of viewers over linear DTT and also satellite. However, the DTT market take-up is obscured by the minority share but increasing use of streaming so the 4K portion could tend to be greater. The justification for these figures is the take-up of higher definition formats (HD, and 4K, with 8K pixels perhaps some way off for Thailand) as consumers prefer higher definition. But that is balanced by the reality of the majority of commercial DTT viewers and of public service broadcast viewers being older and more likely to be poorer and so they may prefer to keep their existing SD TV set longer. The countervailing factor, as noted, is the price point for HD TVs with a possible fall in prices of HD and also 4K screens as the high density OLED matrix production volumes expand .

Note that future smartTVs and set top box technology offer more flexible automatic adjustment to broadcast standards, with hybrid digital TVs becoming lower in cost. Their signal interfaces can automatically select the highest resolution signal detected, perhaps using the standards from ETSI in the EU that include IPTV - HbbTV (hybrid broadcast broadband TV) used by Panasonic, Samsung, Sony, Roku, etc. Consumers may alternatively purchase a set top box that performs similar functions, with a range of interconnectors.

The resolution used by the DTT broadcasters depends on the agreements between a group of DTT broadcasters and the multiplex operator(s) – originally 6 using DVB-T2 standards. This requires prior negotiations that align the broadcasters' equipment with the various multiplex operator(s) on numbers of channels and their balance with coverage – determined by bit-rate with overall quality of the received signal on a roof-top antenna. This is often largely dependent on the signal compression algorithms used. Such negotiations are thus a compromise as more channels mean more revenues (especially from advertising) but numbers of bidders for licences can be a compromise between cost per service channel and number of bidders for that channel, while taking into account coverage and signal quality across the different multiplexes. Other factors that

may come in are the proportions of screens, going forwards to the wider display formats in future screen proportions.

The longer term future of DTT

Some countries such as the UK see the TV Broadcast spectrum as under threat as OTT streaming expands[386] [387].

The options for the UK being considered are fairly straightforward, presented in scenarios to government by Ofcom-

- First is to retain the DTT option but to invest in a far more efficient DTT service that uses less spectrum yet serves all the country and services high resolution services. This could retain a full DTT service but only if a cost analysis for the proportional scale of audiences shows that investment would produce sustained audience numbers over the 2030s. This scenario may have to include new equipment for supporting audiences with more efficient broadcast signals. The funding of that large scale effort is yet to be assessed in size and its possible sources – the viewers or the state.
- The second scenario is to pursue minimalising DTT to a core service of a minimum number of essential channels. Thus the DTT platform would only retain the main public service and news channels. That would be done as a temporary transition to a fuller switch off - or – to remain indefinitely, as 'broadcaster of last resort'. The scenario assumes that viewers would use OTT access for streaming TV services. But for Internet outages (increasingly expected to worsen in the future) the DTT TV infrastructure could broadcast both radio and TV as backup.
- A third scenario is to progressively move towards switch off of all DTT services over a longer term (2034- 2050- the UK government has declared no switch off until at least 2034). It would take careful planning to ensure universality of public service media, with support for older, vulnerable and poorer people so that they are all served by new services, to ensure wider benefits for digital inclusion across all areas of society. Switch off would be shaped by a carefully planned campaign. to ensure people are confident

[386] Clover, J., 2024 , Broadcasting TV news, 09 May, /www.broadbandTVnews.com/2024/05/09/ofcom-changing-audiences-putting-dtt-under-threat/ Ofcom expects audiences to drop from 67% in 2022 to 27% by 2024.

[387] OFCOM, 2024 Future of TV distribution, 2023 www.ofcom.org.uk/siteassets/resotces/document/consultations/category-1-10/269636-call-for-evidence-future-of-tv-distribution/future-of-tv-distribution-report-to-government.pdf?v=344045

and connected with internet services, so DTT could be switched off. However Ofcom has stated an initiative to end DTT with a public campaign for an inclusive transition would take between 8 and 10 years, meaning that any decision would need to be made shortly, to allow industry to be ready for any changes by the early 2030s.

Social and Economic consequences of the demise of DTT post 2029 will have impacts that will be felt disproportionately

For many older citizens, broadcast DTT's FTA (free to air) Television (and satellite) has become an essential part of their everyday life. Thus if DTT licences are not taken up, then being devoid of television, will make a cultural gap in the existence of poorer and older citizens. Whether the DTT services can be covered by broadcast satellite service (if it continues after a C-Band migration) is still open to question.

Streamed TV has twin barriers for this class – firstly of the streaming services access as they do not have the means to pay for either subscriptions or for a streaming-ready smartTV. Moreover, the digital literacy needed to choose, install and set up an Internet based streaming TV, including setting up web access and search with an Internet Service Provider may be beyond them.

Consequently, the demise of DTT, perhaps after 2029, could have significant social effects unless some form of affordable and accessible substitute is considered. Note that it will impact the poorest in Thai society - those at the low end of the income scale will be deprived of culture, political analysis, reliable news and self-improvement, as well as the enjoyment of their everyday life brought by free TV.

The pressures on broadcast spectrum for DTT may mean that the spectrum is auctioned to the mobile operators, possibly for considerable sums, as it is ideal for low cost long distance coverage - and so could be important for mobile streaming in rural areas.

What will be the Political fallout is open to question but it could be significant in the Thai context.

Appendix 8: Photo collection of Focus groups and In-depth interview (Example)












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การประชุมระดมความคิดเห็นกลุ่มย่อย (Focus group)
โครงการศึกษาวิจัยเกี่ยวกับกิจการแพร่ภาพกระจายเสียงในอนาคตของไทย
ภายใต้สภาพแวดล้อมของอุตสาหกรรมที่เปลี่ยนแปลงไป
9-10 เมษายน 2567
ณ โรงแรมโอ๋ล สไตล์ กรุงเทพ รัชดา




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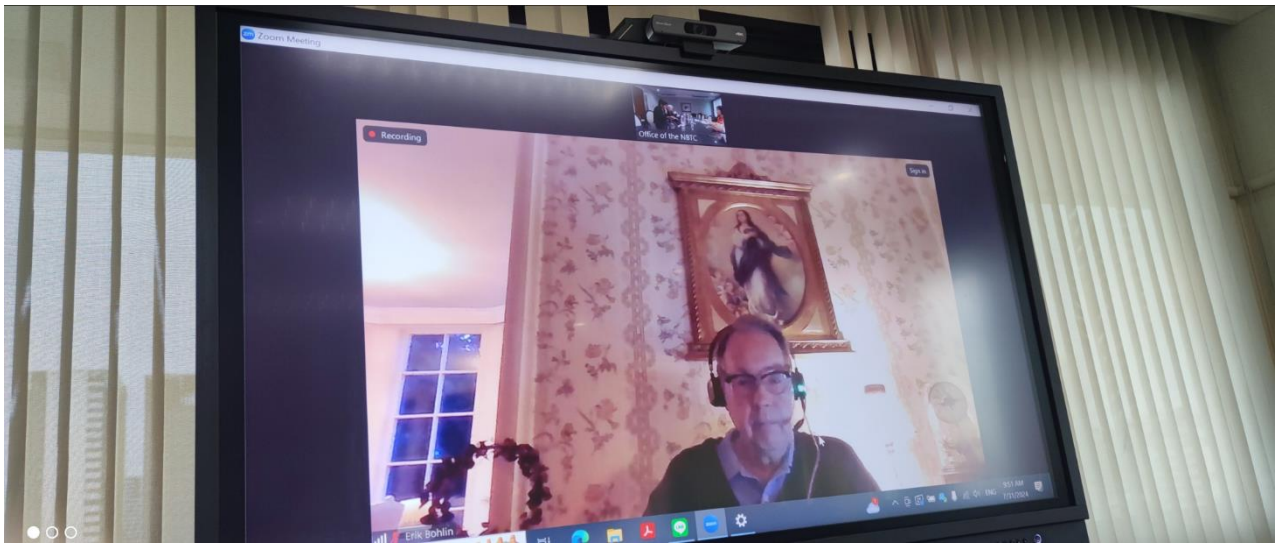


2 On-site Meeting








Zoom Meeting
Recording
Office of the NBTC
Erik Bohlin









Appendix 9: The 3500 MHz Geo satellite C-Band migration impacts

Overview of the Impacts of Upgrading the 3500 MHz Frequency Band

An upgrade to the 3500 MHz frequency band is likely to have significant repercussions on several fronts. Notably, it poses threats to:

- **Must-carry obligations** for digital television.
- **Channel availability** on the C-band.
- **Public costs** associated with the replacement of receiving equipment.

Mitigation Strategies and Implications

Scenario: No C-Band Satellite Usage

- **Mitigation:** Transition to Ku-band satellites and fiber optic systems for signal transmission from central stations to end-user stations.
- **Impacts:**
  - **Service Quality:** A potential decline in television network service quality contingent upon the reliability of the new transmission links.
  - **Equipment Upgrades:** The necessity to replace equipment for receiving and transmitting Ku-band satellite signals.
  - **Infrastructure Costs:** Substantial expenses associated with deploying fiber optic networks to each station.
  - **Contractual Modifications:** The need to revise licensing terms and network lease agreements with channels.

Scenario: Continued C-Band Satellite Usage

- **Mitigation:** Upgrading equipment (e.g., LNBs) to mitigate interference.
- **Impacts:**
  - **Costs:** Significant expenses for new LNBs.
  - **Effectiveness:** Limited effectiveness, especially in proximity to transmission stations.

Recommendations for Upgrading the 3500 MHz Frequency Band

- **Clear Roadmap:** The development of a comprehensive policy and roadmap outlining the upgrade process, with a transition period of at least 2-3 years to allow for adequate preparation.

- **Phased C-Band Cessation:** If the C-band is to be phased out, this should occur after the expiration of current channel licenses (e.g., 2029 for business channels) to minimize disruption to existing operators.

Regulatory Updates: A review and update of relevant regulations and guidelines, such as must-carry obligations, to align with the new frequency band and its associated challenges.

Appendix 10: Compiled presentation slides for NBTC knowledge transfer on August 13-16, 2024

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Thai Audio-Visual Market Overview

SITUATION, AREA OF CONCERN, POTENTIAL OPPORTUNITIES



Prepared By:
Thai Research Team

SCF ASSOCIATES LTD

Current Situation

Reflections from the industry are taken into account in this research.

Market and Competition

- DTT revenue stream
- Duopoly market in FBB & MBB Service
- The "rating trap"
- Shifting advertising budgets from TV to digital media, Influencer and out-of-home
- Fierce competition from OTT platform
- Emerging of LEO broadband service

Consumer Behavior

- Social Media Preference
- Choose to follow content creators/Influencers
- Shift to OTT and On-Demand Consumption
- Segmented, Niche content
- Not yet supporting quality program on DTT

NBTC Regulations

- The regulatory lag in keeping pace with shifting viewing trend
- Regulations hinder content diversity and fair market competition (DTT VS Online)
- Lack of support and promotion scheme

Media and Technology

- Multiple platforms strategy is lacking innovative process
- Access to content and service
- Ecosystem lags in tech adoption
- A review of spectrum auction requirements is necessary

Content

- Challenges in content creation & production cost
- Content quality
- Declining content budgets and funding
- Insufficient content promotion and monetization

Organization

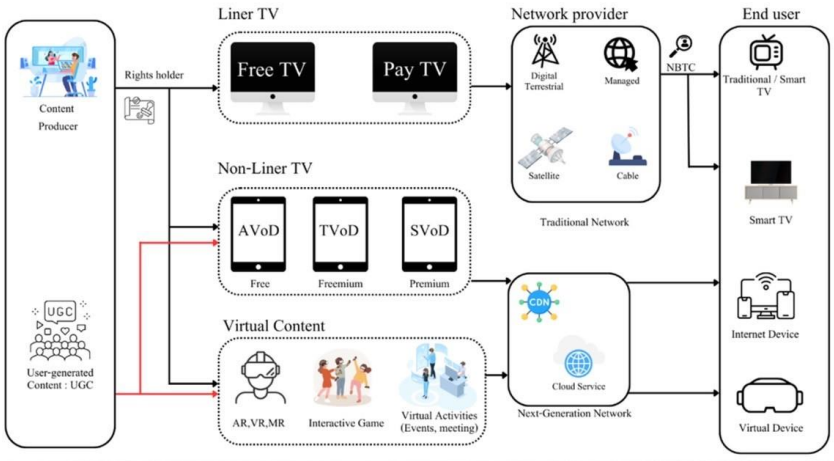
- License uncertainty
- Cost cuts, and financial strain
- Media struggles without ecosystem support

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Media Ecosystem

Media Ecosystem in Thailand consists of four key players which are content producer, service providers, networks provider and users



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Apart from NBTC, various government agencies related to the regulation and promotion of audio-visual services in Thailand. Ministry of Culture and MDES are the policy makers. ETDA, CEA and DIP play the role of supporter through various laws to ensure the competitiveness audio-visual sector

Government agencies involved in regulating audio-visual service in Thailand

	Focus	Law
The National Broadcasting and Telecommunications Commission	• **Frequency management** and allocation for radio, television and telecommunications services • **Licensing and regulating** the operation of radio, television, and telecommunications businesses	• Telecommunications Act B.E.2544 (2001) and the amendment • Broadcasting Act B.E.2551 (2008) • Act on the Organization to Assign Radio frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) and the amendments
Ministry of Culture	• Regulation + promotion: film and video (and game in the new draft bill)	• Film and Video Act B.E. 2551 (2008) • the draft Act for Film and Game, B.E....
Ministry of Digital Economy and Society	• Information and communication technology • Electronic Transactions Development • Cybersecurity • Equal protection of personal information rights to all citizens	• Digital Development for Economy and Society Act B.E.2560 (2017) • Computer-related Crime Act B.E. 2550 (2007) and the amendment • Electronic Transactions Act, B.E. 2544 (2001) and the amendments • Personal Data Protection Act, B.E. 2562 (2019)
Thailand's Electronic Transactions Development Agency	• Digital platforms operating in Thailand, as they have a significant impact and a large customer base. This includes e-marketplaces, sharing economy, Audio-visual and Music sharing	• Royal Decree on the Operation of Digital Platform Service Businesses that are subject to Prior Notification, B.E. 2565 (2022)
Creative Economy Agency (CEA) [to be transferred to a new agency-THACCA, if the draft bill pass]	• support and develop a creative economy, enhance the entrepreneurs, create an ecosystem for the creative personnel, and create connections with wisdom, culture, and production sectors which are factors in driving the economy	• Royal Decree to establish the Creative Economy Agency (Public Organization) • the draft Act for the Promotion of Creative Culture, B.E. .... (THACCA)
Department of Intellectual Property (DIP) Ministry of Commerce	• Intellectual Property Protection • Anti-Piracy Measures • Registration Services • Support for the Creative Industry: including film, television, and other audio-visual sectors, by fostering an environment that encourages creativity and investment.	• Copyright Act B.E. 2537 (1994) (as amended up to Copyright Act B.E. 2565 (2022)
Office of the Consumer Protection Board	• Consumer protection in advertising	• Consumer Protection Act, B.E. 2522 (1979) and the amendments

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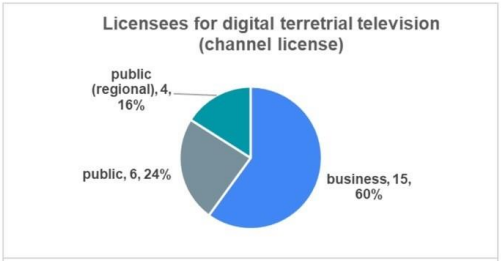
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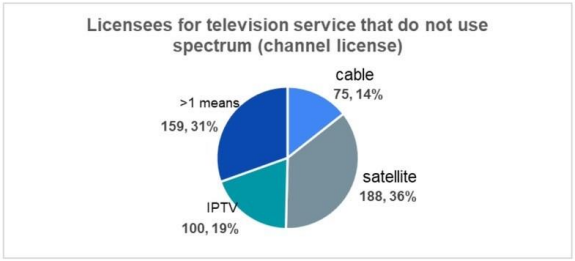
Market Trend

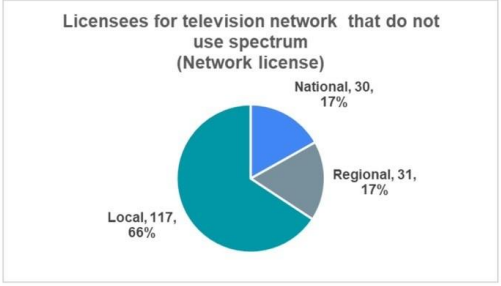


television licensing

The status of television licensing in each group is illustrated into these figures. Majority of television licensing is the licensee for television service that do not use spectrum.





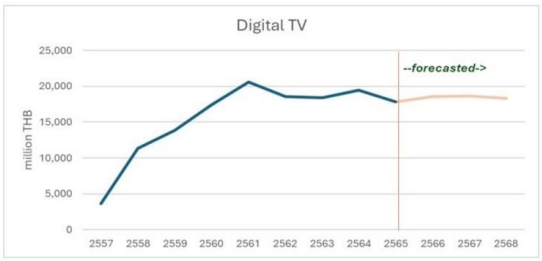


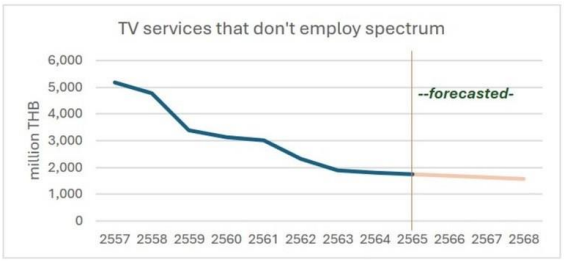
Digital terrestrial television network licensee and hosted channels

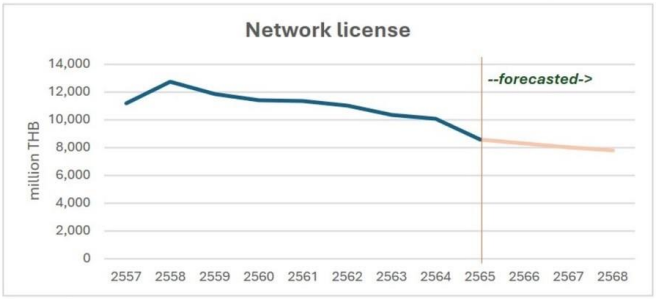
DTT Network licensee	Hosted channels
PRD	NBT national, NBT regional
RTA radio and television #1	TV5, One31, TV7, True4U, Workpoint, TNN24
MCOT	ThairathTV, MCOT, TPTV, T-sports 7
Thai PBS	Thai PBS, Channel3 HD, ALTV, 8, JKN 18
RTA radio and television #2	Mono 29, Nation TV, GMM25, Amarin TV HD, PPTV

DTT Revenue

A declining trend of revenue for DTT, channel license and network license is going forward from 2023-2025 as forecasted





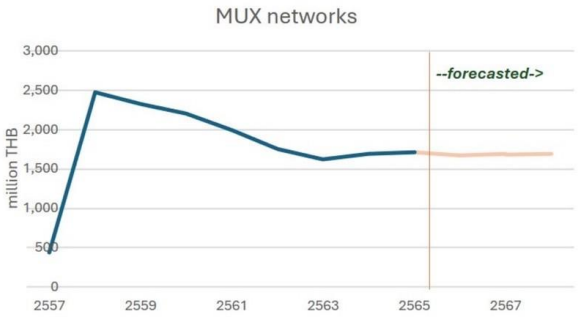


Industry Concerns:

- **Revenue Diversification: Challenges in managing multiple income streams.**
- **Content Costs: High production costs for targeted content amidst declining revenue.**
- **Rating Reliance: Overemphasis on ratings for advertising decisions.**
- **Ad Spend Shift: Declining TV ad spending in favor of digital and out-of-home.**
- **Influencer Competition: Increased competition for ad dollars from influencers.**
- **Platform Dominance: Online platforms capturing ad revenue from traditional media.**

MUX Revenue

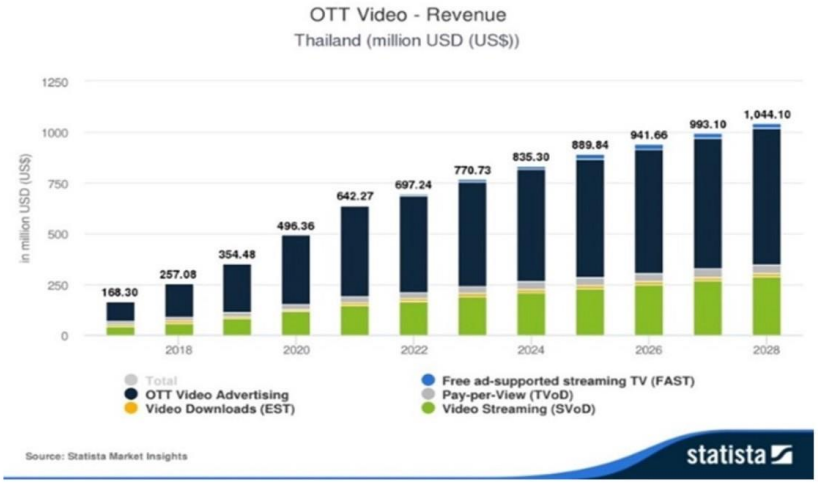
Revenue trend of Mux networks providers and facility providers in the futures will be relatively stable as forecasted.





OTT Revenue

Overall revenue from OTT streaming services are likely increasing over years to come, with major attributions to OTT video advertising and video streaming (SVoD). Also expected is growth in free ad-supported streaming TV (FAST) and pay-per-view (TVoD).



Source: Statista (2023)

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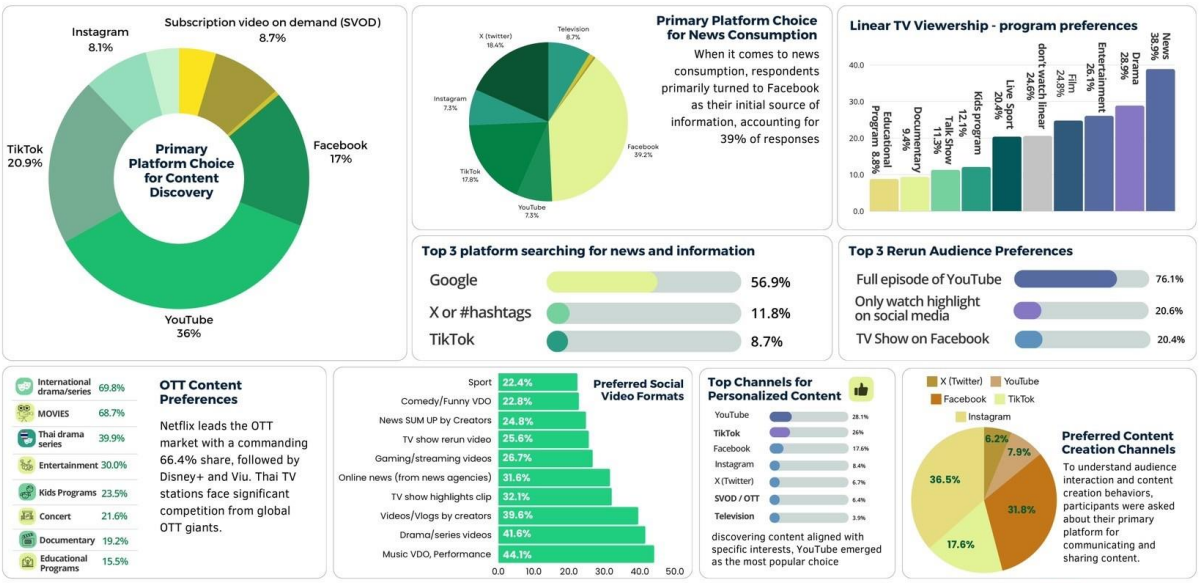
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Audience Trend

Source: SCR Survey (2024)



Audience Insight Overview Dashboard 786 participants



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Audience Insight by Generation

GENERATIONS	TIME SPEND	CONTENT DISCOVERY AND PLATFORM PREFERENCE	NEWS CONSUMPTION	SEEKING MORE IN-DEPTH INFORMATION	PROGRAM CHOOSE TO WATCH ON LINEAR TV	TYPE OF CONTENT WATCHED ON OTT	SOCIAL VIDEO PREFERENCES	TOP CHANNELS FOR PERSONALIZED CONTENT	CONTENT CREATION CHANNEL	CONNECTED TV SOURCE:NSO SURVEY (2022)
GEN Z	A STRONG PREFERENCE FOR LONGER SOCIAL MEDIA SESSIONS	TikTok (31.1%), Instagram (11.9%), Facebook (8.8%), subscription-based video-on-demand (7.5%), Television (1.3%) Television apps (0.7%)	28.3%, 27.4%, 21.0%, 5.1%	GOOGLE SEARCH (51.7%), X OR USING RELEVANT HASHTAGS (15.0%), AND TIKTOK (13.7%), TELEVISION (1.5%)	Movies 32.9%, Movies 32.5%, Entertainment 28.3%, News 25.2%, not watching Linear TV 22.5%	movies (76.6%), international series (71.3%), Thai dramas/series (49.0%) Entertainment (33.6%) Children program (32.5%)	**music videos, performance (54.1%),** followed by videos related to dramas, influencer/creator content, gaming/streaming, and comedy/entertainment.			
GEN Y	SPEND LONGER TIME ON SVOD AND YOUTUBE	YouTube (35.7%), Facebook (29.6%), subscription-based video-on-demand (11.2%), TikTok (8.7%), television (4.6%), television apps (0.5%)	56.1%, 19.4%, 8.2%, 6.1%	GOOGLE SEARCH (62.2%), NEWS ON THAT TOPIC (10.2%), FACEBOOK & NEWS WEBSITE (7.1%) YOUTUBE (6.1%)	News 49.5%, Dramas 22.4%, Entertainment 21.4%, Sport 19.9%, not watching Linear TV 21.4%	international series (73.0%), movies (61.7%), Thai dramas (29.6%) Entertainment (27.6%), Documentary (23.0%) Educational (19.4%)	**online news (44.4%) and television program highlights (39.3%),** with influencer/creator content, past television programs, and dramas/series also being popular choices.			
GEN X	1-2 HOURS PER MEDIA SESSION, WITH TELEVISION AND LINE BEING THE MOST POPULAR PLATFORMS FOR THIS DURATION.	YouTube (44.3%), Facebook (26.4%), subscription-based video-on-demand (11.3%) TikTok (4.7%), television (11.3%), television apps (0.9%)	57.5%, 16.0%, 11.3%, 7.5%	GOOGLE SEARCH (67%), NEWS WEBSITES (7.5%), YOUTUBE (6.6%), AND TELEVISION (4.7%)	News 66%, Entertainment 24.5%, Sport 24.5%, Dramas 23.6%, not watching Linear TV 13.2%	Movies (62.3%), international series (60.4%), documentary (31.1%), Thai drama/series (26.4%) Educational (25.5%) Entertainment (23.6%)	**online news (50.9%) and television program highlights (40.6%),** followed by past television programs, music videos/performances, and drama/series related content.			
BABY BOOMER	FOR SPENDING 1-2 HOURS: 38.7% ON TV, 35.5% ON FACEBOOK, 32.3% ON TV APP AND YOUTUBE	YouTube (41.9%), Facebook (25.8%), and TikTok (3.2%) television (29.0%)	38.7%, 29.0%, 25.8%	GOOGLE SEARCH (64.5%), FACEBOOK SEARCHES (12.9%)	News 80.6%, Dramas 35.5%, Entertainment 29%, Sport 29%, not watching Linear TV 12.9%	international series (61.3%), Educational (29.0%) Thai drama/series (19.4%) Talk Show (19.4%) Movies (19.4%)	**online news (54.8%)** and live television programs broadcast simultaneously with television, with reruns, sports, interviews, and drama/series-related content			

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Audience Role in Media Value Chain

Create + Deliver Experience
Create Community

Content Creation

- **Audience-Centric Shift:** User-generated content (UGC) empowers audiences, driving content trends and real-time feedback. This necessitates a shift towards tailored content to meet diverse viewer needs.
- **Real-Time Feedback Loop:** Real-time audience engagement and evolving content preferences demand agile content strategies and adaptation to niche markets.
- **Tailored Content Demands:** Content creators must cater to diverse audiences and their specific needs, impacting production strategies and leading to more niche offerings.

Content Distribution

- **Cross-platform Distribution:** Audiences are consuming content across various platforms, forcing broadcasters to distribute content beyond traditional channels and adapt to platform-specific requirements.
- **Data-Driven Strategies:** Understanding audience behavior and preferences through data analysis is crucial for optimizing content distribution and positioning across different platforms.

Monetization

Diverse Revenue Models:

- Targeted Content and Offerings: providing relevant products and services creates opportunities for new revenue models.
- Direct Audience Support: Viewers can directly support content creation

Evolving Measurement Metrics:

- Beyond Traditional Ratings: Traditional viewership or rating metrics may need to evolve to measure audience engagement, interaction, and the multi-platform value of content, such as cross-platform rating measurements.

How DTT is Embracing Change:

TV operators are moving beyond simply producing content for local broadcasts, leveraging the platform as a springboard for wider reach and revenue generation.

- Content with an international appeal
- Multi-screen monetization
- Diversified revenue sources

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Content and its trends

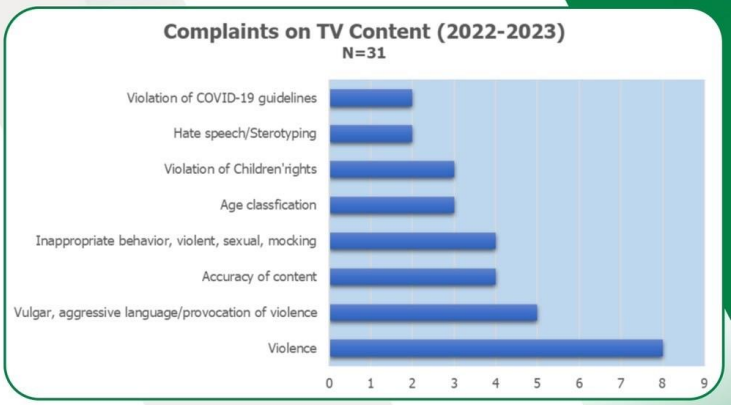


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The Crisis of Content Quality in Thai Television: A Race to the Bottom

•DTT TV
- News: excessive violence, inappropriate language, and violations of the rights of news subjects, especially children and youth.
- Entertainment: inappropriate content for children and youth
- Lack of diversity in programming, especially for children and youth

•Cable and Sat TV
- a proliferation of teleshopping programs and exaggerated advertising

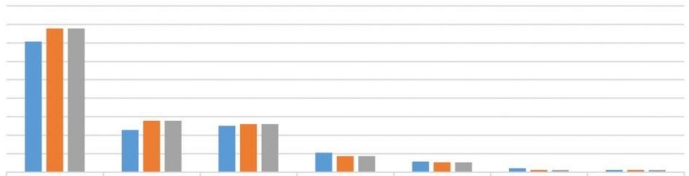


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Content Diversity on DTV

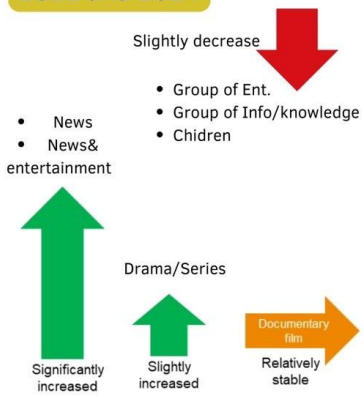
Trends of Program Genres on Thai Digital TV, 2022-2024 (only Business type)



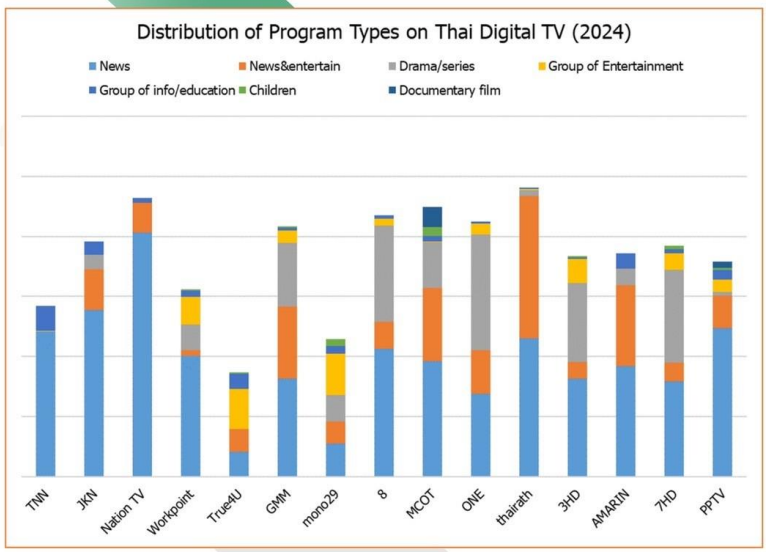
	News	News&entertain	Drama/series	Group of Entertainment	Group of info/education	Children	Documentary film
2022	35.42%	11.37%	12.56%	5.28%	2.81%	1.02%	0.53%
2023	38.87%	13.94%	12.97%	4.34%	2.61%	0.62%	0.59%
2024	38.87%	13.94%	12.97%	4.34%	2.61%	0.62%	0.59%

2022 2023 2024

Key Findings: Comparison between 2022 and 2024



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Ranking	1	2	3
News	NationTV	JKN	PPTV
News&Entertainment	Thairath	Amarin	MCOT
Drama/series	ONE	8	7HD
Group of Entertainment	MONO29	True4U	Workpoint
Group of info/education	TNN	Amarin	True4U
Children	MCOT	Mono29	7HD
Documentary film	MCOT	PPTV	*NONE*

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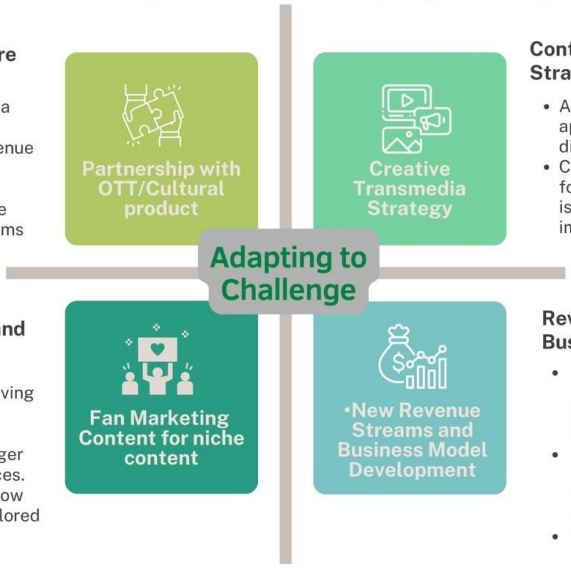
How Media Organizations are Adapting to Change

Organizational Structure and Operations

- OTT Collaborations: Media companies partner with platforms to expand revenue and global audience.
- Talent Transformation: Redefining roles to create content for online platforms

Content Distribution Strategies

- A multi-platform distribution approach is essential to reach diverse target audiences.
- Creating versatile content suitable for various channels and markets is becoming increasingly important.



Audience Engagement and Relationship Building

- Direct Website Focus: Driving traffic to own website
- Proactive Audience Engagement: Build stronger connections with audiences.
- Personalized Content: Know your audience, deliver tailored content.

Revenue Generation and Business Models

- Diversify Revenue Streams: Explore new income sources like artist management, concerts, and content licensing.
- Leverage Celebrity Power: Generate revenue through celebrity endorsements and merchandise.
- Diversify Revenue Streams: Monetize content across multiple platforms.

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Exploring the Creative Potential of Thailand

- Glossy and Dilemma Drama Series
- ASEAN and Asia Common Culture
- Thai BL/GL Content / Fan-based Content







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The way forward: Opportunities

What we are trying to find are solutions and alternative strategic approaches.

Market and Competition

- Data-Driven Content Creation and Distribution
- Expansion into Digital and OTT Platforms
- Niche Content and Audience Segmentation
- Hub of content production in ASEAN

Consumer Behavior

- Content Personalization and Niche Focus
- Influencer partnerships
- Community building
- Social Media Integration
- Content quality improvement
- DTT-specific content
- Platform diversification

NBTC Regulations

- Regulatory Reform and Advocacy
- Industry collaboration
- Support on Content Innovation and Differentiation
- Government Partnerships and Support
- Investment incentives

Media and Technology

- Coverage of Broadband infrastructure and quality of service
- Regional data center hub
- Content Distribution and Accessibility
- Spectrum Optimization and Efficiency

Content

- How to support Content Quality and Innovation
- Niche content development
- Content partnerships
- Content licensing
- Funding
- Content Promotion to the market

Organization

- Digital transformation
- Financial Sustainability and Diversification
- Industry Collaboration and Partnerships
- Ecosystem development

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Lessons from the Country Case Studies

Presentation Bangkok August 2024

Damian Tambini

SCF Associates Ltd

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1

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Overview: case studies

- The transition to on demand: user behaviour, business models, enablers and investment
  - -irreversible and universal behaviour shift
  - -but old models never die – and a wide range of new models
  - -roles of infrastructure and spectrum
- So what?
  - -global player dominance?
  - -implications for domestic content and public interest?
- The regulatory and policy toolkit: the role of legislation, regulation and public policy.
- FOCUS on EU and new approach to media and platforms

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2

Methodological note

- Data is NOT strictly comparable
- Mix of audience measurement, self-reporting and secondary data
- Multiple sources of bias and no common methods
- Definitions of key terms (e.g. “Television”) vary.
- Data relies on respondent’s various definitions



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Consumer behaviours – an irreversible (and accelerating) shift?

Move to streaming – variable by country but a general trend

Importance of contextual factors such as demographics (ageing) and security

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Understanding technological enablers and consumer uses and gratifications:

- Role of live TV, listed events and emergency resilience
- Mobility= variable relevance – consumption on the go
- Convenience – choice of time and consumption
- Content Quality – differential of cost per user hour between domestic TV and streamers
- Spectrum issues for mobile & satellite

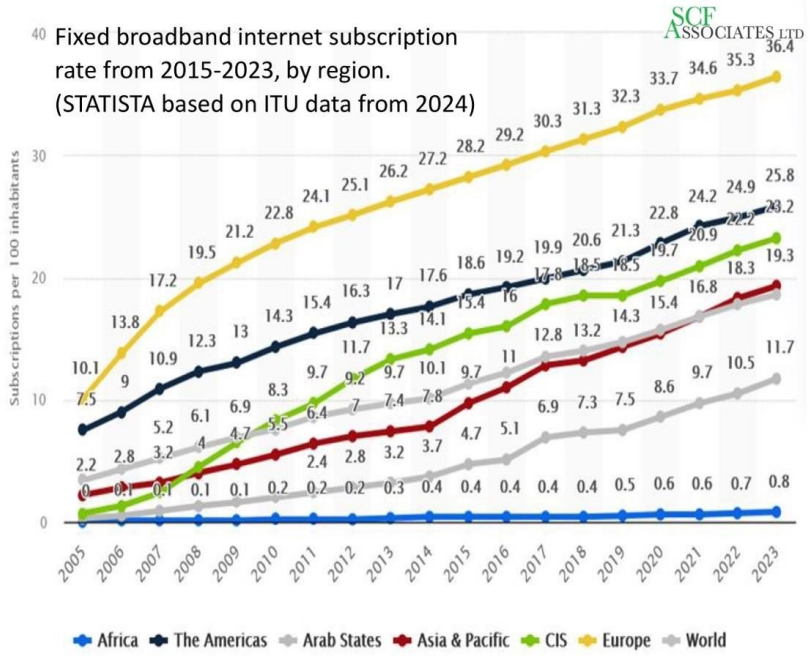
Enabling BB infrastructure

History of investment:-

- Investment in Data Centres, Cloud Infrastructure and 'OTT Hubs'

Future:-

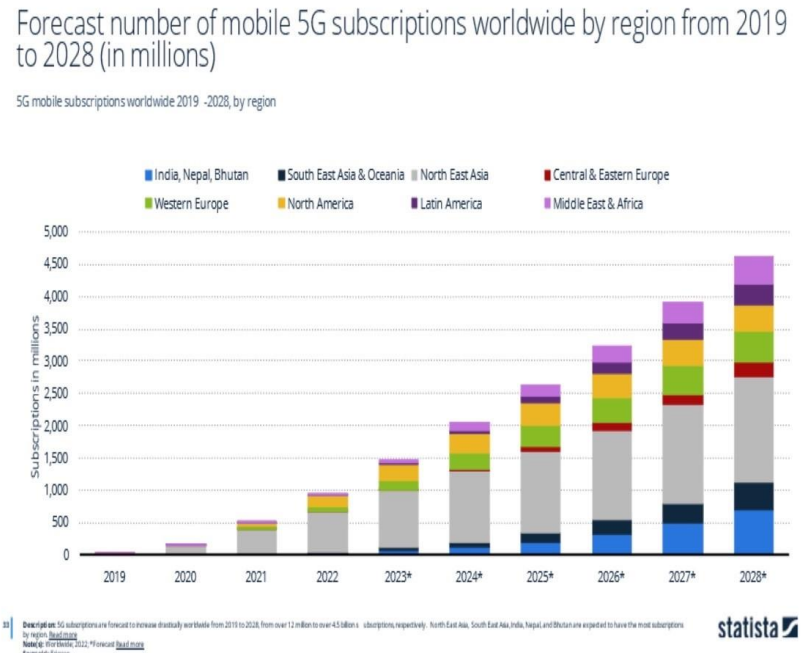
- spectrum demand: new services,
- the metaverse, gaming convergence?



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Enabling Infrastructure



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Korea: competition without regulation



- Active industrial policy to promote infrastructure and investment
- Key role of infrastructure
- Intense open competition
- Clustering across creative industries (especially gaming)
- Benign neglect/ creative clusters
- Next generation horizon: 4K; Metaverse, 5G

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Japan: moving the cultural castle
• Public service / NHK – journalism conflict
• Export niche advantage in selected fields Studio Ghibli memes
• Large and self-reliant domestic content market.. QUOTAS?
• Global streamers breach market autonomy e.g. Harry Potter!
• Managing globalisation and isolation
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The UK: protecting the crown jewels?
• Public Service Protection
• Prominence
• OTT regulation
• Platforms within co-regulatory content regimes
• Market shaping regulation
• Industrial Policy
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France: Ensuring demand; investing in supply

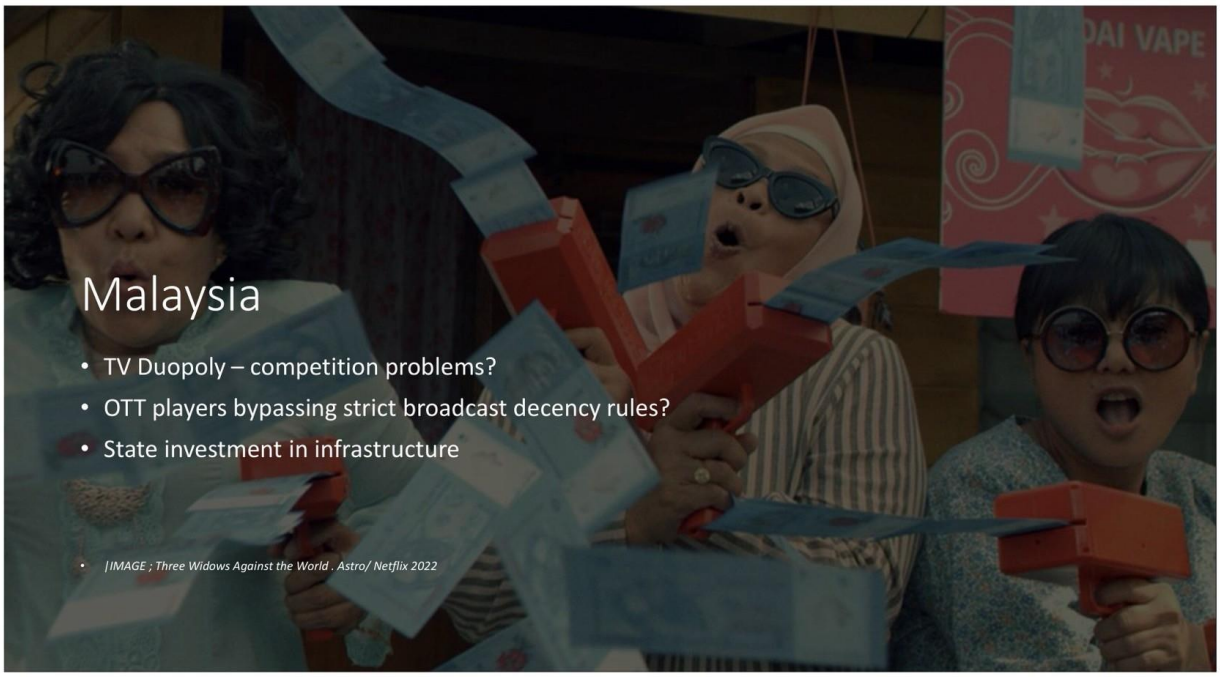
- Long history of quotas for European and French production – broadcast time on linear, percentage of catalogue for VOD
- Extensive prominence rules for French general interest services
- Investment obligations on domestic and international services
- Direct public funding to content production, distribution and training
- Transparency in advertising trade

Australia: crocodile infested markets?

- Highest global penetration of Netflix 65%
- Importance of quality *differential* to domestic TV as driver of growth.
- Long tradition of cultural protection, quotas
- Government support for 'Ozzywood' integration of Australian production sector with Hollywood
- Lobbying battle with strong press and broadcasting interests
- Novel policy approach to platform – media relationships (news media code).




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who is in whose pocket?
Newspaper groups vs OTT players
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Malaysia
• TV Duopoly – competition problems?
• OTT players bypassing strict broadcast decency rules?
• State investment in infrastructure
• |IMAGE ; Three Widows Against the World . Astro/ Netflix 2022

Comparison Overview: legacy, context, drivers

	Australia	S. Korea	France	UK	Japan	Malaysia
TV market	Declining ad funded TV	Flat legacy TV revenue	PSTV + strong commercial	PSTV + strong commercial	PSTV+ commercial	Duopoly dominance
Audience trends	Rapid move to OTT SVOD	Shift to SVOD/ AVOD/ Aging population	Enduring popularity of linear TV + OTT take-up	Enduring popularity of linear TV + OTT take-up	Enduring popularity of linear TV + OTT take-up/ Aging population	Enduring popularity of linear TV + OTT take-up
Take-up of foreign VOD	High	High	High	High	Med	Med
Domestic commercial VOD	-	+	-	-	+	+

Comparison Overview: regulation and policy

	Australia	S. Korea	France	UK	Japan	Malaysia	EU
Competition approach	Monitor/ media code	EU DMA approach (draft)	DMA Thresholds	DMA-like (market status)	DMA like system.	Sector-specific multimedia	DMA Thresholds
AV support	+	+++	++	+	+	-	+
Quotas	++	-	++	+	-	-	++
Key policy debates	TV quality industrial policy, social cohesion	Soft power, AV trade	Child protection, skills, production	Child protection social cohesion	Child protection social cohesion	Child protection, cultural values	Industrial Policy, democratic values
Platform/ moderation	Co-regulation	Self regulation	Co-regulation (DSA)	Co-regulation (DSA –type)	Increasing co-regulation	Self regulation	Co regulation (DSA)
National streaming platform	-	-	-	I-player/ Freely	-	MYTV	-

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Old media never die?

- Television persists: FTA persistence in France, UK..
- Television mutates: New Channels, on demand content as a 'long tail'
- From Public Service Broadcasting to Public Service Media? Prioritisation, Discoverability and Prominence?
- New Hybrid forms like FREELY: 'live television' as an on-demand app?



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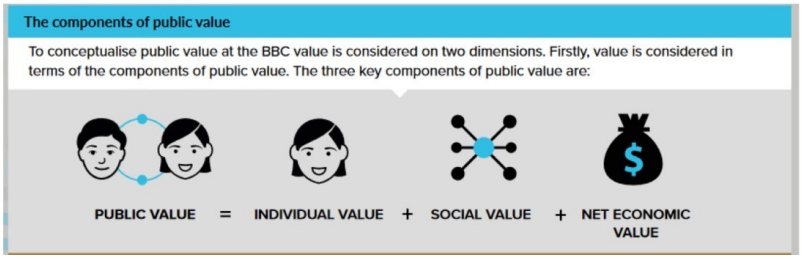
17

Overview part two: Policy and Regulation:

- The new platform governance: focus on the EU.
- Digital Services Act, duties of care and content moderation – is there a 'Brussels Effect'?
- Social policy and consumer protection objectives in legacy broadcasting policy

Sources of Social Externalities and Public Value in the Audiovisual Sector

- Democratic value
- Cultural and creative value
- Educational value
- Social and community value
- Global value
- Inclusion and equity



https://www.ulster.ac.uk/__data/assets/pdf_file/0014/452003/The-Application-of-Public-Value-in-the-BBC.pdf

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The Policy Toolkit

Infrastructure, spectrum planning

Competition, market shaping

Mission driven industrial policy

Clustering

BBC Public Service, licensing, quotas

IP reform, enforcement

Culture industries trade promotion

Trade agreements

Public investment/ tax incentives/

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Key policy questions:



- Must Carry/must provide
- Must Have
- Licensing obligations/ categories
- Liability regime for content and regulatory obligations
- Subsidies
- IP protection and enforcement
- Trade policy and promotion
- Content and export strategy

The EU: Encouraging fair competition

- Level playing field for fair competition in the single market
- Significant consumer protections applied also to OTT services
- Investment by media conglomerates in multi-country programmatic advertising
- EU's MEDIA funding for production, distribution, promotion and training
- Quotas for European works on linear and VOD
- Zero-rating prohibition and 'must carry' rules

EU Digital Markets Act

New approach to competition without specific media pluralism provisions

Designated gatekeepers must enable interoperability and refrain from anticompetitive practices including:

-self preferencing

-data re-use

-subscriber lock-in



EU Media Freedom Act (2024)

Defence of democratic values – based on article 114 of EU Treaty (single market)

-protection of independent public media, regulators

-no manipulation of state advertising

-media rights in relation

to platforms? (art 17).



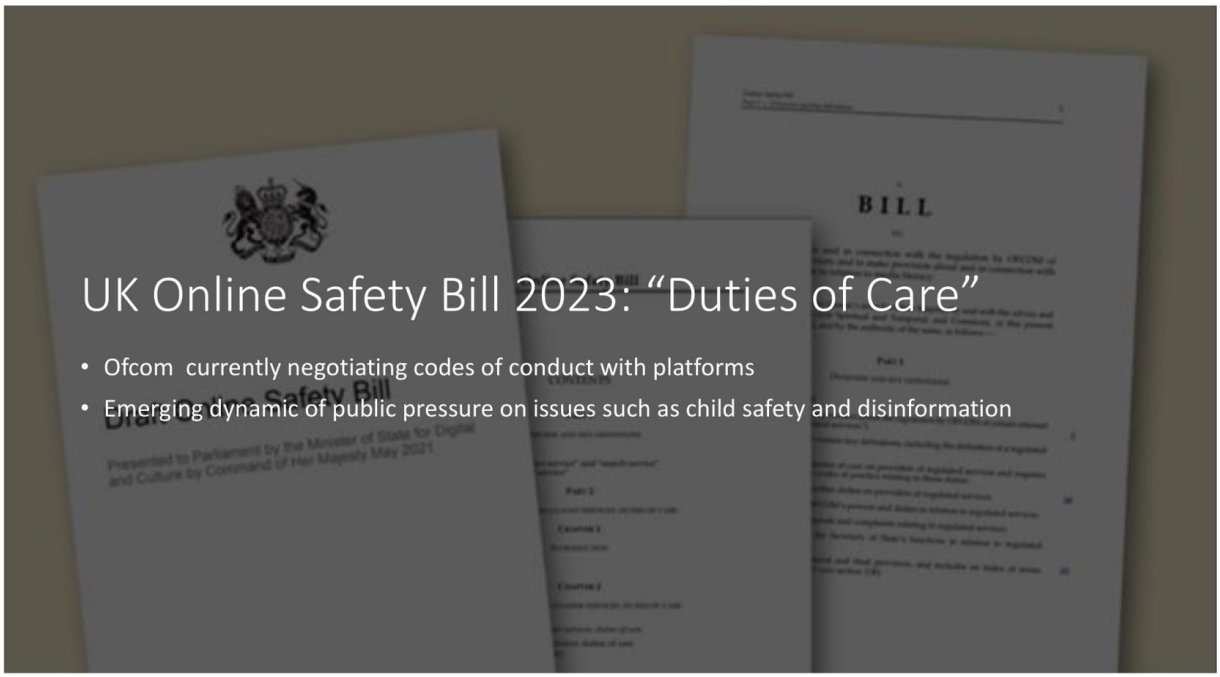
Platform Governance:
EU Digital Services Act, UK Online Safety Act

- Duties of Care
- Co-regulation
- Liability and moderation models
- Quotas and content supports

The EU Digital Services Act



	Intermediary services *(cumulative obligations)*	Hosting services *(cumulative obligations)*	Online platforms *(cumulative obligations)*	Very large platforms *(cumulative obligations)*
Transparency reporting	•	•	•	•
Requirements on terms of service due account of fundamental rights	•	•	•	•
Cooperation with national authorities following orders	•	•	•	•
Points of contact and, where necessary, legal representative	•	•	•	•
Notice and action and obligation to provide information to users		•	•	•
Complaint and redress mechanism and out of court dispute settlement			•	•
Trusted flaggers			•	•
Measures against abusive notices and counter-notices			•	•
Vetting credentials of third party suppliers ("KYBC")			•	•
User-facing transparency of online advertising			•	•
Reporting criminal offences			•	•
Risk management obligations and compliance officer				•
External risk auditing and public accountability				•
Transparency of recommender systems and user choice for access to information				•
Data sharing with authorities and researchers				•



UNESCO – **DRAFT** Principles of Platform Governance ("Internet for Trust")

"Regulation should focus mainly on the systems and processes used by platforms, rather than expecting the regulatory system to judge the appropriateness or legality of single pieces of content" (2022).

Duty of care model

UNESCO – Principles of Platform Governance ("Internet for Trust")

62. "Any specific decisions about the legality of specific pieces of content should follow due process and be open to review by an impartial and independent judicial body."



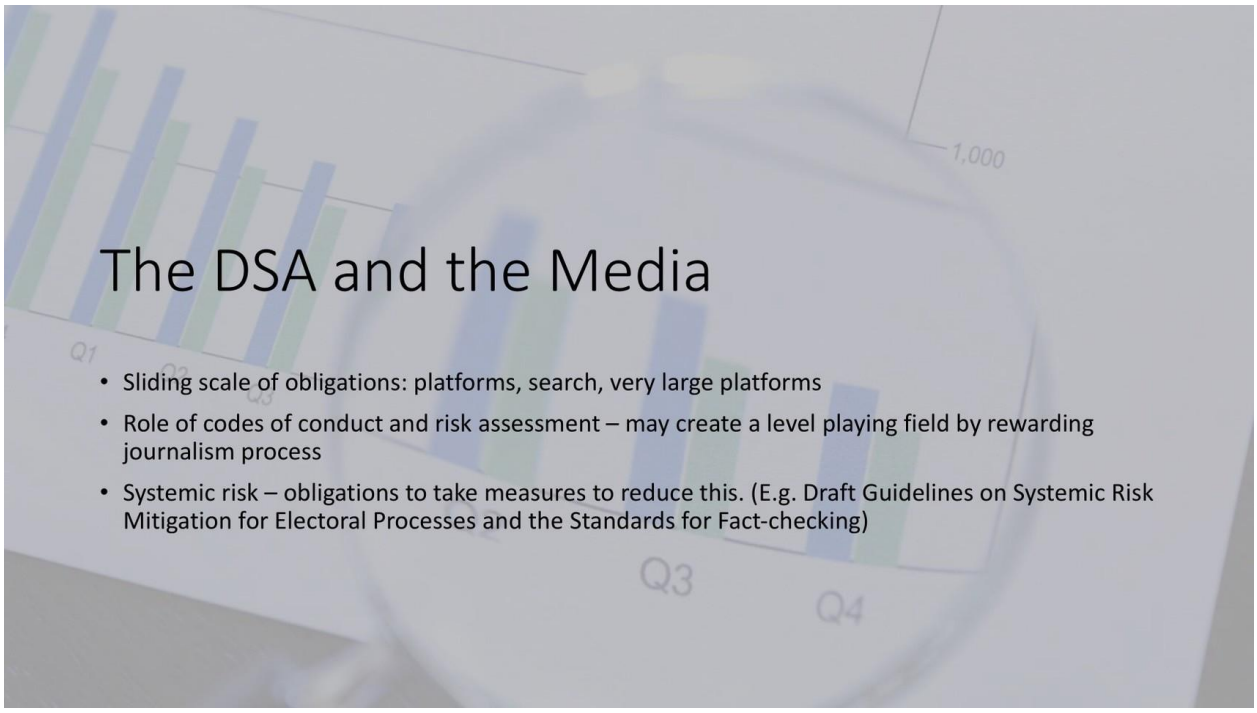
UNESCO – Principles of Platform Governance ("Internet for Trust")

M. "Ensure that any regulatory authority that deals with digital platforms content management, regardless of the thematic, is structured as independent, shielded from political and economic interests, and has external review systems in place"…

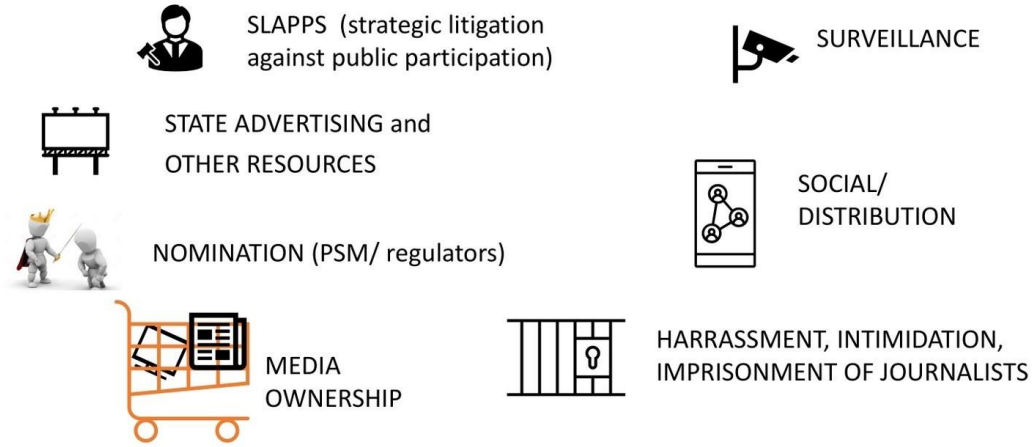


Thai Royal Decree 2022

Section 21. In addition to other duties prescribed in this Royal Decree, the operator of specified digital platform service under section 18 (3) that has been designated in the Notification of the Agency issued with the approval of the Commission under section 18 paragraph two shall have duties to conduct risk assessments and implement measures to mitigate such risks and carry out any other action as prescribed by the Notification of the Commission issued upon the recommendations of the Joint Committee.



European Media Freedom Act: preventing media capture?



Media and the VLOPS *(Very Large Online Platforms)*

- Art 17 EMFA Self declaration of 'media service providers' according to definition and meeting art 6 definition of transparency, reliability etc.
- Rights of appeal with procedural standards against suspension with rights of appeal, transparency etc.
- Structured dialogue on access to media (Art 18)

Prioritization of public interest media

- The EU framework creates various forms of direct and indirect pressure on platforms to prioritize public interest media.

- EG DSA risk assessments which may lead platforms to prioritize trusted media content.
- EMFA new privileges for self-declared media. And a right to receive plurality of independent media (Art 3).
- Audiovisual Media Services Directive – extends 30% quota for European works to video-sharing platforms; permits member states to prioritize works of general interest.

Problems with the new governance

- Convergence, Overlaps and Conflicts. Particularly between legacy broadcast regime (Audiovisual Media Services rules applied to video sharing platforms in the EU) and new 'duties of care' and platform obligations.

- Democracy – governance as information manipulation and generalised mistrust. Governments and public affairs teams of platforms may have conflict of interest in deliberations/ elections.

- Human rights – Freedoms of expression, opinion and association. Positive and negative obligations of states.

- Rule of Law – extra-legal and privatized censorship. Constitutional basis of censorship/ deplatforming powers is not clear. Importance of preserving 'rules based international order'

DIGITAL SOVEREIGNTY?

Lessons from the case studies – potential dangers for Thailand

- Rump of users that do not have access to AVOD or SVOD and may be left behind. Reduced access to lifelong educational programming, quality trusted news and information.
- Reduced access of citizens to Thai cultural content.
- Reduced investment in domestic content production sector.

- … it is important to distinguish these public goods from calls to protect "channels" or particular companies.

Questions for further discussion

- What are the *priorities* for Thai AV policy?
- How to balance social, equity, speech, cultural and industrial policy objectives?
- What are the strengths of the Thai AV sector?
- What are the main threats?
- What are the policy objectives for 2030? 2040?
- How best to coordinate the various government agencies?
- If public intervention in streaming is desired, what is the appropriate ownership, distribution and IP/ business model?

Full

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The National Broadcasting and Telecommunications Commission

A Study on the Future of the Television Broadcast / Audio-Visual sector in Thailand under a rapidly changing digital evolution

Regulation – Is there currently a market power problem in the Thai AV sector?

Professor Martin Cave

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AGENDA

Is there a currently a market power problem in the Thai AV sector? :

1. Investigating market power in a multi-stage AV sector
2. Examining the evidence for its existence in the Thai content generation, content delivery and retail broadcasting activities
3. Conclusion so far
4. Dealing with new players on the block: regulating the AV component of social media

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What does market power (or dominance) mean'?

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Basically it means the ability of a supplier to behave independently of its competitors or those whom it does business with

- The behaviour might be setting prices, or product quality, or innovating, or buying inputs, or hiring workers. All of these can have an adverse effect on or other agents in an economy, especially consumers
- It could be one supplier (a monopoly) or a small group of them acting together (a 'collusive oligopoly'), who may be acting 'tacitly' – without an agreement

- Determining if dominance is present is a judgement call
- Determining whether two or more firms are colluding is difficult, but the presence of three factors makes it more feasible:
- - each firm knows what the other is doing on, say, pricing
- - if one firm breaks an unspoken collusive agreement, the other can retaliate
- - no new firm can enter the market

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3

Is market power being abused in the Thai AV market?

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If the answer is 'yes', then Thai consumers and citizens will suffer from a poor choice of expensive AV services.

The standard way of answering the question is to look at the range, quality and price of services available (whether subscription- or advertiser-financed) and ask if lack of competition is the cause of the problem

In a complex sector like AV, the problem can arise at any point in the value chain, which we break down into:

1 - content generation
2 - delivery of content to viewers
3 - the retailing activity – deciding what programmes to offer to consumer.

Each of these activities may contain several separate markets, which we have to identify before determining their level of competition

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Is market power being abused in the Thai AV market?

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- *Each of these activities may contain several separate markets, which we have to identify before determining their level of competition*

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How likely are we to find market power in the three AV layers?

1.The market for **content** used in the Thai AV sector

- It's very heterogeneous – from soccer games to Hollywood movies to kids' cartoons to adult dramas:
- - Programmes vary in their popularity with viewers
- - They it may be produced domestically or imported
- they may be owned and financed inside or outside Thailand
- They may be self-generated or produced corporately

- The question is whether any provider produces enough content to be able to extract systematically higher prices from its AV broadcasters, by virtue of its market power alone

- So far we have not seen evidence that this is occurring. New sources of international content are coming available; and AI is increasing supply

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2. The market for the *delivery* of Thai AV products to the consumer (Content Distribution)

- Thailand has seen the same proliferation of delivery options as other countries
- These presently include: DTT, geostationary satellites, cable networks, various OTT (internet-based) methods including: mobile networks, fixed fibre networks. Also emerging low earth-orbiting (LEO) satellites)
- Much content is already available via alternative delivery modes – eg DTT, satellite, cable TV and streaming

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Is there market power in delivery?

- The growing demand for 'on demand' streaming (and other internet-based services) is increasing demand for delivery by fixed and mobile networks
- The market for each of these services is largely accounted for by the same two network operators; this creates the potential for departures from competitive pricing of the internet delivery service, and hence in the delivered total price of AV services
- In 2014, the NBTC enacted principles for dealing with networks deemed to have significant market power or SMP (roughly equivalent to dominance), but no operator has yet been named
- If there were SMP or equivalent, remedies include a requirement for the two networks to give access to their network to competitors at a regulated wholesale price, and/or encouragement of direct competition by new or expanded networks
- This would have ramifications going way beyond the AV sector

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3. The retail market for AV services in Thailand

- Many different broadcast services are available – both linear (ie. scheduled) and non-linear, e.g. streamed, or OTT (over the top)
- Consumers pay for the programmes by subscription or by watching ads
- The form of regulation in non-uniform; it has varied as new services were developed. The range of issues is large, including:-
  - Technical requirements
  - Limitations on content - eg prohibition of harmful content or minimum of news coverage
  - allocation of DTT licences
  - Cost setting for DTT delivery
  - 'Must have' and 'must carry' rules

.. Many other pieces of legislation and regulatory requirements also apply.

Some of these divergences in regulation may be justified on public interest grounds quite separate from competition, but they also risk distorting competition among providers. It would be desirable to conduct a review and standardise them where possible.

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The growth of streamers in the Thai retail AV market

- Streamers in the Thai AV marketplace are operated by a variety of firms based in Thailand and abroad. They market content in a number of genres and languages
- As happens globally, they are attracting increasing numbers of 'on demand' customers, and it is safe to forecast that this will continue
- Streaming is an increasing returns to scale activity: a streamer with more customers in a market generates more income and can outbid rivals for the best content; we see this concentration at work in global data
- At present, according to 'Omnia' data, Thailand has many streamers, but some may operate in separate specialised markets
- The NBTC has approved the provision of video on-demand services (and video-sharing platform services) as under their supervision. It may wish to monitor the development of these markets

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4. A further possibility: use of a firm's power to set prices in one market to foreclose competition in a linked one

- Suppose a firm (or several firms jointly) exercises power in one market. Then it may also be able to deploy it in a related down-stream (or upstream) market to gain profits or market share there.
- It is thus theoretically possible that a (jointly) dominant delivery network might be able, if it raised prices in 'its' component of the AV delivery market, to use those profits to gain advantage from their involvement in the streaming market.
- Essentially, it would overcharge rival streamers' customers for delivery, and use the proceeds to reduce the price of its own streamer, for example by offering a cheap bundle of its own fixed or mobile network and that streamer.
- NBTC should be look out for this or other 'self-preferencing' behaviour which might emerge across the value chain.

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Our conclusions on current levels of market power

- The content generation and retail broadcast markets in the Thai AV sector each contains numbers of variegated Thai and overseas players sufficient to achieve workable competition. Market monitoring can usefully be done in some areas.
- *To get the best for consumers, it may be desirable to standardise regulation across competing firms engaged in each activity, unless there is a good reason not to do so*
- The AV 'delivery' markets in the form of fibre and mobile networks are more problematic. The NBTC should monitor these markets, and be prepared to take action if a supplier is either over-charging or deploying market power to assist its affiliates downstream (or upstream).
- We now turn to the vexed question of the role of social networks in the Thai AV market

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How do social media such as Facebook (META) and TikTok affect Thailand's AV market?

- These two digital platforms now focus heavily on the delivery of AV material, often self-generated rather than made professionally, and presented to users algorithmically to keep them online, often to their harm – see later
- Other global digital platforms also play a large part in the Thai AV marketplace: Google by its ownership of YouTube, and of data centres and under-sea cables used by streamers; Amazon is involved via its international streamer 'Prime', data centres and cloud assets
- Many platforms derive revenue by selling personalised ads to firms. These sales can avoid Thai taxes by requiring payment to a subsidiary registered in a 'low tax' country
- The largest of these firms wield enormous market power, compared with the largest firms in broadcasting or in telecoms
- The general experience of trying to deal with them by competition law is not encouraging.
- Unusually, this has led to new laws designed specially to deal with these global firms. (DMA and DSA)

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Brief outlines of approach adopted in the European Union's Digital Markets Act (DMA) 2022

- Platform services subject to regulation under the Act include search engines, social networks, video-sharing services, and advertising offered by providers of the above
- Special provisions are focussed on the largest platforms, known as 'gatekeepers', with very large turnover or market capitalisation and r number of customers
- Prohibited practices include lack of transparency, unfair leveraging or self-preferencing, creating obstacles to switching supplier etc.
- Gatekeepers must offer some form of interoperability to their competitors (so that, for example, Facebook might be required to allow its customer to swop messages with a customer of a competing network)
- New approach to process of competition/anti-trust regulation – ex ante
- The European Commission is enforcing the Act.

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Enforcement of the DMA in the EU

- The first investigations under the DMA were opened in March 2024 against:-
  - Apple and Google, over the treatment of outside app. developers by their respective app. stores
  - Google over its treatment of rival search services
  - Apple over the design of its web browser choice screen, and
  - META over its need to get consent from users before collecting and combining their data.
- By end June 2024, 44 cases had been opened
- *The European Commission can impose a fine for an infraction of up to 10% (20% for a repeated offence) of a firm's global turnover (ie amounting to tens of billions of USD) and can impose break up.*

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Implications for the Thai AV sector 1

- The impact of digital platforms extends way beyond the AV sector:-
- Thailand already has in place a 2023 Royal Decree of the Operation of Digital Platforms: -
  - it applies to platforms in Thai or in overseas ownership;
  - it imposes notification obligations on all platforms with a modest turnover and customer base
  -larger platforms have obligations to conduct risk assessments and mitigate such risks, and in some cases appoint compliance officers and implement measures to maintain system security
- A new Electronic Transactions Development Agency is created under the governance of a Joint Committee of State Agencies (including the Secretary General of the NBTC)

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Implications for the Thai AV sector 2

- There are two key issues here: one is market power, tax avoidance etc. The other is protection of consumers from harmful content (which the EU addresses by a parallel Digital Services Act)

- The options (not necessarily alternatives) include:
  - *empowering the NBTC to take further measures against large platforms active in the AV market*
  -passing an Act which mimics the DMA, to be implemented by a new body or an empowered ETDA
  -work with ASEAN partners to adopt a regional regulatory regime

- Note: other smaller countries are considering adopting law to the DMA, to ensure that they too can benefit from the same changes. The reasoning is if the largest platforms have adjusted their procedures to the EU law, it is simple for them to extend these new procedures to other jurisdictions. This is known as the 'Brussels effect.'

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Postscript - 1:
Further upcoming regulatory issues in the Thai AV sector

1. Consumer protection for broadcast audiences

Protection from harmful content is enshrined in law for some broadcast technologies (eg DTT) but not for others ('Thai streamers' for example). This not only distorts competition but also subjects the population - including juveniles - to what may be harmful material.

2. "Public service broadcasting"

This refers to market failures resulting from commercial broadcasters, particularly when ad-financed, failing to meet consumers' wants for programming, leading to under-supply of cultural, educational or other material.

Question:- Is this need adequately covered by ThaiPSB support measures and other measures?

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Postscript - 2:
Further upcoming regulatory issues in the Thai AV sector

3. Maintaining provision of free linear channels.
Poorer households may get left out with the switch to OTT 'on demand' modes. How can this be prevented? Methods include: i) maintaining or extending delivery access via regulation ('must carry rules') to enhance channel revenues; ii) subsidisation of programming costs, for example; iii) the encouragement of separate or a combined comprehensive 'Broadcaster Video-on-Demand (BVOD)' streaming network; this might be co-ordinated organised by a private or public body – like the very successful BBC i-player in the UK.
4. Expiry of DTT licences
Many current licences have been handed back; the rest expire in 2029. Re-auctioning may follow, in a way which will reflect further developments in the sector, and the emerging goals of regulation. This issue is discussed further in the presentation of scenarios.

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Thank You

Regulation –
Is there currently a market power problem in the Thai AV sector?

Professor Martin Cave

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LIVE

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For the National Broadcasting and Telecommunications Commission

A Study on the Future of the Television Broadcast / Audio-Visual sector in Thailand under a rapidly changing digital evolution

Forming and using the Scenarios

Reference : Contract number 8660274

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1

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1. The market today – what have learned from the Thai markets study?
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2

1 The market today – first indications from the Thai markets study?

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Media Consumption from the Thai AV Market Survey Report- an online survey

Latest from online questionnaires, across all age groups.

786 participants, with the following breakdown by generation and detailed breakdown of online and TV viewing preferences:-:

- **Gen Z (ages 14-26)** comprised the **largest** group at % (453 people)
- **Millennials (ages 27-35)** made up 24.9% (196 people), **followed by**
- **Generation X (ages 44-58)** at 13.5% (106 people)
- **Baby Boomers (59 and over)** at 3.9% (31 people).

Age range	Male	Female	LGBTQ +	SUM
Gen Z (ages 14-26)	162	220	71	453
Gen Y (age 27-35 years)	62	111	23	196
Gen X (age 44-58 years)	29	69	8	106
Gen Baby Boomer (59 and up)	9	22	0	31

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3

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Social media emerged as the primary source of information,

- a significant portion of respondents reporting daily news content consumption via social media.

Television viewing habits, however, differed significantly across these groups:-

- **While Gen X (44-58 years) still had the highest proportion of daily TV viewers (24.0%) similar to Gen Y (27-35).**
- **However, 29.1% of Gen X *no longer watch* television at all.**
- **Gen Z (14-26) are least frequent television viewers, - over 47.9% *not watching* TV at all and 34.7% watching only 1-2 times a week.**
- **The *Baby Boomer* generation (59 +)**- had much higher daily television viewing habits (**61.3%**). However, they also actively consumed content through social media channels, with **LINE (71.0%), Facebook (61.3%), and YouTube (51.6%)** being their most preferred platforms.

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The analysis of primary platform choices for content discovery (finding new content to watch) revealed major generational trends

- **YouTube** emerged as the most popular platform across all generations, with a consistent proportion of respondents in each age group selecting it as their first channel for preferred content
- ***Gen Z*** stood out for their preference for additional platforms beyond YouTube – with ***TikTok (31.1%) and Instagram (11.9%)*** as secondary channels to explore content of interest.
- ***Millennials (Gen Y) and Gen X*** exhibited similar patterns. While ***YouTube remained their top choice, Facebook (29.6%)*** also played a significant role as a primary platform for content discovery.
- ***Baby Boomers*** differed considerably. They were the ***only generation to prioritize television (29.0%)*** as the first channel for content discovery, followed by YouTube., Baby Boomers were also the generation most likely to choose television overall.

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What have we learned from studies of 8 markets?

1 South Korea has managed a major AV expansion using industrial policy to build a whole new creative industry with major global exports

2 France has achieved the same using industrial policy to expand its AV industry as an export sector

3 The UK has the largest TV and video media market in Europe with strong government support for alternative access – BVOD and streaming

4 Malaysia- strong Government intervention, from the state-owned broadcasters to direct OTT technologies and DTT investments for a healthy OTT consumer market

5 Japan - gradual displacement of strong traditional broadcasting by OTT video. OTT is far from replacing broadcasting in revenue terms but is expanding.

6 The EU is investing in digital infrastructure and innovation, and encourages a few large cross –platform, OTT and broadcast media companies (Vivendi, RTL) to counter USA invaders, with strong public broadcasters, often with OTT services

7 Australia – strong Netflix take-up (60%) as local TV Broadcast content so poor

8 Singapore – low OTT penetration rate (33%) but rising.

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So what is the state of the market today ?

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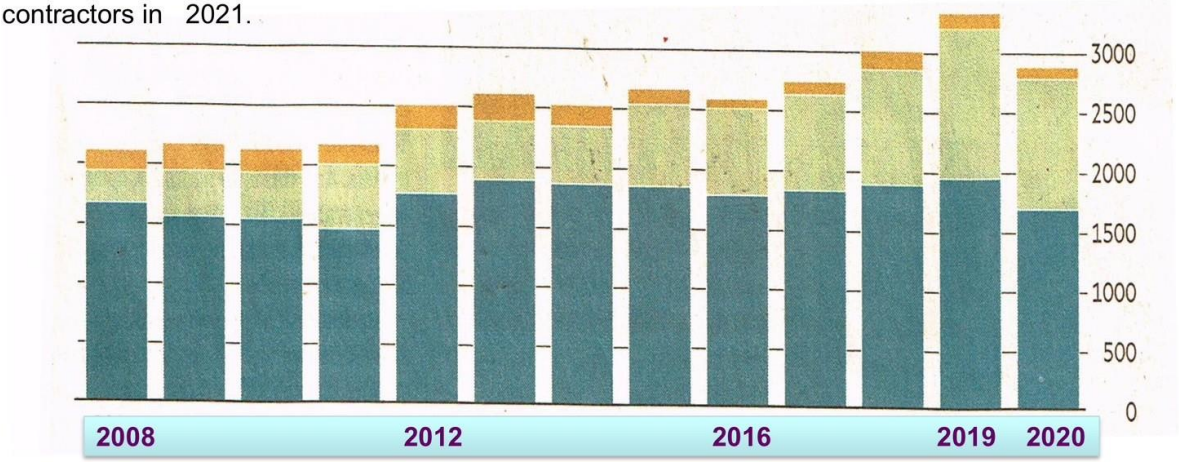
- TV is dominant only for 59+ age group 60% watch it daily but not for all uses
- Gen X (44-58 years) still had a high proportion of daily TV viewers (24.0%) similar to Gen Y (27-35).
- However, 29.1% of Gen X *no longer watch* television at all.
- Gen Z (14-26) are least frequent television viewers, - **over 47.9%** *not watching* TV at all and 34.7% watching only 1-2 times a week.
- That means - **in 10 years, The TV audience may have shrunk significantly – unless counter measures as are taken** to attract public and commercial TV viewing, as has been performed in other countries .

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Revenue transfer in a mature TV broadcast market with streaming entrants over a decade – the UK 2008 - 2020

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- By 2019 (and the Covid crisis) the International streamers had taken 38% of all UK TV revenues,
- Up from14% in early market entry in 2008, in a fairly traditional broadcast market.
- They were also taking increasing UK content production facilities and staff: Netflix had **20,000** UK contractors in 2021.



UK TV revenue (DTT, Satellite and CATV)

International TV streamers (Netflix, Amazon, Disney, HBO, etc – largely USA)

NON-TV Revenues:- PR, promotions, corporate productions, online publishing, talent management, Feature productions, new media

Source: Financial Times, A. Gray, 18 Oct 2021, Indie producers face tug of war for talent/ O&O

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So what is the state of the market tomorrow ?

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We see a dominant aging population - eventually a shrinking younger market with a growing elder market based on Gen Z, X and Y – **TREND streaming**

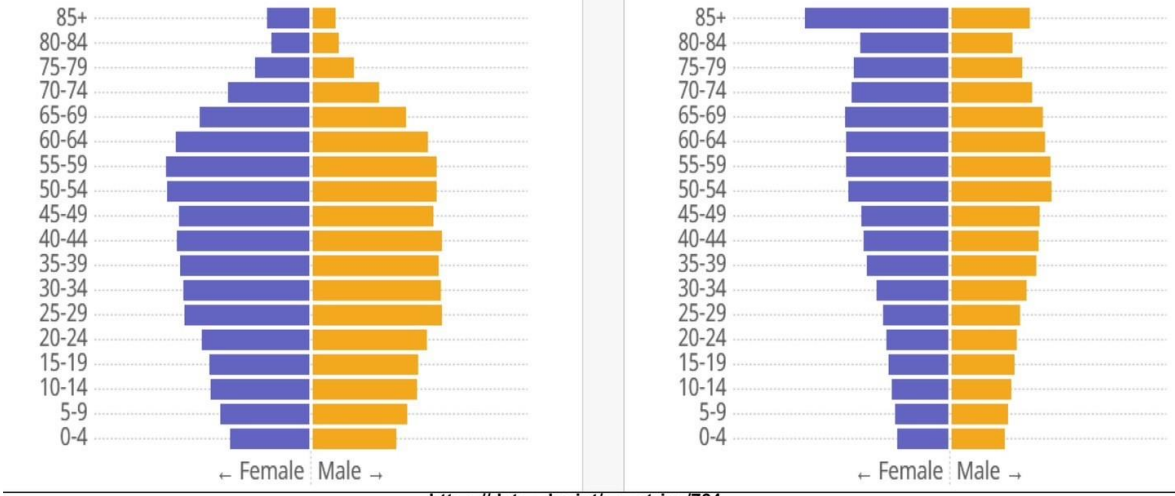
2023

Population by age and sex. Thailand

2050

Population by age and sex. Thailand

World Health Organization



https://data.who.int/countries/764

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2 Key Regulatory questions today

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A) Market power issues in the Thai AV market

The focus here is on the **number of independent choices available** to end users, mostly households, conditional upon the delivery methods those households have available - including internet-capable fixed and mobile networks basically:-

- DTT and satellite transmissions mediated by a set-top box
- Linear broadcasting is highly regulated and predominantly free to air

The situation with the growing number of internet-mediated services is more complex:-

- These are used to replace the time previously spent on linear TV
- They also replace services from linear TV – news, finding new content.

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B) When AV content is provided by streamers

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- The growth of on-demand streaming services (ad- or subscription-financed) is universal. But not all households will be able to afford access to them, and maintaining AV services for these households is an important constraint under the PSB obligations
- Streamers make or buy content in generally competitive production markets (it is important to retain these and discourage build of SMP within Thai content production
- The overall streaming market may be segmented into different types of service based on genre (eg dramas), sources (eg. Chinese), content (eg. sport), and other factors - most importantly self generated content for YouTube and TikTok
- Each market is subject to increasing returns on scale: the operators with the most customers can outbid rivals for the best product
- This is then reflected by increasing concentration among streamers in many national markets
- Streamers increasingly collect data on their customers tastes and use it to present viewing material to each – a so-called 'market of one. The global platforms also sell it to advertisers and data brokers as additional revenue streams

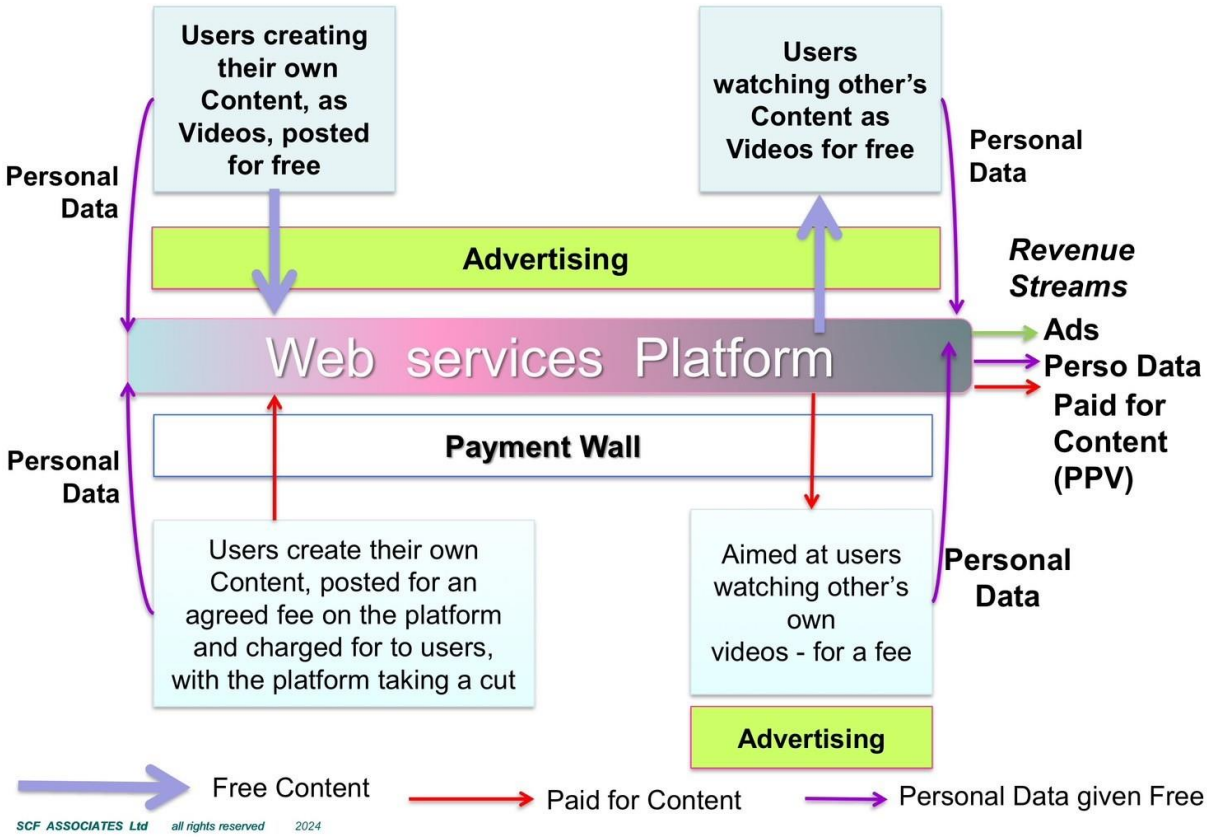
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C) The new role in AV of digital platform-based social media

- Here we focus on the social media platforms' role in retailing content to households, where platforms such as META/Facebook and TikTok are pre-eminent
- In recent years Facebook - following TikTok' - has redirected its business away from individual postings towards targeting users with often user-generated short AV offerings, chosen on the basis of its deep knowledge of individual consumers
- This places Facebook increasingly in rivalry with video content streamers (Amazon Prime, Netflix, Disney+, and AIS as bundling provider)
- The social protection issues are increasing and so suitable Thai regulation is needed but the real problems lie in supervision/ detection and enforcement
- This embraces operating data centres and communications networks used by for streamers, as well as platforms such as YouTube and, in particular, with the pervasive and highly profitable roles in the addition of personalised targetted advertising material
- All of this drives the building of a large data centres for cloud services, including customer data processing and delivery for streaming

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Video sharing platform: Outline of the website value chain



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D) Regulating on-demand retail AV markets in Thailand by streamers and platforms

Taking the Thai streaming market as a whole, Omnia data for 2023 do not suggest that its competitive structure is such that it is in need of measures to combat existing dominance

- With possible pockets of more local dominance, NBTC should t monitor the market
- But this is an incomplete solution, because of the growing dominance of global digital platforms - not only as rivals to the streamers but also as suppliers of key services to them (eg AWS)
- Essential for Thailand to follow the example of other jurisdictions (notably the EU) for a comprehensive approach for regulation of the large global platforms.
- In Thailand the Royal Decree of 2023 starts this with the EDTA. The DMA and the DSA point the way to a complete approach.

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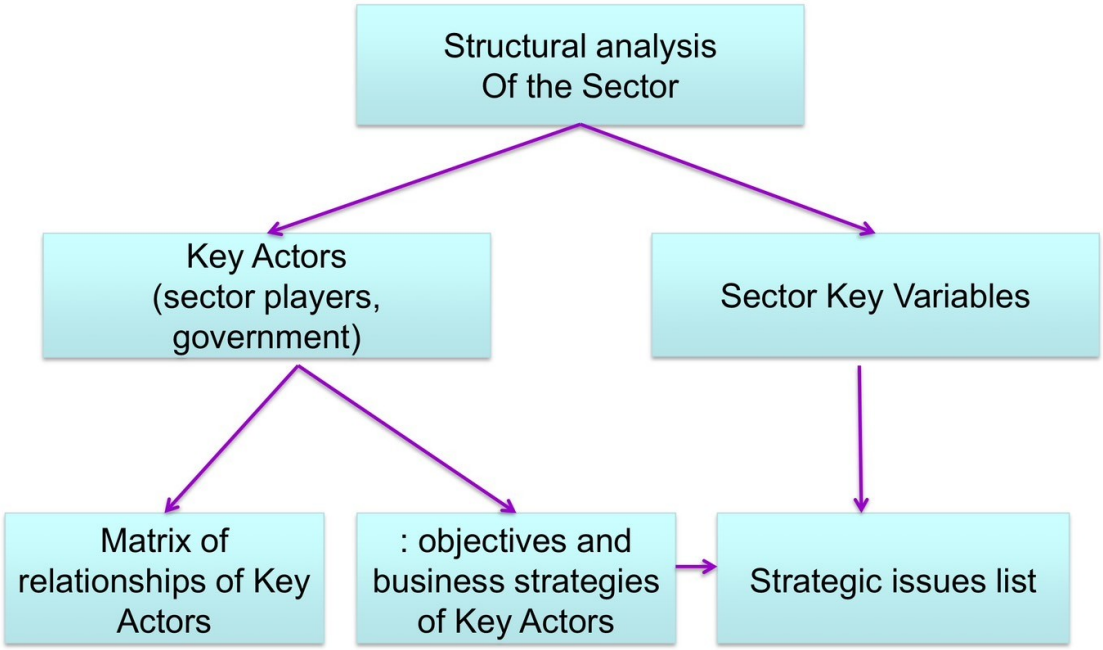
WHY Scenarios? – the function of the scenarios here

- The NBTC (and other organisations with interests in the AV sector) need, within their powers and duties, to make strategic choices among possible AV futures
- By developing the scenarios, we seek to illustrate the way in which the variable factors in play (including technological change, consumer behaviour, domestic and international business practice, and especially government policy and regulation) combine to generate alternative possible futures
- These scenarios are not detailed quantitative forecasts of the future.
- More usefully, they are ways of visualising different possibilities, from which choices can be made and then decisions taken for future AV and NBTC policy.

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The Scenarios – needs basic facts

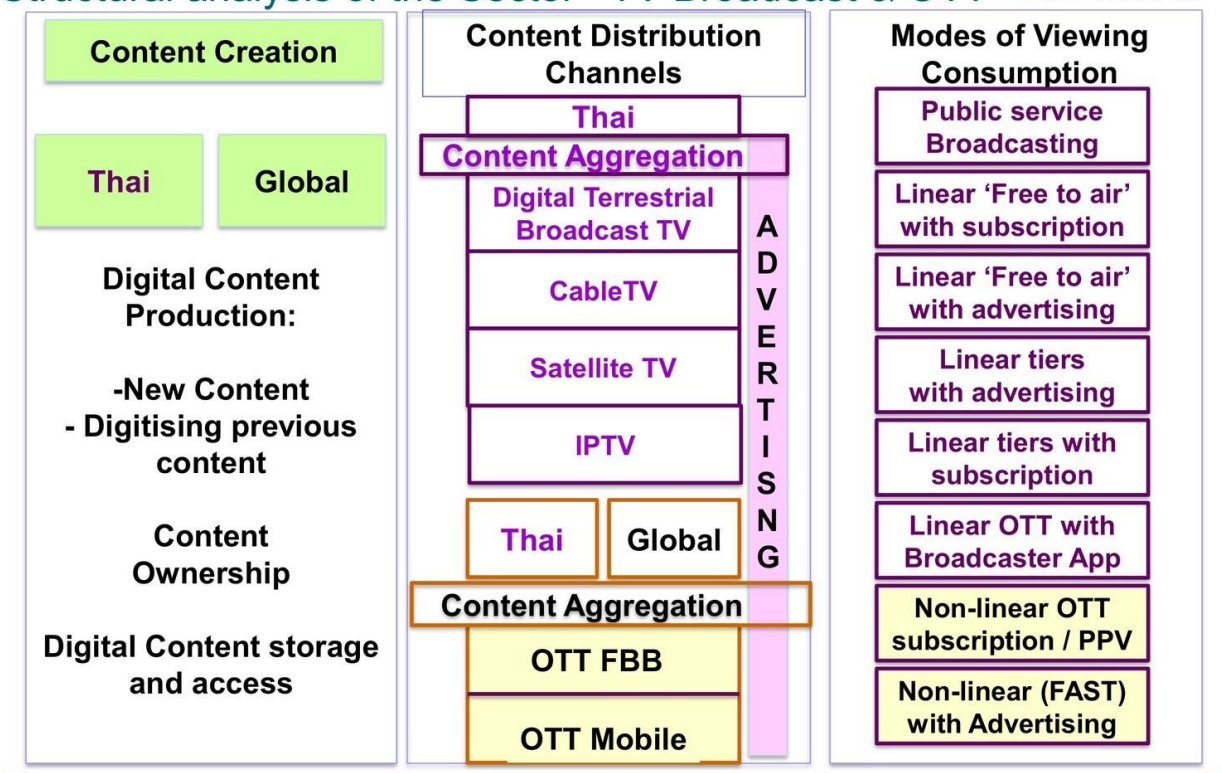
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Structural analysis of the Sector –TV Broadcast & OTT

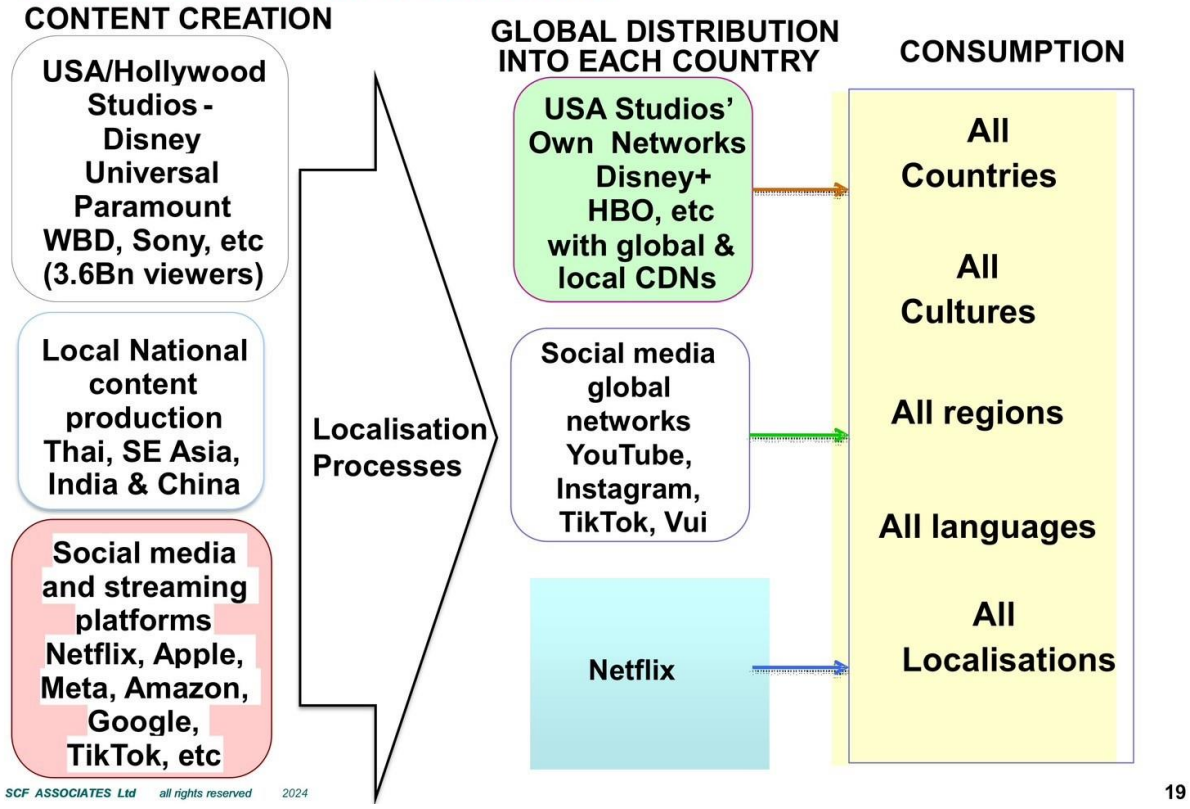
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Example– a Simplified view of global supply chains for OTT AV content & distribution

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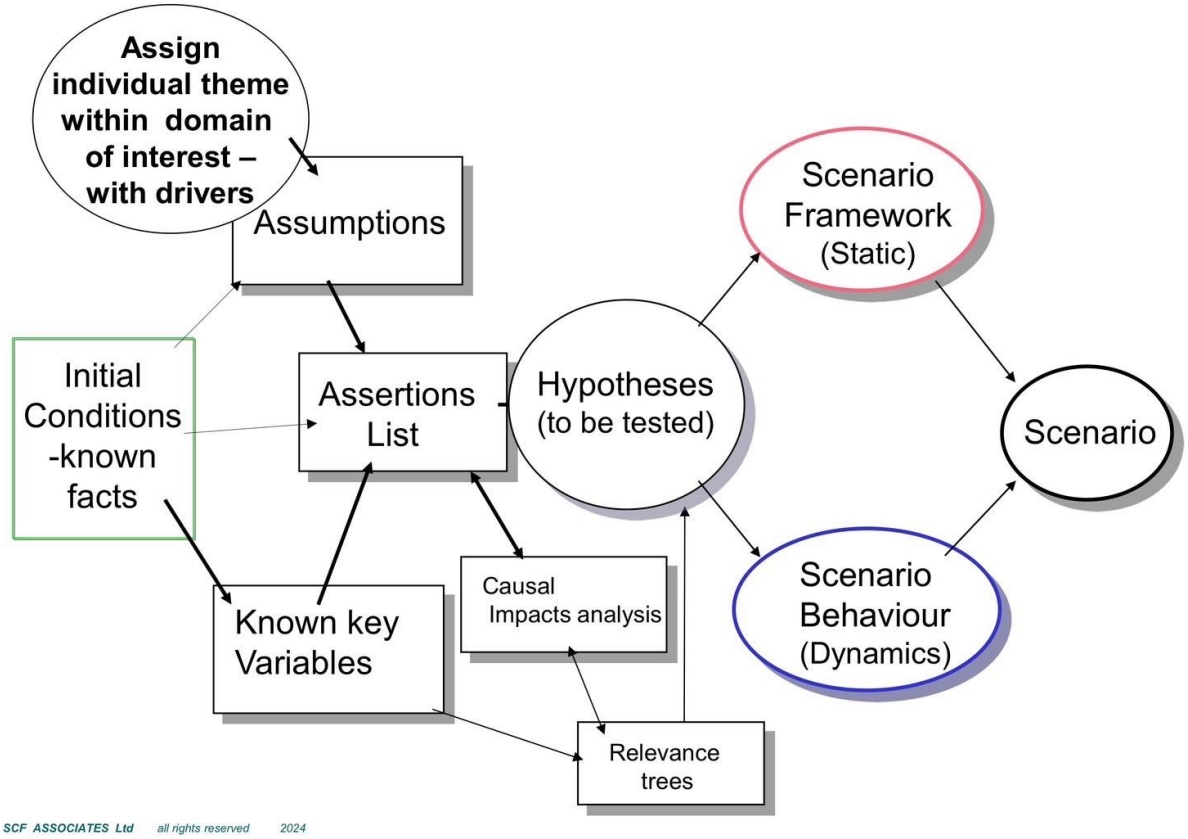


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The Process of Scenario Formulation

Scenario Construction for Forecasting



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Scenario 1 Continuing today's status quo in the audiovisual market

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- There is no comprehensive consumer protection for under-age and vulnerable viewers, or for fraud, fake news, hate speech etc.
- Revenues from subscriptions, advertising and use of consumer data gathered in Thailand are never taxed at source and so are exported
- New legislation from overseas for global platform regulation (the DMA and DMS) is never really implemented during this scenario
- The major victims and losers will the poorer members of society, and predominately the elderly, who rely on linear TV broadcast programming
- Eventually imports from the USA, China and elsewhere overtake the whole market support imported content dominates and substitutes for local.
- That implies that the TV broadcasters may eventually fail.

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Scenario 1 Continuing today's status quo in the audiovisual market

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- The current situation continues, without major intervention by government in the face of the global OTT platforms, whose high quality content slowly replaces the TV broadcasters.
- While this OTT content may come from the USA and China largely, it is localised for Thai audiences - so it is directly consumed.
- Much of the content is closely associated with social networking in finding and sampling it (eg on TikTok clips) and user uploaded video clips
- However the OTT legislation remains weak in the Thai market and there is no international platform legislation

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Scenario 1 The status quo (baseline)
Effective recession of the Thai audiovisual industry arrives in 3 stages as there are no supporting interventions, only evolving global and national market forces

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Stage 1 Descent of the TV broadcasters – 2024 – 2027	Stage 2 Overseas OTT platforms exclude Thai content by import substitution so its production shrinks 2028 – 2030	Stage 3 The final closing of traditional TV broadcasters as new satellite video arrives with next generation
• The TV broadcasters suffer from OTT/FBB • FBB streaming take-up expands • TV broadcasters reduce from 15 to 10	• Thai TV and film production reduced • The FBB networks' national coverage drives AVOD take-up • LEO satellites space invaders arrive	• The FBB networks expand globally into production overseas • Broadband LEO price wars at low cost for OTT

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Scenario 2 – A Mixed Market

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- Offers a slow growth 'business as usual' scenario protected and yet shaped by audiovisual (AV) regulation from the NBTC and other bodies, such as ETDA over 2024 to 2035
- Expects, welcomes and regulates an international set of players, mixed with Thai content producers, national OTT streamers and TV Broadcasters , international platforms and streamers such as Netflix.
- The NBTC and Thai authorities regulate to maintain and enhance the continuing existence of a reasonably balanced, largely competitive, audiovisual sector in the face of new market conditions - redefined by new technologies, the new services and increasing globalisation.
- This will require current standard regulatory interventions to promote advantageous entry for new players, yet to prevent abuses of market power, and while protecting consumers from harmful social effects of their AV experiences.
- The regulatory regime must ensure that changes do not deprive consumers who rely principally on linear TV with public services broadcasting

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Scenario 2 Mixed market

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- The external forces after 2032 mainly the global platforms, realise that Thailand is a stable market and produces highly exportable media products at low cost.
- Two major global groups compete – first the USA streamers – now all owned by the GAFAM group, as each member acquires a Hollywood studio for its streaming library, led by Amazon Prime (which already owns MGM Studios). Disney, Warner Brothers, Paramount, etc are all owned by GAFAM members. Secondly are the major OTT players from China present in the Thai market, with their shareholder investors such as ByteDance (TikTok)
- Note that the winner may be that with the largest capital access – easily the Chinese investment companies with excess domestic savings to reinvest (see External Forces Report, PR-3) - who will buy up all in the Thai AV industry.

Parameter	If USA global platforms	If China
Major Players	The GAFAM Group, plus Netflix, plus the Hollywood bunch (Disney+, Paramount+, Universal+, WBD HBO-Max)	The major platforms – TikTok, Tencent, Diui, Alibaba – also in e-commerce; Social networking - Viu, WeTV, etc
Content type	Diverse but USA based – streamed content, video sharing, YouTube Meta/Facebook social networking, Google Search, Software apps and music, Apple+ etc	Video sharing-TikTok, Social networking, Gaming Chinese content- cartoons, dramas serial etc localised for language and culture. Locally produced Thai Dramas

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AGENDA

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1. The market today – what have learned from the Thai markets study?
2. Regulatory questions today
3. Scenario 1
4. Scenario 2
5. Scenario 3
6. The key messages so far
7. The key decisions - regulation, support, industrial strategy - or not ?

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Scenario 3 Building the Thai audiovisual industry into a global competitor- A new model for the Thai industry

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Theme

Build a future Thai international TV video and film industry using models of national stimulation from successful overseas examples – especially France and Korea but also some others (Canada)

Assumptions

- Can have cooperating countries who will welcome Thai entrants and will cooperate on investment and knowledge transfer
- Able to have a central national planning organisation that stimulates new works and organises their financing
- Can encourage inward investment
- A global market exists with the capacity and appetite to take new (Thai) content
- Thai scripts and creative writing can be improved to the level of international take-up and Thai culture has multiple different facets that will have an international appeal
- Thus Thai content can be suitably enhanced to meet the appetite of a rapidly evolving international market

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Scenario 3 Building the Thai audiovisual industry into a global competitor- A new model for the industry

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Assertions

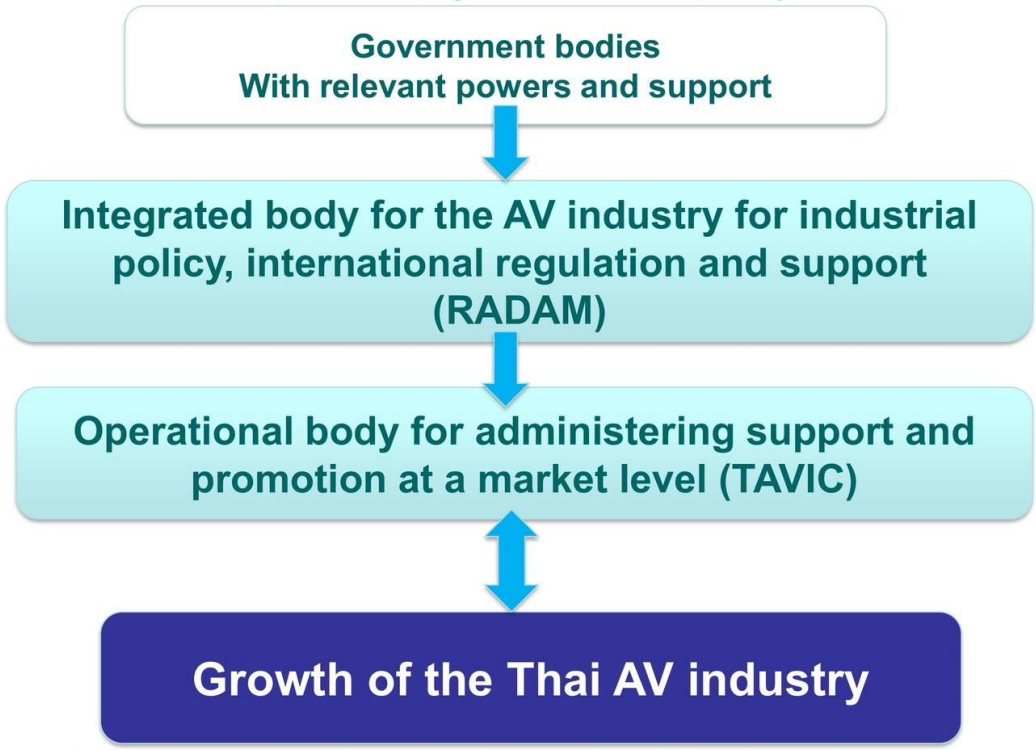
- Can build an organising central body along the lines of the CNC (France) and KOFIC (Korea) that will stimulate new quality in scripts and all aspects of production to become globally successful
- Able to find new creative writing talent in Thailand also create and can also import it (from Hollywood strikers)
- Thai genres can succeed – Manga like or Nouvelle Vague like or documentaries, shorts, deep and sensitive subjects, etc
- Can attract suitable teachers from overseas to develop Thai creative staff in script writing and in latest technologies and for producing, financing and investing techniques

Drivers

- Variety of Thai cultures – its past, and modern society with its mix of populations
- The richness of Thai geography
- Social and government organisations collectively give support to a new AV central orchestrating body
- Can use financial instruments to fund new production, including tax returns, subsidies for overseas visiting production and creative writing
- Can attract new investment for production nationally using the major corporates (Chaebol like)
- Can attract co=development with international partners to produce local and international videos and films
- Can attract suitable teachers for high level film school with bursaries and exchanges
- Can build high technology training schools for production and postproduction

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Scenario 3 - Implementing in industrial policy terms



RADAM: Regulatory agency for digital audiovisual media TAVIC: Thai Audiovisual Industry Council

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Scenario 3: A major organisational change to implement industrial strategy in the AV sector is called for

- The major changes in the audiovisual and digital landscape require the creation of a new regulator with strengthened and expanded powers especially internationally, for the global platforms with their influence on the AV market and financial profits in the sector. Two integrating bodies are seen as necessary (following examples already operating in other countries)
- The ***Regulatory Authority for Digital Audiovisual Media***, RADOM – acts as the guarantor of freedom of communication and expression in audiovisual and digital spaces, so RADOM's role is to integrate the various bodies overseeing the market, to ensure pluralism in audiovisual news media and the independence of public broadcasting, while providing economic equilibrium to the sector, and to support new media creations for exports.
- **RADOM** is an independent public authority composed of a board drawn from the relevant government agencies - appointed by each body, to ensure balance for the democratic and social responsibilities of audiovisual media and online platforms as well as industry support.
- **The *Thai AV Industry Council* – TAVIC** - is the policy implementing body for the audiovisual sector which unites the market with the policy setting agency RADOM, as regulator. TAVIC supervises down to AV project level with aid and also more generally with long term development of the production side, promotion, festivals, dissemination of works and the protection of property rights online.

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Scenario 3 Building the Thai audiovisual industry into a global competitor- A new model for the Thai industry

Theme

Build a future Thai international film industry using models of national stimulation from successful overseas examples – especially France and Korea but also others (Canada)

Assumptions

- Can have cooperating countries who will welcome Thai entrants and will cooperate on investment and knowledge transfer
- Can have a central national planning organisation that stimulates new works and organises their financing
- Can encourage inward investment
- A global market exists with the capacity and appetite to take new (Thai) content
- Thai scripts and creative writing can be improved to the level of international take-up and Thai culture has multiple different facets that will have an international appeal, as today the creativity, individuality and strong sense of genre may not be available in Thailand. This requires either encouragement of creative writing internally – or importation of external creative writing – or most probably, both
- Thai content can be suitably enhanced to meet the appetite of a changing international market

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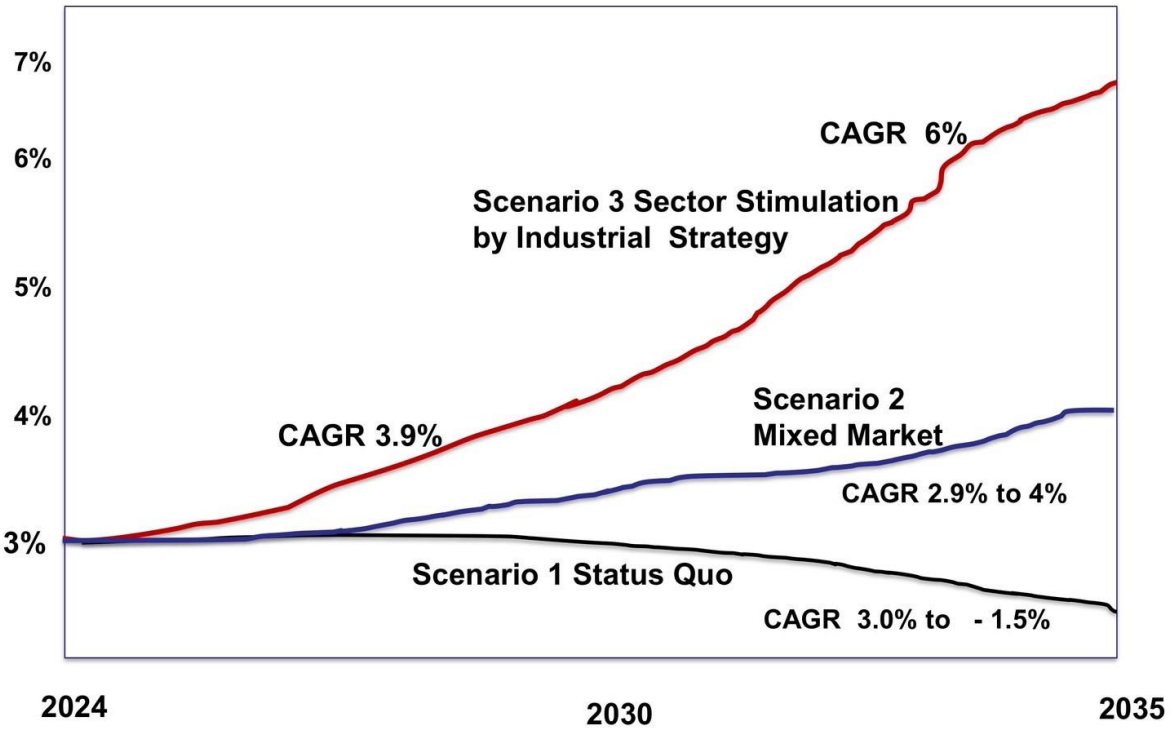
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Comparison of global expansion using industrial strategy
(illustrative only of possible estimates for sector growth across scenarios)



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6 The key messages from the scenarios

- The future of the Thai and international markets lies in an AV market which:-
  - Is turning towards multiple delivery networks for different media,
  - specifically to OTT streaming with online platform viewing of content
  - with differences in content varying basically by age group
  - with an expansion of ways of viewing highly varied types of content - beyond broadcast TV - mobile 5G, FBB, and in future, possibly LEOs
  - these trends are becoming stronger in Thailand.

- Broadcast TV needs support for new content quality and new business models to change and win back advertising revenues

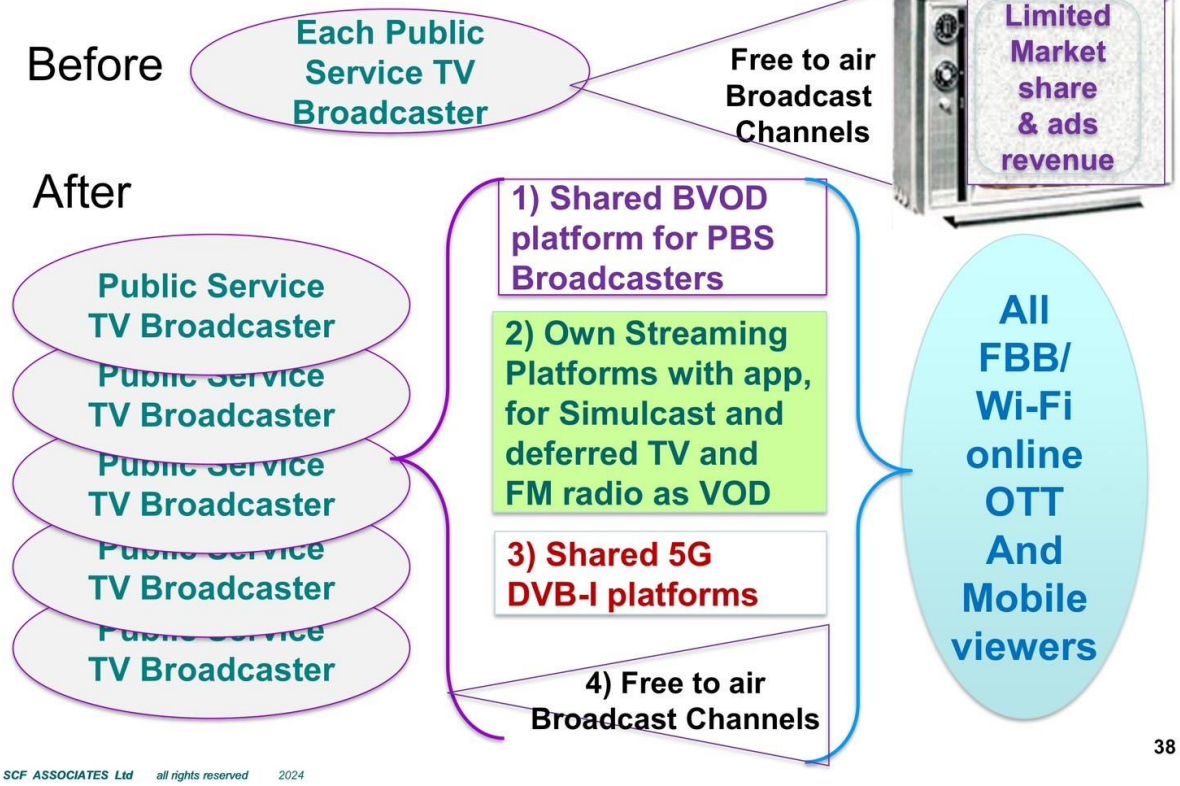
- For an active export market in content, an industrial strategy that drives the market is necessary – and has been shown to be necessary in other strong AV exporting countries

- This requires an effective organisational structure guided by national policy but with a professional market oriented body for implementation, - close to the needs and trends in the market, that also supports missing creative skills.

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Digital options for new channels to market for the PBS TV Broadcasters



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Short and medium term challenges for media policy

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- Commitment to a long-term skill building, infrastructure and export promotion strategy for the Audiovisual media industries requires high level and consistent political support across media, industrial and export promotion.
- Successful long term 'soft power' strategy requires governments to commit to a 'hands off' approach to content production, even in government subsidised sectors
- May consider production quotas for both domestic television and for OTT streamers as the natural barrier to imports may weaken when the quality differential between domestic and international (OTT) content widens and as younger audiences in particular familiarise themselves quickly with new offerings.
- Government support for the TV broadcast industry following the approach taken by France and Korea (and perhaps in the future under a new government in the UK) for a shared streaming platform for the TV broadcasters, in order to gather a new advertising revenue stream could be applied in Thailand.
- Other potential revenue sources through advertising use 5G broadband channel, with simulcasting to upgraded 5G handsets for the linear TV channels for free.
- Further research on existing level of training and standards of skills in digital production and creative sectors necessary to assess feasibility of more aggressive export promotion strategy.

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National Broadcasting and Telecommunications Commission

A Study on the Future of the Television Broadcast / Audio-Visual sector in Thailand under a rapidly changing digital evolution

The Scenarios and Reviewing the project so far with the Next Steps

Thank you

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Appendix 11: Additional Information

Supplementary Annexes for each question follow in order:-
1. Explain, in a separate section, more clearly about the **requirements under the EU Digital Services Act** (as shown in the image below) and **the Digital Markets Act, as well as the possibilities for implementing them in Thailand**
2. For satellite broadcasting in Thailand, please analyse more in details about **effects that result from migrating some 3500 MHz from C-band to IMT band, as well as the future of Thai satellite television** if such action is taken
3. (Note that Comment 10 is attached here) With regard to the **BVOD model**, please explain, in details, **guidelines for implementing such model in Thailand**, for example, step that should be taken, who should provide financial support, whether there should be Must Carry requirements for broadcasting via BVOD, provide examples of successful cases
4. Provide clear **recommendations both in the areas of: (1) regulation (including deregulation, where necessary), and (2) industry promotion**, as well as whether any regulatory changes are necessary (Please separate them clearly for each scenario)
5. For the **Knowledge transfer event** held from 13-16 August 2024, please **provide more information on** ▪ Summary of each presentation by SCF speakers (each session) ▪ Key discussion points during the meeting and how responded to the points raised (preceding annex) ▪ Provide clearer pictures/images – separate file
6. For **focus group/interviews with relevant stakeholders**, both domestic and international, please **specify the target groups that participated in these sessions and provide separate supporting evidence**
7. Please note that **ETDA** (Thai regulator) **regulates only Video Sharing Platform, not Video on Demand**
8. given with the reply to Comment 3 on BVOD platforms) As seen in Figure 6-27 below, **please clarify more details on the following issues**:

- Broadcast TDM which is separated into Home TV's SD (more channels) or 4K (less) and TDM – How so? Please explain more
- Text above the Smart TV picture, should it cover all types of OTT, e.g. SVOD, AVOD, TVOD, rather than only OTT subscriber?
- How X-Sounds - Podcast Streamer relates to the Smart TV?

Appendix 11A: The EU Digital Services Act and the EU Digital Markets Act

Here we explain the requirements under the EU Digital Services Act (DSA) and the EU Digital Markets Act (DMA) as well as the possibilities for implementing them in Thailand.

1) Requirements under the EU Digital Services Act (DSA)

The DSA is designed to protect the privacy and data security of EU consumers and also to protect them from mendacious or inappropriate content and unlawful political meddling. It imposes different obligations, which may include having procedures in place to 'moderate content and taking down certain content, on different types of organisation. The most severe are imposed upon the largest, so-called 'very large platforms' including Google, Meta and TikTok. Fines can be up to 6% of global turnover. The European Commission has opened cases against several of firms. The Act mandates platforms to respond with their information.

Examining the various requiremenst by roles and services, the DSA considers the four groups of online entity classed as :-

- Intermediary players and services as those implying data transfers between different platforms such as social networks, apps stores, and online markets for shopping as well messaging or payments systems and the openess required for these for interworking, as well as their treatment of user data and the various obligations for their online behaviour, listed
- Hosting services cover the platform's abilities to host and manage the data of others. Most important are the controls placed on online platforms, for instance to make known the algorthms being used, explaining them to regulators and the users as well as the content moderation activities and decisions.
- Rules for two classes of platform – the smaller platforms and the major global platforms (termed 'very large obline platforms, or VLOPs') with over 45 million users in the EU. The latter are a particular focus, with more obligations attached. Obligations and surveillance are enfored for areas that smaller platforms may not be required to follow - for instance on external riks, recommender transparency and data sharing. The VLOPs include YouTube, TikTok, Amazon markets, Meta/Facebook and Google search.

Particular areas to note include:-

- The DSA applies to online entities having users in the EU - and not whether the online company is based in the EU.

- There are limits on targeted advertising aimed at consumers, which may have tracking and detailed information gathering features.
- Content moderation capabilities and the levels of supervision achieved, especially in the 'very large' platforms category must be declared, including how the decisions to remove content are taken.
- The obligations on hosting companies include the responsibility that when the data being hosted is shown to be illegal, that hosted data is the responsibility of the host and are their liability. Thus fake news cannot held or broadcast – a reversal of the 1996 exemption in the USA for online providers from prosecution for misleading and false data (Computer Decency Act, Section 230).
- The DSA has passed the European Court of Human Rights on legal interpretation of free speech for a framework that applies to online platforms and the balance with what is termed hate speech and protection of users.
- The DSA has been largely accepted across the EU and has even been seen as a potential standard for the USA - it has even been said to be as important as the Paris Agreement on Climate change of 2015.
- The liability exemptions and impositions for intermediaries.

Possibilities for implementing similar measures in Thailand

Notably, the DSA (and DMA) measures represent attempts to apply specific ex ante regulation to digital platforms, rather than relying on pre-existing legislation. This is important in that it avoids the time, cost and resources of long court battles that have eventually failed to contain the global platforms. The change is a major transformation in anti-trust regulatory efficiency in that unlawful anti-trust behaviour does not need to be established in court after the fact, because online platforms must sign up to specific regulations in order to operate.

In this connection, Thailand has enacted a 'Royal Decree on the Operation of Digital Platform Service Businesses that are subjected to Prior Notification'.

What Thailand should consider next, in order to implement these measures

Unlike the DSA (and DMA) which in the current user countries are implemented in law, there are no other associated guiding and directing rules or obligations in the Thai legal framework for platforms and online OTT operators. Therefore there is no current scope for any legal proceedings using the DSA and DMA and also no enforcement mechanism to support them.

To implement equivalent measures in Thailand, well drafted laws are needed, specifying the restrictions required and establishing a strong enforcement mechanism. Hence, new legal measures for these regulations should be passed, as an addition to the existing decree. Such laws have been proposed (and in some cases enacted) in other countries, including Korea.

2) Requirements under the EU Digital Markets Act (DMA)

The DMA applies to a set of platform services, including business to consumer intermediation services, such as Amazon ecommerce and related services, search networks, social networks, and cloud computing services. The largest obligations are imposed on so-called 'gatekeepers', including the Amazon, Apple, Google, Meta, Microsoft and TikTok. This category is subject to prohibitions on conduct, such as self-preferencing (affiliated suppliers) and placed under obligations to inter-operate with competing services. Fines can be up to 10% of global turnover. As noted above, the European Commission has opened cases against several of the gatekeepers.

3) Practical steps in implementing the DSA and the DMA

The DSA (and the DMA) require a number of measures to be in place for locating and monitoring online platforms. This may be new to the NBTC as it requires teams with skills for online tracking of the origins of web traffic and possibly following a chain of proxies and hosts. These practical steps cover three major functions:-

3.1) Discovery of OTT websites and their operational profile

For online providers, discovery of the location of the website is required and then as much information as possible about the effective owners, the operations and the connectivity is necessary. Many OTT platforms operating within Thailand may be hosted outside the country, especially those with contentious content and those behind scams and fake news. They may be difficult to locate and perhaps hidden behind proxy servers. More difficult are those who may be on what is termed the 'dark web'. For such sites outside the country, one useful tracking point may be the IXP (Internet Exchange Point) - the international gateway for sites based internationally, beyond Thailand.

This may take the regulator- the NBTC (or other regulatory body) into new areas of skills and competent staff, for accessing online platforms, and discovering their operators, dependencies and networking. It will require recruitment of new skills, in volume.

Use of the supply chain to the online platform can be used – who is hosting, what are the payments, and tracing the origin of the content with who is supplying the content, much of which may be pirated.

3.2) Market supervision and moderation for online safety

For the DSA, the UK regulator, Ofcom is continually building new teams to monitor websites and to assess their content in terms of conforming to the agreed standards for information contents.

The UK regulator now have over 300 staff working on moderation of content with analysis and verifying its acceptability, fact checking, user age verification procedures and signalling if a site needs to be sanctioned with removal of content or services such as hate speech or provocations to violence.

Interestingly, recruitment for these teams comes mainly from the GAFAM group of global platforms, as the moderators often wish to follow a socially acceptable career.

3.3) Compliance instructions for online services providers (OTT websites)

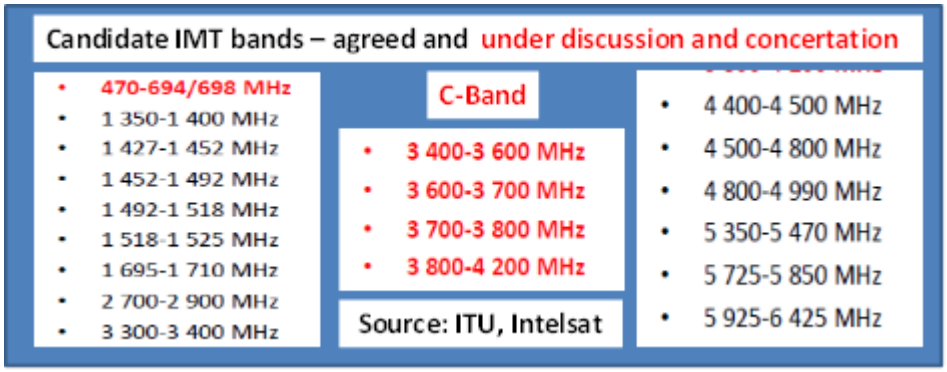
When the major problem websites have been shut down or forced to conform to the chosen rules for online safety, compliance regulations must be drafted following the code of practice laid out in the legislation for implementing the DSA. This may cover a wide range of areas that the website operator must comply with including prevention of harmful content such as violence and pornography, transparency reporting, protection of user personal data if gathered, prevention of fraudulent advertising, also protection of news and journalistic content. This covers video sharing websites (TikTok, Twitch, YouTube) also with the content classification rules necessary. Most importantly, the major online platforms must now give government their user-safety practices in a regular report that covers all categories of risk, especially for under age users, etc. Audits are then carried out to verify the measures.

Appendix 11B: Satellite broadcasting Future – weighing the potential move from C-band to the K bands to meet the ITU IMT proposals

1) The question before us

The IMT report from the ITU in 2015 for WRC-15 proposed new spectrum assignments using the C-Band (3,400 – 3,800 MHz and perhaps to 4,200 MHz) for the International Mobile Telecommunications (IMT) requirements, for future mobile services, for the 5G NR and LTE-A mobile systems. This range is endorsed by some ITU Region 3 (APAC) countries, but not all, and by EU CEPT (3.4-3.8 GHz) and others in ITU Region 2 and Region 1. The range is:

Figure 6-26 The C-band range and other ITU IMT frequency bands



The C-Band is essential in Thailand, for the majority of the TV viewing population who receive free to air broadcasts, via Direct to home (DTH) satellite downlink reception. The band is at the upper end of the GHz bands proposed for mobile, apart from the millimetric bands (24 - 29 GHz) also proposed for mobile (which could also perhaps interfere with the Ka satellite band).

The motion was further opposed at WRC-23 in Dubai and opposed by TV satellite interests.

For Thailand, migration of mobile IMT services to the 3500 MHz frequency band is likely to have significant repercussions on several fronts. Notably, it poses key problems including:-

- **Channel availability** on the C-band for satellite TV to the home in remote areas, with the majority of free to air (FTA) TV being delivered in Thailand via geosatellite and a minority via DTT, Cable TV and IPTV
- **Costs** associated with the replacement of satellites, ground stations and receiving equipment to migrate the majority in Thailand of the FTA viewing public. These costs would be high, for a large percentage of the 22 million potential households. The sources of funding would inevitably require public subsidies.
- **Must-carry obligations** for digital television for the widest public coverage.

2) Evidence on Problems with the C-Band for mobile could mean lower auction prices for the bands as other mobile bands are more attractive

And there are some who doubt the ITU IMT report (Intelsat, 2015, Broadband Services: Spectrum and Applications). Intelsat has noted some erroneous assumptions from the ITU's IMT estimations:-

Inaccurate assumptions lead to a figure of 1,960 MHz in total spectrum needed by IMT by 2020 based on the amount of terrestrial mobile spectrum that may be needed in the most densely populated locations in the world.

The report's assessments, even for the most densely populated locations, are substantially overestimated by a factor of 100 or more (ie at least two orders of magnitude):-

- User densities assumed globally are in excess of 100,000 users/km2, with some entries higher than 200,000 users/km2. The most densely populated urban areas rarely exceed 30,000 inhabitants/km2, except perhaps in Calcutta with up to 1Mn residents/km2.
- Excessive expectations of use of super-high-speed data services such as streaming high definition 4K video, any time of day
- Underestimation of Wi-Fi offloading in home, public spaces, offices and public centres and buildings.

Moreover, the inadequacy of C-band for the IMT mobile services – (which would tend to drive down auction prices for the C-band offering against the more attractive lower bands for cost-efficient rollout):-

- Effective range of a macro-cell mobile base station in C-band is approximately a maximum 2 kms in uncluttered conditions. That could expand mobile network construction costs while the lower spectrum bands open to mobile (600 MHz – 3 GHz) have lower build costs, as cell site density is reduced, non-linearly with lower frequencies
- Other and better frequency band options are available for IMT- e.g. the sub 1GHz "digital dividend" broadcasting spectrum released by DTT, the digitisation of TV broadcasting channels. That offers a new source of high value spectrum which is more attractive for MNOs, for LTE-A and 5G NR in network rollout costs and resultant signal quality.
- C-band frequencies have lower penetration of buildings for mobile communications, particularly modern insulated ("green") construction, so reduced indoor reception

strength may need through-wall repeaters. Up to 80% of mobile communication is indoors. Note that C-band TV satellite reception uses dedicated antenna and set top boxes with signal amplification.

- The C-band offers lower rain fading effects, essential for tropical and sub-tropical regions. Thus rain fade varies geographically and is of importance in the ASEAN countries. Rain fade impacts are highly dependent on the availability requirement of each service – requiring consideration of the necessary accessibility, which may be up to 99% for TV viewing. For C-band, the dB attenuation is 0.6 - 0.2 dB (low) whereas for the alternative downlink transmission bands being offered for migration, Ku, K and Ka rain fade attenuation is much higher, between 53dB, for the Ka band for 99.9% availability and 10.2 dB for Ku band at 99.9% availability[388].

Is sharing possible between IMT and fixed satellite services (FSS, geostationary satellites) in the C-band? - Apparently not

ITU studies have concluded that protection distances of between 51-430 km are necessary to allow co-frequency sharing between fixed satellite TV services and IMT mobile communications[389]. The adjacent band protection distances to avoid overload of LNB (low noise blocks in the TV receiver) for FSS are between10-31 km. That means commercial FSS services in the C-band will suffer: in tests in Hong Kong, 300,000 households lost TV services.

3) Costs of change- investments are necessary in three main areas

The costs include:-

1 The space segment –

- satellite replacement with perhaps two units for backup purposes,
- launch costs, with insurance costs etc

2 The consumer equipment with distribution logistics and installations –

Costs include the consumer receiving equipment – the set top box and also its antenna, for a potential of up to 22 million households in the Thai coverage area with at least 15 million households, currently receiving GEOSAT TV. Costs of overall organisation must be added.

[388] GSMA, 2013, Benefits of C-band reallocation to mobile in APAC, case study 1 NOVEMBER 2013 J. Guan, Spectrum Policy Regulatory Affairs Advisor, GSMA

[389] ITU-R Report M-2109, 2015

3 Satellite ground station equipment and its national network connections.

4) The potential Options for policy makers and the future of satellite TV

C-band satellite services have strong advantages which cannot easily be replicated at other satellite bands or via terrestrial means:-

- Geographic reach: C-band is economically viable for intercontinental and global communications and can covers entire continent and oceans.
- Its resistance to rain-fade makes it better suited for the tropical climates with high-rain areas as in ASEAN countries.
- It is efficient for smaller or hard-to-reach markets and low density regions
- The replacement of the current C-band TV network with Ku, or K, or Ka frequencies will bring high costs of:-
- New satellites for new frequencies unless the current C-band satellites are software configurable with upgradeable transmitters for the replacement K bands. SES replacement satellites for the USA were US$ 200 MN. The Eutelsat TV satellite in service for Australia launched in 2018 cost over US$ 2 BN, although this also has spot beam capability for individual area broadcasts.
- Replacement of household users C-band satellite receiver and its antenna for at least 15 to 18 million homes – this could be between 500 and 2500 THB/home (and so should be manufactured in Thailand) but with the logistics operations and installation costs, the total might be over 1BN US$.

The future of Thai satellite broadcasting if the K-bands migration is followed

Despite the major costs, the possibility of poor performance in service due to problems of signal quality with rain fading for the K-bands' frequencies would make the system unreliable and possibly rejected by the viewing public.

5) Other satellite bands and their potential problems

Intrusions by the upper IMT (5G) frequencies into the satellite Ku band (12-18 GHz) and Ka band (26.5-40 GHz) are possible. K-band downlink satellite transmissions may interfere with 5G use of these bands in the millimetric frequencies (approximately 15 – 40 GHz) for more general 5G mobile communications (non-IoT). For mobile industrial communications, preferred for specific broadband terrestrial applications such as Internet of Things (IoT) projects, these may be handled by regulatory agreements on power levels - as these may use 5G millimetric frequencies for with

limited, short-range and so may have individual restricted power licences, perhaps at a single production site and possibly indoors.

6) In Conclusion

Region 3 which covers the ASEAN countries has fewer non-C-band TV operations than the two other ITU Regions as only between 19% and 43% of Region 3 countries have accepted IMT classification in the bands between 3GHz and 5GHz[390], due to persistent rain fading. Thus impacts of the high replacement costs should be carefully weighed against a market and a technology which could be worth preserving for the majority of Thai FTA viewers, despite being challenged by growing interactive streaming technology for younger audiences.

[390] ITU, 2021, Spectrum for IMT from Radio Regulations Identification

Appendix 11C: BVOD – setting up a successful system to meet the Broadcasters' needs

1) The question before us

In today's streaming market, public free to air (FTA) TV broadcasters will need to reply with their own competing, attractive and high quality streaming of online broadband, offered as a multichannel platform – a Broadcasters Video On Demand (BVOD) streaming service. This will bring FTA public broadcasting channels into homes and environments with only online broadband connections.

Naturally the approach requires a shared video streaming platform over broadband networks. It is usually set up with support from the main players in the public broadcast industry and probably with government support. The latter ensures both regulatory permissions and financial subsidies of some form, for the introductory phase. One interesting recent market entry of this form is the UK's FREELY platform, aimed at all the major public FTA TV broadcasters, including the dominant such broadcaster, the BBC. Such platforms are aimed at all types of television receiver, from the basic standard definition to high definition and 4K smart TVs, as well as to tablets and smartphones over Wi-Fi.

A key question for immediate consideration is the lifetime of the BVOD platform. This should be considered as going beyond the deadline of 2029 for the Broadcast TV channels licences, for an open-ended future.

2) Guidelines for introduction – key steps

The various steps to organising, financing and launching a BVOD platform are briefly outlined below:-

2.1) Organisation of a consortium

Such a platform requires a dedicated management committee representing all participating FTA broadcasting channels, who will eventually become the joint owners and funders of the BVOD platform and its long term operators. Thus first steps are normally closed discussions on financing for a set of defined goals in terms of rollout targets with financial requirements for each target. That requires commercial, functional, technical and financial specifications with a timeline. The ownership of the platform is normally considered as a joint responsibility among all the broadcasting partners, with a technical group that designs, builds and operates the platform. However, that ownership could also be through a regulated private sector company, or a regulated public sector organisation, or even owned by the NBTC (despite self-financing).

In the Thai context, support will also be needed from the powers that be:-

- The government bodies at ministerial level – culture, finance, economic development and also audiovisual industry funding organisations would be involved
- The regulators and broadcasting industry groups who will be concerned – the NBTC and Creative Economy Agency, among several others
- In other countries, such as the UK, a new Media Bill has opened the door to more prominence for these FTA services in the digital streaming environment, so that commercial streaming viewers are made aware of the variety of streamed FTA channels.

2.2) Financing

- For the start-up phase only, it may be necessary for the NBTC and government finances to be involved as the major source of finances, through direct subsidies for the design, build, launch and testing. Thus it may be essential to subsidise the major set up costs over the first 18 months, then to continue to fund 50% of the modifications and operational running costs for a further 6 months, as the broadcaster owners begin full financing and sharing in the early returns. Consequently the platform operation would be self-sufficient in operations, cashflow, profits, with an established market position within 2 years.
- Operational revenues - while the offering attracts viewers primarily with its “free to air” channels of the broadcasters (now as “free to stream”) it can also incorporate - advertising supported channels, subscription channels, pay-per-view (PPV) premium tiers and audio - music/news/radio dramas. These four revenue streams could be augmented if the broadcaster’s own content studios decide to produce new content for both the FTA broadcast channels but perhaps specifically for the BVOD platform. Note that additional revenues could come from reselling content from the major streamers such as Disney+, or WBD HBO, as these streamers are anxious to resell their catalogues as widely as possible.

2.3) Set up Actions

Launching a new BVOD platform into the market will need three major activities:-

Promotion and image

Freely and other initiatives across the world have sold well on the premise of free TV (and advertising supported TV) as against subscription TV, combined with programmes that are well

known from the FTA content traditions. Certain messages are essential – especially - ensuring viewers know that the BVOD service is free is crucial.

Content and content acquisition

Widespread access and range of high quality content combine to give market position:-

- Offer content access wherever there is contact via Wi-Fi – be it a home, train, car, bus or supermarket
- Video programme content – all possible genres - dramas, cooking, musicals, serials, comedies, travel - with live TV – news and sport
- Video content can be streamed from the BVOD in-house server, or if chosen, from suitable servers in each broadcaster, as the partners require, as other BVOD platforms do.

Accessibility

It is essential to make the BVOD service (a) easy to connect into, especially for existing TV sets (Freely has found that its limit to one new TV set brand has restricted rollout, as a new TV is needed for most viewers) - and (b) easy to use when connected with good and simple Electronic Programme Guide of ALL offerings.

2.4) Key features that BVOD viewers demand

Examination of use of BVOD platforms has revealed major requirements for acceptance:-

Table 6-4 The BVOD platform interfacing and operating requirements for rapid take-up.

Interfacing	Operation and content
▪ Can log in once to all FTA channels, with a single password (not one per channel) ▪ Can use any make of TV or smart TV and any type /brand of smart TV operating system ▪ Has a set top box for interfacing existing and older TVs, that is not expensive	▪ Pause and restart for streamed PBS TV ▪ Rewind any PBS programme and catch-up – replay older episodes ▪ Access to SVOD, AVOD, TVOD for commercial OTT streaming premium channels (as well as carrying any FTA channel) ▪ Includes Must Carry content ▪ Access to social media channels if required

Interfacing	Operation and content
▪ Low bandwidth requirements for the streaming connection (eg 10Mbps if possible) ▪ Has capability for any resolution TV – SD, HD, 4K, and if sufficient demand, 8K ▪ Easy to understand and use Electronic Programme Guide of ALL offerings, all channels ▪ Has easy to use navigation to find a channel, like streaming subscription channels	▪ Tiered channel categories: eg children, by age ▪ Has content suggestions based on viewers' personal choices (like Netflix) ▪ Audio content - streamed music (by genre), also podcasts (by author) - played on TV or any Wi-Fi device.

2.5) Longer term operations

The BVOD platform will need long term management, technical support and quality content

1 Management contract - for operations and maintenance, possibly with a subset of the broadcasters forming the technical contractor for initial build, operations and long term upgrades.

2 New content of high quality is essential to maintain viewership. It may be that the broadcasters' own studios for content could be combined to produce fresh content for both FTA broadcast and BVOD releases. That would be an additional revenue stream.

3 Suitable, safe and reliable advertising to complement the high quality content

4 Collaboration – with other commercial streaming and video content players and their products - the group could open a new open platform for all TV broadcasters – DTT, satellite, CATV, which could form an open iPlayer and BBC Sounds types of offerings from content sources outside the consortium for additional revenues. Note that the two major Thai FBB/mobile streamers could offer access to the BVOD operators' platform.

2.6) Technical specification for the platform

There are international BVOD standards – suggested is the detailed EU specification: Hybrid Broadcast Broadband TV (HbbTV) – a European (ETSI) standard (TS 102 796, V1.7.1, 2023-09) for hybrid digital TV to integrate broadcast and IPTV (Internet protocol TV) through a single user interface (used by Freely).

2.7) International examples of BVOD platforms for PBS Broadcasters and for additional content providers

Examples from around the world include:-

- UK - Freely – latest large project combining FTA content and advertisement support, for free advertising supported TV (FAST) by all the major UK broadcasters (DTT and satellite) including the BBC
- Canada – CTV (Bell Media) – advertisement supported BVOD programming
- 7plus – Seven Network, Australia – ad supported BVOD service
- BBC iPlayer, UK – offers BBC TV content online, for BBC licence holders, without ads, for smart TV, laptops and smartphones as well as other broadcaster's programmes (Channel 4, ITV1, ITV2, etc) as an online content service. It offers complete TV series for catch-up. and first went live in 2007. The latest version has been operated by the BBC for over 5 years, with an audience of over 16.5Mn viewers in the UK (for 28Mn Households). It offers SD resolution and HD, with some events in UHD (4K).
- BBC Sounds, UK – offers audio streaming, since 2018 as an app– for music, replays of radio programmes, including live events such as sports and newscasts. Can be listened to over any Wi-Fi connected device – especially useful for smartphones and in-car listening – and offers overseas listeners online access. It has over 5 Million listeners in UK, with an app for access on smart TVs (eg Amazon Fire TV). It also Hosts third-party content.

2.8) The future BVOD platform

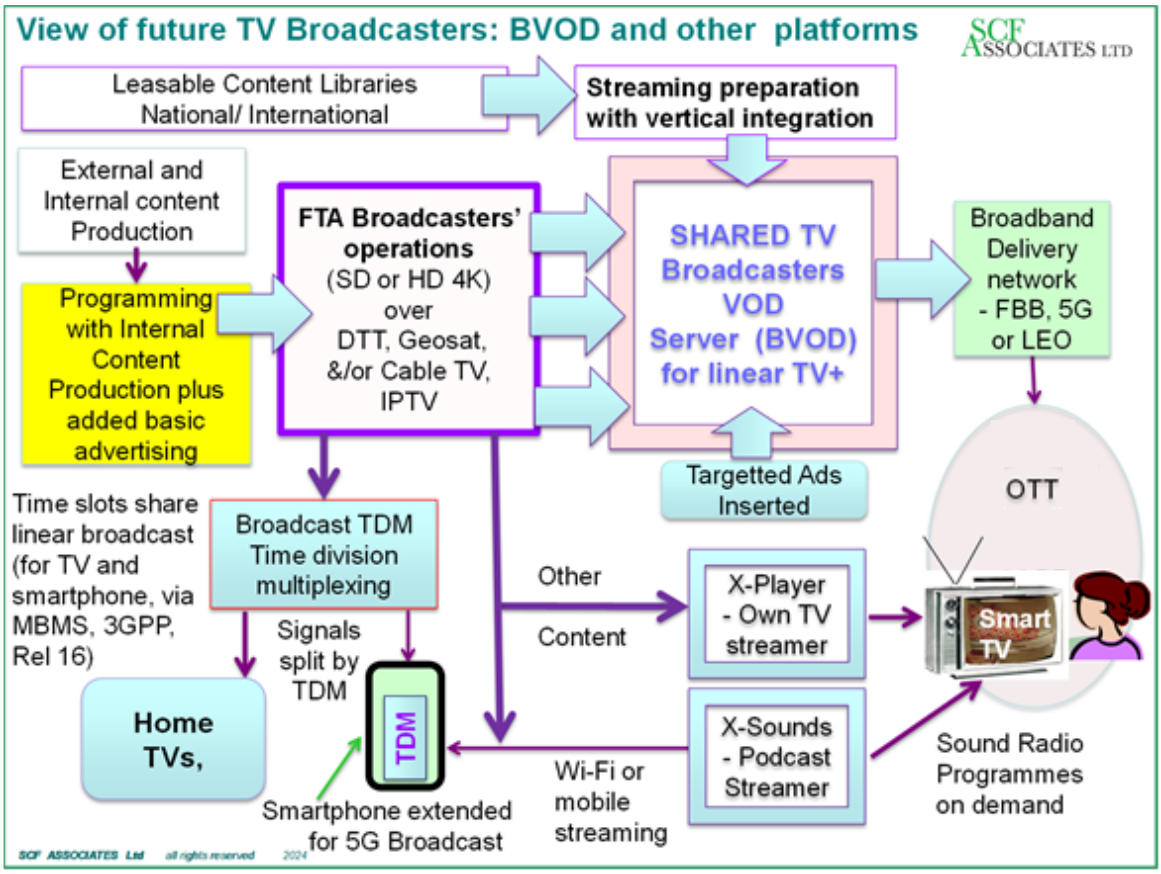
One possible example of the future BVOD platform and its feeder components is shown below. This shows a platform which streams its supporting broadcasters' linear TV programming but also has several other revenue enhancing features:-

- Use of advertising mixed with the linear TV channels for extra revenues (or FAST – Free Advertising Supported TV), also termed AVOD
- Taking in content from external sources, which is complemented by possible subscriptions (SVOD) and pay-per-view (TVOD). This content may come from the major streamers who are anxious for new markets
- Audio streaming for music (with or without ads) and podcasts of radio programmes (here termed the 'X-Sounds' audio player) including news and sports which can be heard

over any Wi-Fi access device including tablets, smart TVs and smartphones. It is added as an additional revenue stream – and can carry audio ads.

- Future 5G connectivity for '5G TV', which may use a TDM transmission signal for standard TVs' reception and for 5G smartphones. The 5G smartphone requires an additional receiver, for watching streamed content with no use of the 5G infrastructure and thus no network charges. That is considered in the 5G Releases 3GPP 14 to 16 and is only in trials in some countries such as Italy from 2023.

Figure 6-27 The operation of a future broadcasters' BVOD platform using multiple content sources and offerings



Source: SCF Associates Ltd

2.9) In Conclusion

The BVOD platform can be seen as a major new business model for the broadcast industry. However its success depends on careful planning, promotion and bringing to market on time and budget. Its success could increase the chances of linear TV broadcasting continuation after 2029, but only if the platform is strongly profitable over the medium and longer term.

It could even become the longer term route to market and survival for the linear FTA broadcasters, if streaming OTT services become more dominant after 2030 – it offers the broadcasters a lifeline in such a situation.

Appendix 11D: Audiovisual Regulation and Promotion of the sector

1) Audiovisual Regulation

1.1) The historical background of current Thai audiovisual services

The beginnings of the Thai industry go back to cinemas and film studios and radio with TV stations that multiply as television with digital multiplexes for DTT and CATV and while geosatellite broadcasting offers the majority of Thai homes free to air (FTA) TV.

In the UK, in the 1920's government stepped in to create a monopoly government-owned BBC - to control what listeners were able to hear, in an era of rampant and uncontrolled commercial radio broadcasts, often across national frontiers. In the USA, entry was unconstrained, leading privately-owned companies to turn up the power of their transmissions, in order to drown out competitors' programmes (and ads), leading to the creation in 1925 of the Federal Radio Commission, (later the Federal Communications Commission or FCC) as a regulator with limited powers over of privately-owned services (both broadcasting and telecoms.) These alternative systems (of ownership and regulation) were replicated in the early days of TV. In many cases the notion of terrestrial spectrum being in limited supply was deployed as a cover either to maintain government control of content on public broadcasters (in Europe) or to help perpetuate three dominant private TV networks (in the USA).

Multi-channel cable television (cable access TV, CATV) in the USA first circumvented this spectrum limitation shortly after the 1940s. CATV technology was followed in the mid 1960's by downlink distribution from geo-stationary satellites, then by increasingly digitised telecommunications networks, for broadband - fixed and mobile – in most cases provided by telecommunications providers but also by privately owned broadcasters. These developments demonstrably refuted arguments based on channel limitation. They inaugurated the present era of near-ubiquitous multi-channel regulation, as markets opened to competition, in which the need for intervention to meet competition regulation is diminished.

1.2) Why we choose to regulate today?

There are two main reasons:

- the continuing risk of abuse of market power which makes customers over-pay for services, or denies them access to them; and the 'consumer protection' risk that that unsuitable content may be adverse to consumers' individual and collective interests,

just as infected drinking water may damage the health first of an individual households and then by infection of their neighbours;

- A recognition of the importance of AV services to the wider economic, social, political and cultural development of any jurisdiction: in other words the wider implications of the effects of the programmes to which viewers' give their attention to.

The second question is dealt with in the final section on promotion of the sector.

Two other narrower issues comprising grounds for regulation can be mentioned. First, in a world of channel limitations, competition may lead to sub-optimal content choice by broadcasters. Suppose 70% of a viewing population prefer to watch programme genre A and 30% genre B. With only two channels, both broadcasters will choose genre A, guided by an expectation of a 35% viewer share, devotes of genre B lose out. This argument, popular in past years, has now lost its force.

Secondly, and more pervasively, when a broadcaster is financed by advertising, the primary group of users it chooses to please tends to be advertisers nor viewers. There may or may not be conflicts between them. Thus viewers like better programmes, and, since they attract more viewers, so do advertisers. But while viewers may prefer short 'commercial breaks', advertisers may prefer longer ones. In some jurisdictions, regulators step in to set a limit on advertising minutes per hour. This argument still has salience, when it relates, for example, to strategies employed by social media to keep their adherents online – witnessing more personalised advertising .

Economic regulation of the AV sectors to prevent monopolisation and protect consumers.

1.3) Protecting Thai AV consumers from broadcasters' monopoly power, now and in the future.

Reverting to the issue of monopoly power in the current Thai AV sector, we first consider its present prevalence. The AV sector is complex, as it involves a lengthy value chain comprising many different production, delivery and retailing processes each of which can be accomplished in many different ways.

It is thus important to assess the level of competition at every stage separately, and also ask if a firm can gain market power, as well as possibly reducing costs, by vertical integration – ie operating in a number of successive stages.

The simplest representation of the AV value chain comprises three elements –

- Programme making: in Thailand or abroad; in different genres; TV programmes or films; commercially generated or user-generated. It is easily to imagine how such markets might be competitive. Also easy to see why the Thai government might want for industrial policy and strategy reasons to promote Thai content.

In our view, the threat to competition emanating from firms engaged in this activity is currently limited, but it is possible in the future that a firm with market power in the third element identified below (as a hypothetical example, Netflix, as a major buyer of content) may be able to distort the market.

- Programme delivery: this can be accomplished by many routes, including: over the air terrestrial delivery (DTT); use of geostationary satellites; cable networks; fixed telecoms networks, including fibre networks; mobile networks; increasingly, low earth-orbiting (LEO) satellites.

The relative importance of these changes over time is significant as some technologies permit only broadcast of pre-programmed, or linear, scheduled TV; others are interactive, offering on-demand viewing. In our view the greatest questions about market dominance related currently to the market structure in Thailand of the fibre network market and of the mobile network market, each with two large operators.

This creates a risk to consumers of higher prices from high costs in this element of the value chain being carried over into the retail audiovisual sector. Also, if these operators enter another sector in the value chain (for example that of content production) they may be able to distort the market there, in favour of their own content – a verticalisation effect.

- Retail broadcasting: this comprises the market in which broadcasters compete for the attention of viewers, deploying programmes which are either made in-house or acquired, and which are delivered by customers' choices of the reception method. A key recent global innovation in this market is the emergence of streamers such as Netflix, Amazon Prime, Disney+, HBO, or VIU which allow availability of programming OTT (over the top) of, say fibre, mobile and (prospectively) satellite networks, on demand by individual consumers rather than solely at the time chosen in the broadcaster's schedule, as is the case with 'linear' channels

In our view there is a feature of streaming markets which merits some concern about their future structure. Streaming exhibits increasing returns with scale, as the streamer (whether financed

by subscriptions or advertising) with the largest market share in terms of users usually has the most free cashflow to go to the programme production market with - and buy the best products, or hire the most talented programme makers. (This fact is already being reflected in increased concentration shown in streaming market share data in other jurisdictions.) Moreover, in Thailand as elsewhere, streamers offer many diverse products, based on their predominant language, focus on genres and means of finance (ads or subscription). In other words the relevant market over which the competitive battle is fought may be a specific sub-set of all streaming market segments.

In summary, there are two risks of harm associated with the firms already mentioned in the above. The first already noted arises from the two-firm (duopolistic) market structures in the fibre and mobile delivery network markets. These risks obviously apply to customers of other communications services than audiovisual services, but as noted above they may extend to distortions in the retail broadcasting markets. Ways of reducing or counter-acting these risks are known to telecommunications regulators, in Thailand as elsewhere. It was also noted that the risks from the above-noted market structures may extend to the retail broadcasting market if , for example, network operators choose to give advantages to their co-owned streaming business over competitors.

In both cases it is desirable that NBTC monitors the performance of the relevant market. In the case of the fixed and mobile duopolies it should consider whether it is appropriate to follow the example of other countries and investigate whether it is fitting to require one or, normally, both of the operators involved in each market to make its network delivery products available on a **wholesale basis** to its upstream (programme-making) or downstream (broadcaster) competitors. This has been accomplished in other jurisdictions as a way of opening up wider communications markets.

Our conclusions from the analysis so far is that at present, from the stand point of monopoly abuse, the traditional Thai AV sector does not appear to exhibit major departures for the standard of being 'workably competitive.' But there are concerns which merit careful monitoring, and consideration, even at this stage of hypothetical remedies. The previous era of monopoly in the Thai production market appears to have passed - especially as global players become more dominant

The focus of the above discussion has been concerned with the possible abuses of market power throughout the whole value chain. As far as the second aspect is concerned, of protecting consumers form harmful content on conventional linear or on-demand broadcast channels, we

have not been made aware of major problems within the current regulatory regime and so assume they are not significant.

The next section, however, shows that there are major changes in the composition of the audiovisual market in Thailand and elsewhere, as a result of the emergence of dominant global digital platforms, including particular those operating audiovisual services or facilitating their upstream services.

1.4) New players in the Thai Audiovisual market: social media and other digital platforms and their current and expected impact.

Five years ago, TikTok had limited market share and Facebook users were primarily engaged in posting for an audience of friends and family or (to a lesser extent) consuming news. TikTok's major success in populating its network with short user-generated AV products then led Facebook to do the same, so than now they comprise the majority of time spent viewing on that network too. And, significantly, the algorithm used to present material to a user is said now no longer based on in part on what each user's correspondents consume, but solely on the preferences exhibited by the individual user. Given the many hours of Facebook use by younger Thais in particular, this has a major effect on the AV market. It has also allowed Facebook to increase its market share (and hence capital value) in digital advertising in Thailand as elsewhere.

Other global digital platforms also impinge on the Thai AV market, at various points in the value chain. Google invests heavily in data centres and under-sea communications used by streamers active in Thailand; it also owns the very popular sharing platform YouTube; and it is heavily involved in the so-called global 'adstack' by which means personalised data on the interests of consumers of digital services (including its own search engine) are sold to advertisers keen to have contact with viewers who are most susceptible to ads of their products and services. Amazon too is active in both data centres and the cloud (which increasingly impinges on the telecommunications sector), and itself owns streamers in many jurisdictions. Microsoft (while not directly active in Thai AV, apart from selling its games) also has major investments in datacentres and cloud services, with AIS and Singtel.

These multifarious activities undertaken by many of the world's most valuable companies in often highly concentrated individual markets raises issues of how they should best be regulated, in the interest of controlling their market power (the scale of which is manifest) in and protecting consumers. The options are either to use currently existing or new laws or regulations covering

particular markets, or, alternatively, whether to introduce bespoke regulation of the dominant platforms alone.

In the case of the current Thai AV market, where traditional (for example DTT) broadcasters and newer streamers coincide with platforms engaged in the market, there is potential for abuse for the latter to abuse their market power, and make excessive profits, in a way which avoidance taxation in the country where the revenue is earnt. This arises when profits made from the sale of advertising slots on, say, Thai platforms are not subject to Thai profit taxation, as the purchase and sale of the spots is accomplished outside the country (typically in a low tax country).

In the case of consumer protection, however, there is mounting evidence all over the world that the operation of social platforms exhibiting AV products may expose vulnerable customers to harmful material. In the form, say, of pornography, violent material, falsehoods, material on self-harm.

Most of the AV products on display on social media are self-generated, rather than made available by broadcasters: (exceptions are short previews of broadcast programmes advertising their presence on other often licensed media). This means that they are not subject to broadcast regulation or in some cases even prior inspection. Accordingly, the risk of the availability of harmful content is vastly enhanced.

This circumstance has led the European Union to pass a Digital Services Act, applicable to the largest digital platforms, which came into effect on 2023. It builds on a number of clauses in the same jurisdiction's E-Commerce Directive 2000, which established a special liability exemption regime for online intermediary services. The core of this provision was to eliminate in certain circumstances the liability of a hosting intermediary for material uploaded by a user when the intermediary does not have knowledge of illegal activity or information. This relieves it of the obligation to monitor the legality of all material it stores, but not the obligation to remove it when is so apprised. Further measures were adopted in the EU after 2000 to regulate the moderation of specific types of online content, beginning with racist hate speech in 2008, and then a broader category of hate speech in 2016; also covering child sexual abuse material since in 2011, and since 2015 a variety of measures against terrorist content.

The DSA now provides a graduated set of rules for different types of hosting intermediaries. Some apply to all; further provisions apply to online search engines and online platforms (which display information to the public at the request of their service recipients); yet more apply to very

large platforms or search engines, with at least 45 million active monthly service recipients in the EU.

The very large online platforms and search engines identified in 2023 were required within four months (amongst other things) to have a compliance function with specified powers and resources, to publish their reports on content moderation, and to allow investigations which may involve inspections of business records and of algorithms.

Supervision and enforcement are performed in each Member State by a Digital Services Coordinator, unless the Member State concerned has assigned certain specific tasks or sectors to other competent authorities. The maximum penalty which may be imposed for a failure to comply with an obligation laid down in the Act is 6 % of the annual worldwide turnover of the provider of intermediary services concerned in the preceding financial year.[391]

The European Commission started in July 2024 a proceeding against the messaging site for bulletin posting now called 'X' (formerly Twitter) for failing to take adequate steps to take down false material, which could cost it a significant fine. This EU act was accompanied by an even more important measure, the **Digital Markets Act** which addresses problems associated with abuse of market power by the large global digital platform, including those mentioned above. these are described as gate-keepers in the digital sector.

One of the features of the DMA and DSA is that it may, as an early self-contained piece of legislation, encourage emulating by other countries, which know that the global platforms concerned are already required within the EU to adapt their practices to observe it. Brussels legislation in online services has been the basis for global regulation before. Countries as far apart as Brazil, India and Korea have been considering forms of the DMA and DSA.

As described by the European Commission, 'the Digital Markets Act introduces rules for platforms that act as "gatekeepers" in the digital sector. These are platforms that have a significant impact on the internal market, serve as an important gateway for business users to reach their end users, and which enjoy, or will foreseeably enjoy, an entrenched and durable position. This can grant them the power to act as private rule-makers and to function as bottlenecks between businesses and end users. The Digital Markets Act aims at preventing gatekeepers from imposing

[391] *Digital Services Act*, Articles 41, 49, 52.

unfair conditions on businesses and end users and at ensuring the openness of important digital services.'

The core platform services subject to regulation are chosen on the basis of certain shared characteristics, including: economies of scale or scope; network effects, including indirect (two-sided) effects; the possibility of user lock-in and lack of multi-homing, vertical integration; and data-driven advantages.

The ten chosen platform services are: online business to consumer (B2C) intermediation services; online search engines; online social networks; video-sharing platform services; number-independent interpersonal communications services; web browsers; virtual assistants, cloud computing services; operating services; and advertising services offered by a provider of any of the above. There is a procedure for adding more services.

The three criteria for qualifying as gatekeepers, all of which have to be satisfied are:

- A significant impact on the EU internal market; an annual turnover of €7.5 bn or market capitalisation of €75 billion, with activity in at least three Member States.
- Control of an important gateway, with more than 45 million users in the EU and 10,000 active business users.
- An entrenched and durable position; applies if end user and business user thresholds have been satisfied for three years.

In September 2023, the EC announced that six gatekeepers were designated under the DMA: Alphabet, Amazon, Apple, ByteDance (owner of TikTok), Meta and Microsoft. Twenty-two core platform services were designated.

A gatekeeper can be made subject to up to 22 prohibitions and obligations. **The 'black' list of nine,** mostly prohibitions, are supposed to be self-explanatory and self-executing. **A 'grey' list of 12** may need to be specified by the Commission separately for each gatekeeper.

These (both black and grey) can be described as variously seeking to achieve the objectives of transparency (for example, price transparency for ads.), the prevention of unfair leverage (no self-preferencing), facilitating user mobility (allowing the un-installing of apps and data portability) and opening up platforms and data.

One of the key features of the Act is that it is a form of 'pro-competitive regulation' which is also expressly designed to reduce the market power of the gatekeepers. It does this by requiring gatekeepers to interoperate with competitors, which might include the possibility of a requiring

Facebook to permit a customer on another social media network to exchange messages with a customer of Facebook. This is an example of a 'horizontal' interoperability obligation for gate keepers providing number-independent interpersonal communications services such as messaging services. Within 6 months of the designation decision, interoperability should be available for text-messaging and the sharing of images etc. between individual users. After 2 years this should extend to group chat, and after 4 years to voice and video calls.[392]

The DMA also includes, amongst other things, separate provision of 'vertical' interoperability under which gatekeepers must provide 'effective interoperability with the same hardware and software features accessed or controlled via the operating system or virtual assistant as are available to services or hardware provided by the gatekeeper.'

The European Commission will play the pivotal role in the implementation of the Regulation. It can take individual decisions – designating gatekeepers, imposing obligations on them, where appropriate sanctioning them. In these and other respects it is responsible to the European Parliament. The new regulatory function will be discharged by a task force composed by commission staff. The plans envisaged that it would employ 80 people.

The Commission can impose administrative fines of up to 10% of global turnover (20% for repeat offenders) on gatekeepers' infringements of their obligations or prohibitions. It can legally separate an offender's business units. And it can in certain circumstances prevent a gatekeeper from making an acquisition.

Member States' competition authorities and certain regulators (of communications and data protection) will support the Commission in monitoring performance and in the enforcement process.

It is likely that the full implications of the Act will gradually unfold as cases are brought by the Commission and any appeals to the European courts are heard.

Thailand's future regulation- the move into OTT regulation for all sizes of platform

[392] How these obligations might be implemented is discussed in M Bourreau and Jan Kraemer in *Horizontal and Vertical Interoperability in the DMA*, CERRE, 2024.

Thailand has already taken steps to address the problem of regulating digital platforms through the 2023 Royal Decree on the Operation of Digital Platform Services Businesses that are subject to Prior Notification, B. E. 2565 (2022).

The Decree affects digital platform services which are managing data in order to act as an intermediary, connecting operators on digital platforms, consumers and users through a computer network for the purpose of electronic transactions, with or without a service fee.

Such platforms are sometimes referred to as 'two-sided' platforms - for example a search platform such as Google which, as well as responding to search requests without charge acts as an intermediary between consumers using the search engine and suppliers of products or services which choose to advertise on the platform. All such platforms have to notify the ETDA of their brief information This applies to qualifying digital platforms operating in Thailand, whether in domestic or overseas ownership. The data relate both to the operator of the service and to its nature. Separately, certain information must also be supplied to users of the service.

Additionally, digital platform services which are large in revenue or population served, or that pose risks or potential harms to the public, or on sensitive sectors of the economy, have additional obligations. In some cases these include conducting risk assessments, implementing measures to mitigate such risks, and appointing compliance officers. They may also be obliged to support channels for assisting or helping users who have been injured in using the service. In case of infractions, a revocation of acknowledgment of notification may be issued. This should ultimately prevent the digital platform from operating.

This Decree is an important step in the adaptation of regulation to the existence of digital platforms. Like the DMA, the overall focus is on digital platforms producing a range of different intermediary services to consumers. Application of the Decree is largely the same for Thai-owned and foreign-owned companies operating in the territory.

Like the DMA, a distinction is made between all digital services on one hand and on the other 'larger' platforms, operating in Thailand which in the EU are classed as 'gatekeepers', such as the GAFAM group (Google, Apple, Facebook/Meta, Amazon and Microsoft) now supplemented by TikTok,. They have with additional duties imposed on them. It should be noted however, that the threshold in terms of revenues and number of customers is higher, by several orders of magnitude, in the much larger EU than in Thailand. So Thailand could either take the local numbers of users, if these are available, as the threshold for application of the regulation, or use purely global numbers.

A more significant difference is that the EU's DMA has got to the stage of legislating for lists of obligations, the definition of infractions, the mode of investigating such infractions, and the penalties on those, found to have done so. In Thailand this legislation has not been enacted.

We are aware that discussions between the EDTA and NBTC have taken place about how the agencies might work together. In the case of streamers, doubts have been expressed as whether these fall under the appropriate definition of companies required to notify ETDA of their data. It clearly remains for further discussion how the two agencies should address the issue of regulation AV content made available by social media with respect to abuse of market power, consumer protection, and other issues.

An interesting feature of the Royal Decree is its requirement of cooperation among state agencies, arising from the varied and highly significant ways in which digital platforms have obvious major effects on Thai society and the Thai economy. At the top of the governance pyramid sits a Joint Committee of State Agencies, chaired by the Permanent Secretary for Digital Economy and Society, and including other relevant Permanent Secretaries and leading officials, including the Secretary General of the NBTC. Its tasks include providing recommendations and advice both to the Electronic Transactions Commission and the Director of the ETDA, and to other State Agencies and firms affected by the Decree.

Also we understand there are discussions taking place within the Thai government and business, with the regulatory communities, concerning the future of further measures to regulate global digital platforms. In relation to audiovisual sector issues, our view is that such further steps are a sensible precaution in the face of dangers facing Thai consumers in many markets, including several (noted above) which are adjacent or comprise part of the audiovisual sector. We view it as being in the interest of the relevant consumers that these discussions continue, as well as the measures described above which threaten consumers with harmful content. The scenario 3 discusses this point and the solution for a sector-specific structure, suitable for implementing an industrial strategy for growth of the sector.

The Decree expressly notes that the Joint Committee shall have regard to 'the reduction of redundancy face by operators in complying with regulations of state agencies, provision of convenience to operators and users, compensation or remedies to persons who have been injured by the operation of digital platform services businesses , and efficiency in law enforcement (Section 35).' It thus both illustrates how state agencies can come together to regulate processes which widely cross traditional administrative boundaries, and recognises the risk of over-regulation.

1.5) A brief reflection on spectrum policy and regulation and the future directions

In this report we confine ourselves to describing a number of pending conflicts in spectrum assignment in Thailand, which impact its AV sector and are also playing out globally within the international forum of spectrum management at the ITU especially in its World Radiocommunication Conferences (WRC series of meetings).

Transmissions of AV material by DTT broadcasters, geostationary satellite broadcasters and mobile networks all require spectrum. A regime of spectrum allocation and assignment has been in place in conformity with global regulations for many decades in Thailand. Notably it has permitted the multiplication of spectrum-based broadcasting channels and a near- universal diffusion of mobile smart phones in the country.

The balance of spectrum among its major users is about to be disturbed by the two major audiovisual networks having major change thrust upon them:-

- The DTT broadcasters, under the impacts of younger audience preferences for streaming combined with the fixed broadband rollout of two main FBB networks nationally enables that streaming trend to introduce commercial risk and uncertainty for the multiplexes for FTA broadcasting at a time when the mobile sector seeks greater bandwidth in spectrum auctions; the MNOs would be prepared to perhaps pay well for any spectrum band in the sub 1 GHz range, that DTT enjoys currently, as that is prime spectrum for lone distance.
- The threat to satellite broadcasting which the majority of Thai broadcast TV viewers depend on (perhaps 60%). This fixed geosatellite network is endangered by the ITU's IMT programme of taking the C-Band (3.4 GHz and upwards) for mobile, leaving the broadcast satellite industry to move to bands such as Ku and Ka. However, the ITU Region 3 covering ASEAN countries is subject to heavy rain fading at those frequencies (10-12GHz and above). Thus many ASEAN countries have resisted that migration. Moreover the migration costs would be high, as detailed previously, and may only support a poor signal reception. Costs would include the user's transceiver equipment renewal for perhaps 15 million homes, as well as expensive replacement of the space segment with its ground station transponders and launch costs, also requiring reservation of the space slot. Note that these satellite K-bands might also interfere with 5G in the millimetric bands, if the mobile system also uses K-band, for example at a single site for IoT (Internet of Things) applications.

Thus conflicts continue between users of spectrum seeking to provide different services. As spectrum is a scarce resource, development of new spectrum-based technologies (such as LEOs) may require additional spectrum to be found, although if narrow directional beamforming can be assured, LEO spectrum might be shared due to its spatial diversity.

In the case of the C-Band satellite issues, for the sake of the Thai broadcast TV population, it would seem preferable to maintain the current satellite systems in place, at least until 2029. At that point, the various developments considered here, of BVOD platforms, the level of threat of streaming expanding will become clearer, as well as the fate of DTT broadcasting. By then, the promises of LEO interactive services and their pricing for remote users should also become evident, as could the promise, perhaps, of low cost rural broadband networks based on Net Pracharat.

2) Audiovisual Sector Promotion - for industrial policy objectives

The major areas for promotional activity as in the in Scenario 3 are the goals laid out here implemented via two major structures considered in that Scenario:-

- A regulatory body, not just for regulation but for a creative industrial strategy – setting the course of promotion and support in tangible subsidies and promotional actions
- An operational body for following the industrial strategy set by the administrative regulator with its financing, assuring creativity at sector level, education and training for seeding new assets, international festival promotion and new festivals in Thailand and ASEAN, as KOFIC does in Korea and the CNC does in France.

The current situation in the Thai audiovisual industry

Thailand has studio production assets and a skilled workforce in place but set up for a fairly modest domestic market with some successes in attracting foreign co-productions with FDI, especially for scenic sets in feature films and TV travel documentaries. Thailand has a distinctive culture, but one that has been difficult to export, so far.

Unfortunately in creative terms, while having some particular niches, Thai content is not yet at the level of Korea, Japan or the USA or of European leaders such as France, Italy, Spain and the UK.

Script writing is currently poor because creative new talent is scarce, especially compared to Korea, USA, or France. Instead traditional themes are repeated and the possibility of new creative storylines, genres, themes and directions is low. That means genuinely original scripts are rare, with some exceptions.

Specialist creative writing centres are not present – instead Thailand has creative studies attachments to each university - and the essence of most creative writing is that it is not academic.

Where are we going? – And where do we want to be? Creating a new audiovisual sector

In contrast, in other countries with healthy expanding audiovisual sectors the creative landscape is quite different. For instance, France has 10 major film and TV schools with the largest being state funded (including Louis-Lumiére, ENSAV and EICAR, etc) with 21 such TV and film schools in total across France. They teach visual storytelling and script creation, but mixed with image, dialogue, characterisation, as well as production for sound and music, with special effects - across all genres from feature films to documentaries as well as cartoon animation.

- France, Spain and Italy also specialise in technical production and film schools across the country, deliberately to establish regional employment and spread the growth of new studios, with a higher skills base. This Regional investment, not just central, is quite successful in terms of new production, especially for serials, all set in one region that becomes recognisable and promoted (as in France's Mangeville, about Bordeaux, or the UK's Midsomer Murders, about Princess Risborough)
- What Thailand needs is an energetic and flexible industrial strategy for TV and film arts:-
- The industry should become a focus for new audiovisual arts with cultural diversity. That is necessary to reach streaming audiences on a much larger scale than the Thai audiovisual sector has ever experienced before
- Direct public funding of content production, distribution and training in support of a complex collaborative creative process
- Regulation should be coordinated by integrating the major government and administrative bodies that regulate, finance and set policy for the audiovisual industry as France has done (integrating 8 former government agencies as 8 committees that meet weekly). That could be the major promotional advance possible.
- Direction of support for TV and film production via a coordinating industrial body (TAVIC in the Scenario 3 - the Thai Audio-Visual Industry Council)) as Korea and France have – to encourage education of creatives with training of technicians, review and support experimental and high risk projects seeking funding, open and operate new studio facilities if required, manage acquisition of the latest software and technologies.

- One key aim should be to maintain continuity of employment for the workforce, in a sector that is notorious for its 'boom and bust' employment. It should also ensure that intellectual property rights (IPR) are accorded and safeguarded, especially carefully.
- Festival organisation and finance for appearance and promotion at overseas festivals.
- Reuse of Thai production for exports in both Thai streaming and broadcast time perhaps as a quota on percentage of catalogue titles for SVOD and AVOD.
- Extensive prominence rules for general interest services.
- Investment obligations on domestic and international services for skills, education, production and promotion.
- Transparency in advertising, so all players can understand sales and margins.
- Revised regulatory body to focus on AV sector interests integrates 8 previous agencies
- Film schools that specialise in creative writing and new techniques for storytelling.
- Managing costs – globally, today's TV and film industry is also suffering currently from high inflation in costs in the USA – and now also affecting Europe. This is positive for Thailand if it can offer lower cost high quality production and lower creation, production and post-production costs, especially in co-production. The sums are generous. Netflix is spending 17BN$ on external productions globally in 2024 and 2025 will be similar.
- Setting up global production is a major task. The organising body for implementing the industrial strategy – TAVIC- will need a coordinating office for finance, logistics, employment as a one-stop shop for overseas and visiting production executives.
- The outcome should be a centre of soft power for Thailand and its culture – and its people - with their unique emotional intelligence and values.

What is necessary to get there? Six key factors define the promotion necessary

- Policy – an industrial policy for the future in which business and the commercial aspects are driven by the creative talent- ensuring demand and thus investing in supply
- Excellent quality of content – which means high sales
- Regulation that encourages investment, encourages education, encourages inward migration of talent
- An investment policy that enables tax exemptions and returns and an initial financial boost and encourages co-production with Europe, ASEAN, Hollywood, etc
- Organisation with support for new and exciting content – creative writing, new content formats, based on education for effective script writing, for TV and film

- Festival organisation and appearances overseas for promotion of Thai Film and TV.

A Timetable for Future actions

- 2025 - 2026 – create the two strategic bodies – the regulator and operational coordinator
- 2026 – 2030 – finance and support operational expansion, with international promotions.

Appendix 11E: Summary of Presentations at the Knowledge transfer Seminar 13-16 AUGUST 2024

This Seminar was organised to review the future developments in the Thai audiovisual markets, accompanied by presentations on the Thai market trends, lessons from country case studies and regulation questions.

1) Summary of Professor Martin Cave's presentations to the NBTC-organised events 13-16 August 2024 on regulation questions in the Thai audiovisual markets

1.1) Is market power currently being exercised to the detriment of consumers in the audio-visual (AV) sector in Thailand, and is the position likely to change in the immediate in the future?

In other words, is there a deficit of competition in the sector as a result of a firm or firms not being constrained by other firms and therefore being able to behave independently of customers and competitors (and ultimately of consumers) of AV products? The harm suffered by consumers might take the form of higher prices than necessary, poor- quality or even harmful programmes, and failure to innovate.

Answering this question starts with a recognition that AV services are produced using a value chain of several stages, often involving different firms, in circumstances where a competition failure in any one stage would likely be carried through the chain to harm consumers. Thus if programme makers charged broadcasters excessive prices to show their programmes, viewers would suffer.

In this connection, we examined the state of competition in the following three stages:-

- The market for content in the current Thai AV sector;- The programmes are very diverse, ranging from Hollywood movies through soccer games to kids' cartoons. Programmes vary in quality and value to broadcasters and audiences, and prices charged by programme makers in a competitive market vary to reflect this. They may be made in Thailand or imported. Overall, we did not find evidence of any non-competitive behaviour by programme makers in the Thai market. This might change if concentration grew in other stages of the sector, which extended their activities into programme-making (for example a streamer with a large market share in that role).
- The market for content distribution – ie. the delivery of AV services to Thai consumers; This is currently done using many different technologies: DTT, geo-stationary satellites,

cable networks, various internet-based (OTT) methods including fixed (increasingly fibre-based) and mobile networks; and (prospectively) low earth-orbiting (LEO) satellites. A key focus of attention here are the markets for fixed and mobile networks, as (following recent mergers) these are dominated by two firms only. While two firms in a market sometimes compete very vigorously, it must be recognised that competition in such circumstances can be muted. We there for recommend that NBTC monitors these two markets going forward, with respect to the competitive interactions observed, the returns achieved, and the various dimensions of customer experience. Since both the large mobile operators are also engaged in the retail streaming market (see below) opportunities may exist for them to assist their affiliated participant in this market, thus increasing their market power there. This too should be monitored.

- The retail market for AV services;- This is a rich market in Thailand, comprising linear (ie. scheduled) and on-demand programming (with the latter growing fast and the former in decline), financed both by subscription and by advertising, and delivered by all the distribution technologies noted above. In relation to internal competition among streamers, it has been observed that there are increasing returns to scale: a streamer with more customers generates more revenue which it can use to procure better programmes, while the opposite is true of a streamer with fewer or declining customer numbers. At the same time, the streaming market like other retail markets may have competitors which are diverse in terms of the genre and language of programming offered. In these circumstance we recommend that NBTC monitors this market going forward.

A further feature of retail markets for AV services in Thailand is that similar providers are often regulated in different ways. Thus DTT retail companies are highly regulated, while satellite retailers are less highly regulated. Retailers are variously affected by 'must carry' and 'must offer' rules. These differences may be justified, but it may be useful for NBTC to re-examine the reasons for such differences of treatment, in order to check that the reasons which historically may have justified such differences still pertain. Otherwise the level of competition in the sector may be unnecessarily constrained, by granting benefits to or imposing handicaps on broadcasters with similar characteristics.

1.2) How should Thailand regulate digital platforms offering OTT AV services - the "new kids on the AV block"?

In recent years, first Facebook and more recently TikTok and other platforms have offered their users a diet of often self-generated but also professionally-generated AV materials, algorithmically offered to users in pursuit of keeping them online and susceptible to the personalised advertising shown on the platform.

It is also note-worthy that other very large global platforms such as Google, in its capacity as owner of YouTube, and Amazon, Google and Microsoft as providers of data centres, undersea cabling, programming and otherwise, are heavily involved in the AV sector around the world.

In other jurisdictions, notably the European Union, specific new legislation has been passed directed to the ex ante regulation of such very large global platforms both with respect to competition issues (the EU Digital Markets Act 2022), and to deal with consumer protection and other issues (the EU Digital Service Act 2022).

In Thailand a Royal Decree on The Operation of Digital Platforms was issued in 2023, and a regulator, the Electronic Transactions Development Agency is now in place. The ETDA is only empowered to regulate video sharing platforms (YouTube, TikTok, etc) and not video on demand (VOD) platforms that offer content streaming. These developments in Thailand and abroad are also discussed elsewhere in the report.

These circumstances suggest that an appropriate way forward on the treatment of digital platforms should be sought by inter-regulator discussions and in the longer term by intra-governmental discussion over how to address these problems holistically, as they are of international dimensions when it comes to monitoring, regulating and enforcing actions.

2) Professor Damian Tambini

Professor Damian Tambini presentation: Lessons from the Country Case Studies

Knowledge Transfer Seminar 13-16 August 2024

Overview of the Case Studies

Globally there is a transition towards VOD - on demand programming: to follow user behaviour, creating new business models, technical and commercial enablers and investment. This is an irreversible and universal behaviour shift - but old models never really die – and a wide range of new models use existing assets – especially in the fixed infrastructure and spectrum. The impacts are growing dominance of global players which has implications for domestic content and protecting the public interest. That requires a regulatory and policy toolkit: defining the role of

legislation, regulation and public policy. The focus for this new regulation is on legislation from the EU as it offers a new approach to managing the major players in streaming media and the online platforms that control AV media (Google with YouTube, Amazon with Amazon Prime and AWS, Meta/Facebook with social networking etc)

Consumer behaviours underline this with an irreversible (and accelerating) shift across the world towards streaming, especially for younger audiences – an irreversible trend which is variable by country but a general trend. It depends on the importance of contextual factors such as demographics (ageing) and security.

Technology enables the consumer uses and gratifications

Broadband networks facilitate the streaming trends. The key technology for streaming is fixed fibre broadband (FBB) across the whole country which brings convergence of mobile, fibre and content bundles (especially in Thailand). The role of live TV remains, for listed events – eg sports and for emergency resilience. Mobility– for media consumption on the go - has a variable relevance. Convenience – choice of time and consumption is the key VOD driver. For streaming technology there has to be a history of investment - in data centres for cloud infrastructure and for 'OTT hubs' for webservers. Note that spectrum issues for mobile and satellite may set limits. Thus future directions may depend on spectrum demand: new services, possibly, gaming with the metaverse [Content quality in the streaming world of choices has to have a differential of cost per user hour between domestic TV and streamers is sometimes high. Looking across the case studies we see different drivers and market conditions:-

Korea: competition without regulation so far but DMA/DSA under consideration

Korea's active industrial policy is used to promote infrastructure and investment. For Korea, there is a key role of infrastructure – as it is tied to telecommunications export policy for FBB and mobile networks, with devices. Korea also encourages intense open competition based on its Chaebol financing. It uses clustering across creative industries (especially gaming). But government applies a benign neglect to the creative clusters – so it does not interfere in the creative media process. Being Korea, the next generation horizon is technology-based: 4K displays, 5G, gaming technology but major directions in creative media are left unrestricted.

Japan: moving the cultural castle

Traditionally Japan has relied on the isolation by language to build a large and self-reliant domestic content market that effectively enforces quotas. Its PBS tradition with broadcaster NHK

Public service has established PBS prominence and is still popular with an aging population. But it has brought some journalism conflicts over political openess However global streamers have breached market autonomy e.g. Harry Potter with the Netflix entry means it is currently the most watched series (in English).. However the AV sector has magnificent high quality Manga content for export and Disney has signed worldwide distribution rights for Studio Ghibli memes giving niche export advantages in selected fields. It current challenge is managing globalisation from its position of isolation traditionally.

The UK: protecting the crown jewels - PSB?

The UK with the BBC as the dominant public service broadcaster has strong traditions of quality of service with prominence given to that role. It has OTT regulation based on the EU acts – the DSA and DMA - and active competition regulators and a fairly active communications and media regulator that is now expanding its market supervision and content surveillance workforce by the hundreds for monitoring the GAFAM global platforms with enforcement by market shaping regulation. Platforms operate within co-regulatory content regimes that attempt to provide viewer protection with OTT regulation. The UK is endeavouring to expand the AV industry but the industrial policy used so far is weaker than the leading countries.

France: Ensuring demand; investing in supply

A long history of subsidies and quotas for European and French production has been successful in film and TV video with some of the highest quality content being made today – so that also broadcast linear TV time is successful, being protected by content, that has a percentage of the catalogue for VOD. France uses extensive prominence rules for French general interest services, with investment obligations on domestic and international services and direct public funding for content production, distribution and training. Transparency in advertising trade is highly advanced and is the model used for the new European rules on sharing advertising data.

Australia: Crocodile infested markets

Australia has long tradition of cultural protection, with quotas. It has subsidised Government support for 'Ozzywood', an integration of Australian production sector with Hollywood. However it has the highest global penetration of Netflix 65% because the content of linear TV broadcasting is so low. That emphasises the Importance of quality differential to domestic TV as driver of growth. It also has conflicts over content with the global platforms with a lobbying battle by strong press

and broadcasting interests leading to a Novel policy approach to platform – media relationships (news media code).

Malaysia: Mixed market with state participation

Malaysia has state investment in the audiovisual infrastructure. Its broadcast TV market is dominated by a TV Duopoly – so there may be competition problems now and future. On the regulatory side, there are questions of whether the OTT players are bypassing strict broadcast decency rules. However, it does have some very original content (example Three Widows Against the World, Astro/ Netflix 2022)

Comparison Overview of the selected markets: legacy, context, drivers

Parameter	Australia	S. Korea	France	UK	Japan	Malaysia
TV market	Declining ad funded TV	Flat legacy TV revenue	PSTV + strong commercial	PSTV + strong commercial	PSTV+ commercial	Duopoly dominance
Audience trends	Rapid move to OTT SVOD – dominant as in majority of homes	Shift to SVOD/ AVOD/ Aging population	Enduring popularity of linear TV + OTT take-up	Enduring popularity of linear TV + OTT take-up	Enduring popularity of linear TV + OTT take-up/ Aging population	Enduring popularity of linear TV + OTT take-up
Take-up of foreign VOD	Highest: >60 % of homes	High	High	High	Med	Med
Domestic commercial VOD?	NO	YES	NO	NO	YES	YES

Comparison Overview: Regulation policy for 6 countries and one regional market, the EU

Parameter	Australia	S. Korea	France	UK	Japan	Malaysia	EU
Competition approach	Monitor/ media code	EU DMA approach (draft)	DMA Thresholds	DMA-like (market status)	DMA like system.	Sector-specific multimedia	DMA Thresholds
AV support from Govt	+	+++	++	+	+	-	+
Quotas	++	-	++	+	-	-	++
Key policy debates	TV quality industrial policy, social cohesion	Soft power, AV trade	Child protection, skills, production	Child protection social cohesion	Child protection social cohesion	Child protection, cultural values	Industrial Policy, democratic values
Platform/ moderation	Co-regulation	Self regulation	Co-regulation (DSA)	Co-regulation (DSA – type)	Increasing co-regulation	Self regulation	Co regulation (DSA)
National streaming platform	-	-	-	I-player/ Freely	-	MYTV	-

Lessons from the case studies – potential dangers for Thailand

- The remaining linear TV users that do not have access to AVOD or SVOD may be left behind in quality content and access to wider cultures, experiences and digital literacy
- That will bring reduced access to lifelong educational programming, quality trusted news and information.
- In particular that would reduce access of citizens to Thai cultural content.
- That may lead to reduced investment in domestic content production sector.
- AND… it is important to distinguish these public goods from calls to protect “channels” or particular companies.

Questions for further discussion

- What are the priorities for Thai AV policy?
- What are the policy objectives for 2030? 2040?
- How to balance social, equity, speech, cultural and industrial policy objectives?
- What are the strengths of the Thai AV sector (that should be protected / enhanced)?
- What are the main threats?
- How best to coordinate the various government agencies?
- If public intervention in streaming is desired, what is the appropriate ownership, distribution and IP/ business model?

Policy and Regulation Overview

– Basic principles, a policy toolkit and policy questions and the new regulation from Brussels

The focus is on managing the global platforms and the streamers for safe, fruitful use:-

- The new platform governance focus is on the EU – possibly a regulatory 'Brussels Effect'?
- Social policy and consumer protection objectives in legacy broadcasting policy
- The Digital Services Act, duties of care and content moderation

Sources of Social Externalities and Public Value in the Audiovisual Sector – setting the basic principles for regulation

▪ Democratic value ▪ Cultural and creative value ▪ Educational value	▪ Social and community value ▪ Global value ▪ Inclusion and equity

The Policy Toolkit used in the AV sector globally

▪ Mission driven industrial policy ▪ Competition, market shaping ▪ Public investment/ tax incentives/ ▪ Culture industries trade promotion ▪ Trade agreements	▪ Intellectual property (IP) reform, enforcement ▪ Public Service, licensing, quotas ▪ Infrastructure, spectrum planning ▪ Clustering

The Key AV sector policy questions for TV broadcast and OTT regulation

▪ Must Carry/must provide ▪ Must Have ▪ Licensing obligations/ categories ▪ Liability regime for content and regulatory obligations	▪ Subsidies ▪ IP protection and enforcement ▪ Trade policy and promotion ▪ Content and export strategy

The new regulatory tools:-

The EU Digital Markets Act- New approach to competition without specific media pluralism provisions – uses ex ante rules rather than ex post court prosecutions – for efficiency

Defined and designated gatekeepers must enable interoperability and refrain from anticompetitive practices including:-

- Self preferencing
- Data re-use
- Subscriber lock-in

EU Media Freedom Act (2024) (EMFA)

Defence of democratic values – based on article 114 of EU Treaty (single market):-

- Protection of independent public media, regulators
- No manipulation of state advertising
- Media rights in relation to platforms (Art. 17)

Media and the VLOPS (Very Large Online Platforms)

- Art 17 EMFA Self declaration of 'media service providers' according to definition and meeting art 6 definition of transparency, reliability etc.
- Rights of appeal with procedural standards against suspension with rights of appeal, transparency etc.
- Structured dialogue on access to media (Art 18)

Preventing media capture

- SLAPPS (strategic litigation against public participation)
- State advertising and other resources
- Media ownership
- Surveillance

- Harassment, intimidation, imprisonment of journalists
- Nomination (psm/ regulators)
- Social/ distribution

Prioritisation of public interest media

- The EU framework creates various forms of direct and indirect pressure on platforms to prioritize public interest media.
- For instance, the DSA risk assessments may lead platforms to prioritize trusted media content.
- EMFA gives new privileges for self-declared media. And a right to receive plurality of independent media (Art 3).
- Audiovisual Media Services Directive (AMSD) – extends 30% quota for European works to video-sharing platforms; permits member states to prioritize works of general interest.

Platform Governance: The EU Digital Services Act

The EU Digital Services Act (also the basis of the UK Online Safety Act) - responds to public pressures on issues such as child safety and disinformation

- Duties of Care
- Co-regulation
- Liability and moderation models
- Quotas and content supports

The DSA and the Media

- Sliding scale of obligations: for platforms, search, very large platforms
- Role of codes of conduct and risk assessment – may create a level playing field by rewarding journalism processes
- Systemic risk – obligations to take measures to reduce this. (For instance Draft Guidelines on Systemic Risk Mitigation for Electoral Processes and Standards for Fact-checking)

New directions on global online regulation and rulings from UNESCO

UNESCO:– **DRAFT** Principles of Platform Governance (“Internet for Trust”)

Duty of care model

Regulation should focus mainly on the systems and processes used by platforms, rather than expecting the regulatory system to judge the appropriateness or legality of single pieces of content" (2022).

Content legality

"Any specific decisions about the legality of specific pieces of content should follow due process and be open to review by an impartial and independent judicial body."

Regulatory Authority qualification

"Ensure that any regulatory authority that deals with digital platforms content management, regardless of the thematic, is structured as independent, shielded from political and economic interests, and has external review systems in place"

3) Summary of presentation by Dr Simon Forge on the Three Scenarios

Summary of the scenarios presentations to the NBTC on the Future of Audiovisual sector - for the knowledge transfer seminar of 13-16 August 2024

Note that scenarios are not detailed quantitative forecasts of the future. More usefully, they are ways of visualising different possibilities, from which choices can be made and so decisions taken for future AV and NBTC policy.

The key conditions are the move of the Thai market towards streaming of content on demand and away from programmed linear TV from the satellite and DTT broadcasters. While the broadcasters are well regulated on content and conditions, the OTT streaming market is yet to have any regulation effectively applied. In consequence, its contents are in not controlled effectively for on-line harms due to fake news, damaging access by minors, piracy, or other practices and content that may hold Thai society to risk.

3.1) How is the Thai audiovisual market likely to develop?

Replying to this question starts with an analysis of the current situation. With the current sources of production, finance and the current chains of distribution in the AV services market globally and nationally and with the regulatory context – it is possible to consider the possible directions and probabilities of those directions. That can provide the drivers of change and the directions for these scenarios.

We thus examine the trajectory in the future of the Thai AV market through three scenarios.

Use of scenarios requires that a basic theme is chosen for each possible scenario and each of the three scenarios follows this pattern. In developing the scenarios, we seek to illustrate the way in which the variable factors in play combine to generate alternative possible futures (including consumer behaviour, technological change, global external players and forces, financing, domestic and international business practice, and especially government policy and regulation).

This should enable the NBTC (and other organisations with interests in the AV sector) to make strategic choices among possible AV futures, within their needs, powers and duties.

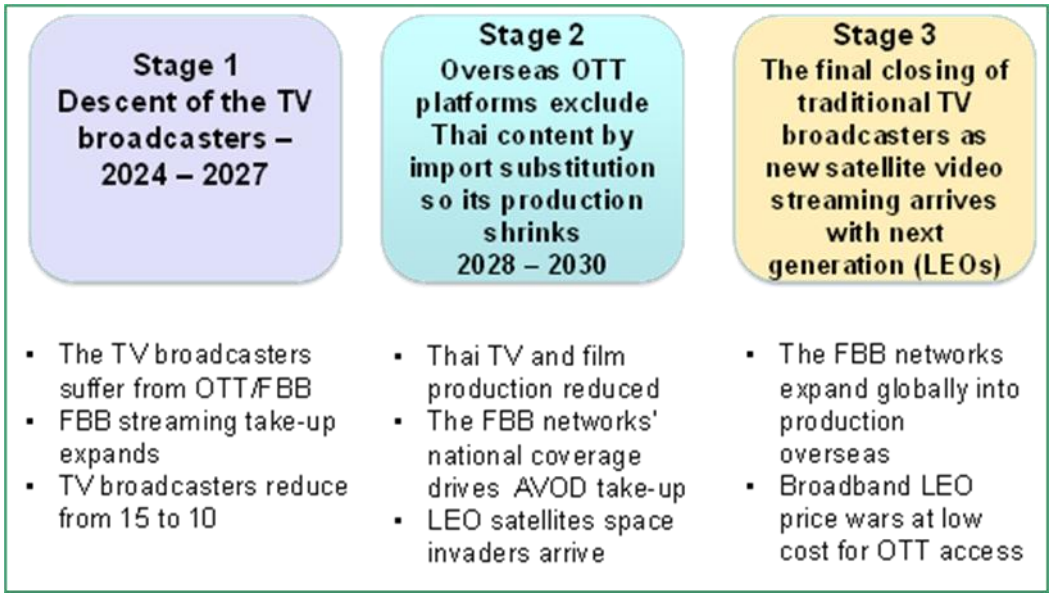
Scenario 1 - Continuing today's status quo in the audiovisual market

The key features of the scenario are a slow deterioration, without regulatory or administrative action, so that events are left to the existing market forces and deterioration is the direction:-

- In this scenario - there is no comprehensive consumer protection for under-age and vulnerable viewers, or for fraud, fake news, hate speech etc.
- Revenues from subscriptions, advertising and use of consumer data gathered in Thailand are never taxed at source and so are exported
- New legislation from overseas for global platform regulation (the DMA and DMS) is never really implemented during this scenario
- The major victims and losers will the poorer members of society, and predominately the elderly, who rely on linear TV broadcast programming
- Eventually imports from the USA, China and elsewhere overtake the whole market support imported content dominates and substitutes for local.
- That implies that the TV broadcasters may eventually fail.
- Thus Scenario 1 is continuing today's status quo in the audiovisual market. The current situation continues, without major intervention by government in the face of the global OTT platforms, whose higher quality content slowly replaces the TV broadcasters.
- While this OTT content may come from the USA and China largely, it is localised for Thai audiences - so it can be directly consumed.
- Much of the content is closely associated with social networking in finding and sampling it (eg on TikTok clips) and user uploaded video clips.
- However the OTT legislation remains weak in the Thai market and there is no international platform legislation, so the global platforms operate as they decide.

Effective recession of the Thai audiovisual industry arrives in 3 phases as there are no supporting interventions, only expanding global and some national market forces:-

Figure 6-28 Roadmap of Scenario 1 – continuation of the status quo shows eventual deterioration:-



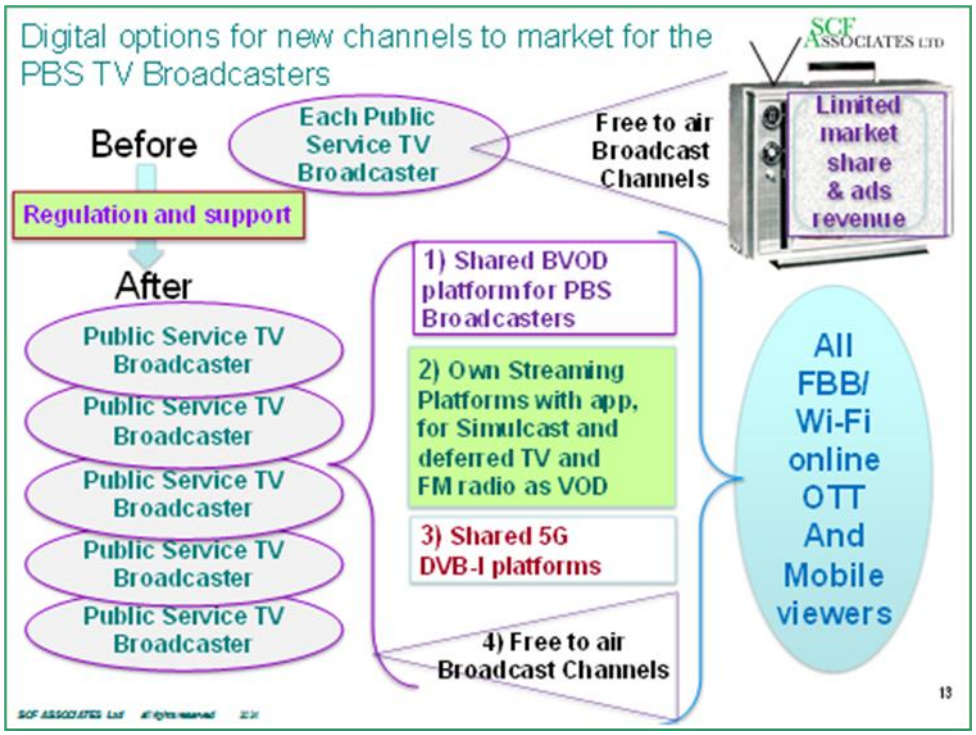
Scenario 2 – A Mixed Market

The key features of the Mixed Market scenario are:-

- The mixed market model illustrates a slow growth 'business as usual' scenario, protected and yet shaped by supportive audiovisual (AV) regulation from the NBTC and other bodies, such as ETDA over 2024 to 2035
- Expects, welcomes and regulates an international set of players, mixed with Thai content producers, and also regulates national OTT streamers, international platforms and streamers such as Netflix, as much as the and TV Broadcasters
- The NBTC and Thai authorities regulate to maintain and enhance the continuing existence of a reasonably balanced, largely competitive, audiovisual sector in the face of new market conditions - redefined by new technologies, the new services and increasing globalisation.
- This scenario depends on the required current standard regulatory interventions to promote advantageous entry for new players, yet to prevent abuses of market power, all the while protecting consumers from harmful social effects of their AV experiences.
- The regulatory regime must ensure that changes do not deprive consumers who rely principally on linear TV with public services broadcasting.

- Also the scenario assumes that the broadcasters would move into streaming using a shared streaming BVOD (Broadcasters video on demand) online platform.
- This would give them a major new revenue stream and would also enable continuation of the FTA (free to Air) broadcast model by satellite or DTT (and also CATV and IPTV).

Figure 6-29 Roadmap of Scenario 2 – Using regulation and industry support by the authorities produces a balanced mixed market so broadcasters achieve eventual stabilisation and growth



Scenario 3 Building the Thai audiovisual industry into a global competitor- A new model for the Thai industry

This scenario is much more complex so we show the thinking behind it, in terms of the steps in the analysis that the SCF method goes through as this should clarify the reasons behind the possibilities in the this far more complex scenario.

Theme

Build a future Thai international TV video and film industry using models of national stimulation from successful overseas examples – especially France and Korea but also some others (Canada) with its own regulatory body and a new industry body for content creation.

Assumptions

- Can have cooperating countries who will welcome Thai content entrants and will cooperate on investment and knowledge transfer

- Able to have a central national planning organisation that stimulates new works and organises their financing
- Can encourage inward investment
- A global market exists with the capacity and appetite to take new (Thai) content
- Thai scripts and creative writing can be improved to the level of international take-up and Thai culture has multiple different facets that will have an international appeal
- Thus Thai content can be suitably enhanced to meet the appetite of a rapidly evolving international market .

Assertions

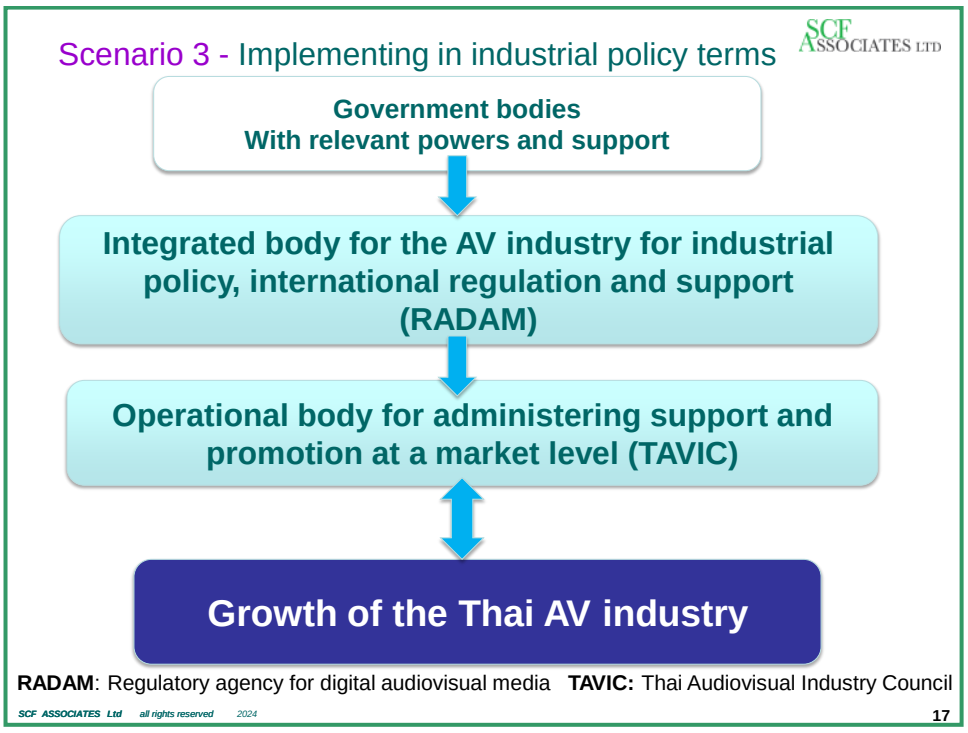
- Can use industrial policy to build an expanding AV sector to compete globally with success
- Can build a stimulating AV-focussed regulatory body from the current dispersed elements along the lines of ARCOM in France that acts as a catalyst for the industry with support, not just confinement to regulatory rules - RADAM: Regulatory Agency for Digital Audiovisual Media.
- Can build an organising central body along the lines of the CNC (France) and KOFIC (Korea) that will stimulate new quality in scripts and all aspects of production to become globally successful - TAVIC: Thai Audiovisual Industry Council.
- Able to find new creative writing talent in Thailand and can also import it (perhaps Hollywood if available talent)
- Can attract suitable professionals as teachers from overseas to develop Thai creative staff in script writing and in latest technologies and for producing, financing and investing techniques
- Thai genres can evolve Manga like or Nouvelle Vague-like with documentaries, shorts, deep and sensitive subjects, etc, as well as wider subject areas than traditional.

Drivers

- Use of a well-structured industrial policy following examples of France and South Korea
- Social and government organisations collectively give support to a new AV central orchestrating body
- Variety of Thai cultures – its past and modern society with its mix of populations – and its culture of highly developed emotional intelligence
- The richness of Thai geography

- Exploitation of financial instruments to fund new production, including tax returns, subsidies for overseas visiting production and creative writing
- Capability to attract new investment for production nationally using the major Thai corporates (Chaebol like)
- Abilities to attract co-development with international partners to produce local and international videos and films
- Can attract suitable teachers for scripts development for new higher level film schools with bursaries and exchanges
- Can build high technology training schools for production and post-production.

Figure 6-30 Roadmap of scenario 3 - the way forward using an industrial strategy to grow the industry



Scenario 3 expects a major organisational change in the AV sector to implement an industrial strategy for its expansion and evolution

- The major changes in the audiovisual and digital landscape require the creation of a new regulator with strengthened and expanded powers especially internationally, for the global platforms with their influence on the AV market and financial profits in the sector. Two integrating bodies are seen as necessary (following examples already operating in other countries)
- The Regulatory Authority for Digital Audiovisual Media, RADAM – acts as the guarantor of freedom of communication and expression in audiovisual and digital spaces, so

RADOM's role is to integrate the various bodies overseeing the market, to ensure pluralism in audiovisual news media and the independence of public broadcasting, while providing economic equilibrium to the sector, and to support new media creations for exports.

- RADAM is an independent public authority composed of a board drawn from the relevant government agencies - appointed by each body, to ensure balance for the democratic and social responsibilities of audiovisual media and online platforms as well as industry support.
- The Thai AV Industry Council – TAVIC - is the policy implementing body for the audiovisual sector which unites the market with the policy setting agency RADAM, as regulator. TAVIC supervises down to AV project level with aid and also more generally with long term development of the production side, promotion, festivals, dissemination of works and the protection of property rights online.

Key messages from the scenarios

- The future of the Thai and international markets lies in an AV market which:-
  - Is turning towards multiple delivery networks for different media - beyond broadcast TV - FBB, mobile 5G and possibly LEOs,
  - Provides OTT streaming with online platforms to deliver content
  - Offers different content by age group
  - These trends are becoming stronger in Thailand.
- Broadcast TV needs support for new content quality and new business models to change and win back advertising revenues
- For an active export market in content, an industrial strategy that drives the market is necessary – shown to be necessary in other strong AV exporting countries.
- This requires an effective organisational structure guided by national policy but with a professional market oriented body for implementation, - close to the needs and trends in the market, that also supports missing creative skills.
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Short and medium term challenges for media policy

- Commitment to a long-term skill building, infrastructure and export promotion strategy for the Audiovisual media industries requires high level and consistent political support across media, industrial and export promotion.
- Successful long term 'soft power' strategy requires governments to commit to a 'hands off' approach to content production, even in government subsidised sectors
- Government support for the TV broadcast industry, as a strategy, following the approach taken by France, Korea and elsewhere (and perhaps in the future under a new government in the UK) for a shared streaming platform for the TV broadcasters, in order to gather a new advertising revenue stream could be applied in Thailand, especially for those who are losing out to streaming that requires a subscription
- Other potential revenue sources through advertising use a 5G broadband channel, with simulcasting to upgraded 5G handsets for the linear TV channels for free.
- Further research on existing level of training and standards of skills in the creative sectors and digital production is necessary to assess feasibility of more aggressive export promotion strategy.

Chaining the scenarios (not always possible) could be the most profitable

Most often scenarios are individual directions that standalone.

But it may be possible to move first to the mixed market model (Scenario 2) on the path to implement an industrial strategy as in Scenario 3.

So Scenario 2 would be a step along the way, to bring in OTT legislation with its full DSA/DMA powers and so move to Scenario 3 with its two new management and promotional bodies and an industrial policy for expansion.