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NO LONGER "OVER THE TOP": EXPLORING THE REGULATION OF OTT SERVICES

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INTRODUCTION

While the development of information and communications technology is an ongoing process that has been in train for more than a century, the last decade has been unusually spectacular and disruptive. With their popularity propelled by increased smartphone usage and availability of wireless broadband, Over-The-Top (*'OTT'*) services, which run over the mobile and fixed networks of incumbent operators, has enabled consumers to become empowered along technological, social, economic and legal dimensions.

Notably, the use of these Internet based platforms and services often directly compete with similar services based on older technologies. For example, services like LINE, Facebook, Skype and WhatsApp that offer voice or video calls over the Internet compete with traditional SMS and voice calls over telecom networks. Online video streaming and TV services like Netflix and online similarly compete with traditional broadcasters and network providers.

Further, these innovative OTT providers have benefited from the massive investments in networks and network quality by mobile operators. The capacity of carriers to build and upgrade their networks, however, is ultimately dependent upon the sustainability of their business models reflected in their growth and profitability. Adding to the challenge for traditional operators and broadcasters to compete is the fact that such providers are subject to sector-specific regulation while providers of OTT communications services are relatively free from comparable regulatory burdens.

In order to unpack the disruption that OTT services have caused, alongside any regulatory concerns that may need to be addressed by national and regional regulators, this paper is divided into five main sections, namely:

(i) Disruption unleashed;

(ii) Definition of OTT services;

(iii) The OTT business model;

(iv) Benefits and disadvantages of disruption; and

(v) Regulatory Issues.

Most of all, this paper acknowledges that regulating both traditional players and OTT providers to achieve the best outcome for consumers requires navigating the trade-off between the significant benefits which OTT services bring to consumers and creating an economic environment that provides operators with the appropriate incentives to continue investing.

DISRUPTION UNLEASHED

The current revolution in technology and telecommunications, variously referred to as *'the app economy', 'big tech'* and *'OTT services',* began with two major events: the first was the August 1995 Netscape Initial Public Offering which valued the unprofitable start-up tech company at US$2.9 billion. This was the trigger for the dot-com boom and the beginning of the mass-market embrace of the World Wide Web and the Internet. The second event was the launch of the iPhone by Steve Jobs in 2007.

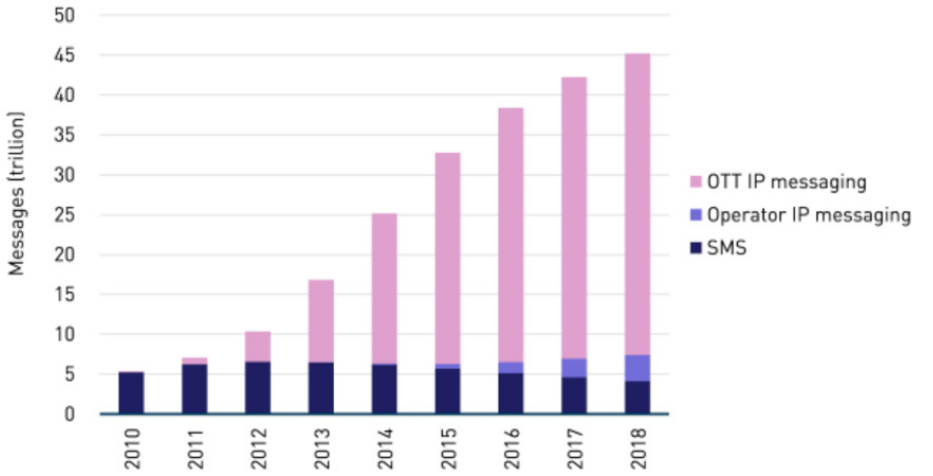
When the iPhone was introduced, only one technology company, Microsoft, was in the top 10 publicly traded companies in the world. As of Q2 2018, Apple is the biggest company in the world. Further, seven technology companies occupy the top ten, together representing almost 80.4 percent of its total value (see Exhibit 1).

Exhibit 1: Biggest companies in the world by market capitalization

2007 4th Quarter		2018 2nd Quarter	
Company	**Market cap $b**	**Company**	**Market cap $b**
PetroChina	724.0	Apple Inc.	909.8
Exxon Mobil	511.9	Amazon.com	824.8
General Electric	374.6	Alphabet Inc	774.8
China Mobile	354.1	Microsoft	757.6
I&C Bank of China	339.0	Facebook	562.5
Microsoft	333.1	Tencent	478.6
Gazprom	329.6	Alibaba Group	476.0
Royal Dutch Shell	269.5	Berkshire Hathaway	464.0
AT&T	252.1	JPMorgan Chase	354.8
Sinopec	249.6	ExxonMobil	350.3
TOTAL	3,737.5		5953.2
TOTAL TECH	333.1		4784.1
% TECH	8.9%		80.4%

It is, therefore, no surprise to observe that OTT services are now causing intense pressure on traditional providers such as telecommunications operators and television broadcasters, as shown in the massive increase of messages sent via OTT IP messaging in Exhibit 2. Further, in 2017, Facebook reached over 2 billion active users world-wide. Together, the social media giant and its sister companies WhatsApp and Instagram have more subscribers than many of the largest global telecom providers (AT&T, Verizon, Vodafone, Telefonica, Orange) combined.[1]

Exhibit 2: Messages sent via mobile handsets by service type, worldwide, 2010-2018



Source : Analysys Mason, 2018.

[1] From www.neotelis.com/news.php?id=120

Similarly, commercial free-to-air television is experiencing widespread falling advertising revenues, as the video streaming revolution including players like Netflix and iflix deliver on-demand choices to televisions, tablets and even smartphones. The difficulties that traditional broadcasters are experiencing has prompted the Association of Digital TV Operators in Thailand to urge the government to provide timely financial relief to terrestrial digital TV operators, by eliminating the rental fees of broadcasting networks and waiving the remaining licence fee payments.[2]

Consequently, it can be said that while central bankers and national leaders have struggled with a deep financial crisis and stagnation throughout the last decade, the fervent demand for smartphones and tablets the innovative OTT services that they enabled, has been a rare force for growth. These trends reflect a large and unusually rapid disruption in global industrial structure and economic activity, with many claiming that this revolution still has a long way to run.

DEFINITION OF OTT SERVICES

The use of the term Over-The-Top (OTT) stems from the fact that OTT communications bypass traditional network distribution approaches and run over, or on top of, core Internet networks. While there is no single, generally agreed definition, OTT services can be viewed as online services which can potentially substitute traditional telecommunications services such as voice telephony and message (SMS) services.

These services are grouped into three broad groups, namely:

1. Voice over IP (VoIP) – for voice calling and video chatting services;
2. Instant Messaging services – chat applications; and
3. Video and Audio Streaming services.

However, it can be argued that OTT services should no longer be considered *'over the top'*, but rather as an integral part of the sector and its offerings. Importantly, none of the Internet companies call themselves *"OTT players"*, rather describing themselves as online service providers or Internet companies offering a wide range of telecommunications apps or services.[3] In addition, online service providers such as Microsoft and Facebook are now themselves significantly investing in and utilising their own internet infrastructure to provide

[2] From www.bangkokpost.com/news/general/1367463/digital-tv-cries-for-help

[3] See further discussion at http://disruptivewireless.blogspot.com.au/2014/11/retiring-term-telco-ott-digital.html

the online services they offer to customers.[4] Further, as online services/OTT communications capabilities get absorbed into most applications and websites as features, with WebRTC or other Application programming interface (APIs),[5] any such distinctions are arbitrary and arguably misleading.

THE OTT BUSINESS MODEL

OTT providers base their strategy around reaching as many users as possible, offering them a compelling free service, locking them into it to the extent possible and then trying to monetise it/fund its continued deployment via five main approaches:[6]

(i) Advertising. Examples include inter alia Google, Facebook, Twitter, WeChat, Snapchat, ooVoo, Skype and others;

(ii) Connectivity to PSTN (Skype make most of their money out of connectivity to PSTN and an operator's numbering scheme);

(iii) Value-added services such as multipoint video calling, stickers, mobile money etc; (examples include inter alia WeChat, LINE and ooVoo);

(iv) Initial Public Offering (IPO) (e.g. Snapchat[7]);

(v) Cashing out upon acquisition (e.g. Viber with its acquisition by Rakuten[8]).

Critically, the disruptive power of big tech and OTT services arise from two key characteristics: ubiquity and scale. By 2017, computing hardware and energy storage in the form of lithium ion batteries had reached a level that made possible a mobile device for the first time which had many of the general capabilities of PCs and laptops. This ubiquity was also aided by widespread wireless connectivity and the massive investments in mobile broadband by carriers over the past decade. Further, economies of scale mean that technology companies have the capacity to service global scale marketplaces at every decreasing per unit costs, enabling companies like Google to respond to each search request at a lower cost, and Facebook to accommodate another user at decreasing per-user costs.

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[4] From https://mashable.com/2017/09/22/microsoft-facebook-marea-cable/#aAZ40Gn6tkqu;

[5] This is especially as globally fixed operators begin switching off their PSTNs (e.g. include Telekom Malaysia, Australia with the NBN Co etc.) and mobile operators move to VoLTE and similar services. As at February 2018, some 217 operators in 102 countries investing in VoLTE deployments, studies or trials, including 134 operators that have commercially launched HD voice service using VoLTE in 65 countries the path to VoLTE deployment is rapidly occurring. See www.gsacom.com

[6] This excludes Apple which is a hardware company even though its services business is rapidly expanding. See www.businessinsider.com.au/apple-services-business-revenue-non-iphone-chart-2017-2

[7] See www.forbes.com/sites/rogeraitken/2017/02/17/is-snapchat-parent-snaps-20bn-ipo-fair-value-or-overpriced/

[8] See www.bloomberg.com/news/articles/2014-02-17/rakuten-falls-on-900-million-deal-to-acquire-viber-message-app

BENEFITS AND DISADVANTAGES OF DISRUPTION

Given the above, it is no surprise that OTT services have been described as a source of creative destruction, with traditional business models being squeezed by the dual threat of declining users and the migration of advertising to online outlets.[9]

Specifically, in the telecommunications sector, OTT services are eroding core operator revenues that are needed to reinvest in critical broadband/ICT infrastructure whilst using their own network. Certainly, it is difficult to charge customers a certain amount per text, for example, when Facebook Messenger or WhatsApp is *'free'* with a data plan. This is a concern as OTT providers and consumers have benefited from the massive investments in networks and network quality by mobile operators. However, the capacity of carriers to build and upgrade their networks is ultimately dependent upon the sustainability of their business models.

Adding to the challenge for traditional operators and broadcasters to compete with these new innovative offerings is the fact that such providers are subject to sector-specific regulation while providers of OTT communications services are relatively free from comparable regulatory burdens.

On the other hand, this innovative disruption has revolutionized the world and empowered consumers. By the year 2021, there will be 4.6 billion global internet users and 27.1 billion network devices and connections.[10] As shown in Exhibit 3, global mobile data traffic is expected to grow to 110 Exabytes per month by 2023. Total mobile data traffic in South East Asia & Oceania is expected to grow by eleven-fold by 2022, with smartphone uptake being a key driver.[11] Similar trends have been observed in Thailand, with over 83% of Thai consumers owning smartphones and using mobile internet, on average, 2.3 hours per day in 2017, up from two hours in the previous three years.[12]

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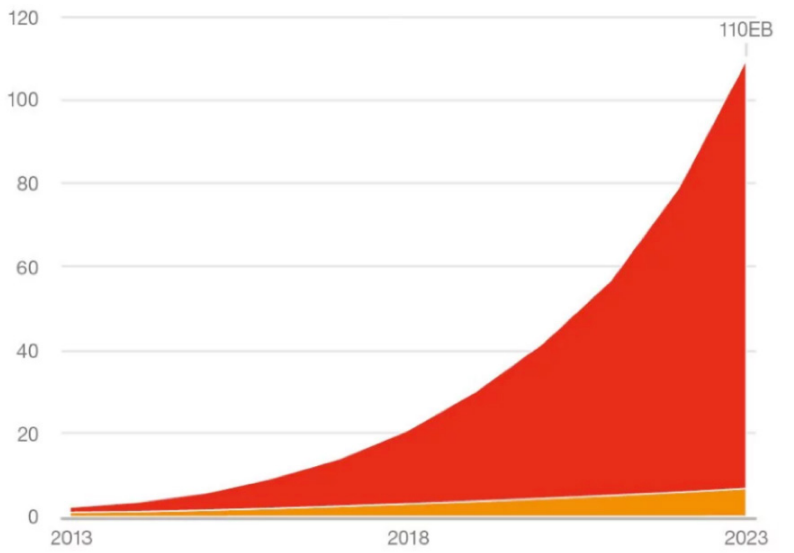
[9] From www.accenture.com/us-en/_acnmedia/PDF-50/Accenture-Bringing-TV-to-Life.pdf. One example, is the current receivership of Channel 10, Australia's third terrestrial television network. See www.news.com.au/finance/business/media/network-ten-secures-30-million-funding-package/news-story/a9603b3e949eb4bee509c29574f9e094

[10] From www.cisco.com/c/en/us/solutions/service-provider/visual-networking-index-vni/index.html?stickynav=1

[11] From www.ericsson.com/sg/en/press-releases/2/2017/6/ericsson-mobility-report-2017-sea-oceania

[12] From www.pressreader.com/thailand/bangkok-post/20171213/281908773489359

Exhibit 3: Global mobile data traffic (Exabytes per month)



Source : Ericsson Mobility Report November 2017.

The widespread use and reliance on OTT services reflected in these trends has enabled consumers to become empowered along technological, social, economic and legal dimensions. Social media, especially, has simplified and decreased the amount of effort we need to put into communicating with each other.[13] It has particularly revolutionized the way we interact, arguably, for the better – democratizing power and giving voices to long marginalized communities ensuring digital inclusion. Platforms such as Facebook, Twitter and Instagram have broken information monopolies and curtailed censorship around the world by making it easy to connect with anyone.

At the same time, this unprecedented level of exposure comes with new hazards and regulatory issues that need to be managed in order to safeguard the quality of the consumer's online experience. In addition, it is also clear that there must be some move by national and regional regulators in order to level the playing field between incumbent operators/broadcasters and OTT service providers.[14]

[13] From www.brandba.se/blog/socialmedia/usergeneratedcontent/theempowermentofconsumers
[14] From www.rappler.com/technology/social-media/71115-anatomy-of-a-twitter-black-ops-campaign

REGULATORY ISSUES

Since the 1980's and 1990's, telecommunications and ICT sector regulation has fundamentally been based on the existence of stand-alone networks delivering specific services and the business models that supported those networks (e.g. per minute charging, linear televisions etc.). Such regulatory approaches therefore pre-dates ubiquitous internet/broadband connectivity, changes in industry structure, online service players, the advent of social media, advances in IP technology and changes in consumer expectations. These changes pose significant challenges for the regulatory regime and regulators in all global markets.

Some commentators suggest that certain services offered by OTT service providers could be incompatible with traditional forms of sector regulation, because of their global nature and footprint. Many Governments, Telecommunication/ICT National Regulatory Authorities (*'NRAs'*) and other agencies are examining how to move from traditional legacy approaches to innovative ones. But they are uncertain whether, or even how, to regulate or create optimal rules to govern and guide these new entities, applications and services, bearing in mind that such activities also contribute materially to sector revenues, consumer welfare and bridge the digital divide. They also facilitate national economic growth and productivity improvements.

In this section, a number of key regulatory issues concerning OTT services are discussed which need to be addressed in order to move to a new forward looking regulatory regime, namely:

i) Licensing;

ii) Taxation;

iii) Troubling content;

iv) Social media as a news source; and

v) Spectrum availability.

In conducting this analysis, it is important to keep in mind that regulating OTT providers to achieve the best outcome for consumers requires navigating the trade-off between the benefits OTT services bring to consumers and creating an economic environment that provides traditional operators with the appropriate incentives to continue investing.

Licensing

Licensing structures in the telecommunications/ICT sector have been relatively static for some time, even though various attempts including by the ITU[15] have been made to reform them. However, the rapid growth of OTT service providers raises significant questions on whether such structures ought to be amended. Generally, whilst traditional operators and broadcasters must purchase a licence to operate, OTT players are often not subject to specific licensing.

One argument has it that offering substitutable services should be subject to the same licence fees obligations as MNOs, subject to modification for the purpose of calculating licence fees. Going forward, alternative approaches to licensing may have broader merit in telecommunication and broadcasting sectors depending on the market and services concerned. They include:

- Temporary licensing: Apply temporary rules/grant licences for a limited period, say of two years in order to permit greater study or to bring OTT services within the scope of domestic regulation;
- Transition arrangements: Put in place transition schemes to compensate existing stakeholders or reduce the costs face by existing market participants; or
- Deemed class licensing: Another alternative approach is to use deemed class licensing for say web content such that services while not being located in the jurisdiction may be subject to a country's classification regime (e.g. with respect to nudity, violence etc.). Such an approach has been used in Singapore and has been debated in Malaysia and Indonesia.

While such measures have not generally been adopted by telecommunication/ICT regulators there would be merit, for example, in having the ability to temporarily licence innovative services pending more detailed analysis or bring certain services within the penumbra of domestic regulation. New telecommunications legislation in selected jurisdictions would certainly permit this.[16]

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[15] For example, see ITU, Trends in Telecommunication Reform, 2004/05. Licensing in the Era of Convergence.

[16] For example, the Cambodian Law on Telecommunications 2015 promulgated 17 December 2015 provides in Article 17, for the licensing of operations (other than infrastructure and services) to be determined by Prakas of Ministry of Posts and Telecommunications Cambodia.

Another approach which has considerable merit is industry or self-regulation, which includes the formulation of industry codes of conduct. Examples of markets with a self-imposed code of conduct include the United Kingdom's ISP Code of Practice which is uniform and obligatory on all members.[17] This type of regulation can help to determine market conduct and can provide improved visibility to government on how and when they can achieve policy objectives. Regulators may also favour such mechanisms as they are flexible, can most likely be implemented quicker than formal regulation and move the cost of regulatory compliance to market players. In this sense, it can be said that the optimal approach to regulation in this new digital environment does not mean more, but rather, better and more flexible future-proof regulation.

Despite the possibility of different licensing regimes applying to traditional providers and OTT services, it should be noted that high operational licensing fees (based on a percentage of revenue or similar) imposed on telecommunications and broadcasting licensees may need to be reduced going forward if comparable OTT services are not subject to similar licensing cost imposts.

Taxation

In contrast to the obligations imposed on national operators, OTT service providers are often not subject to the same taxation on revenue and profits, despite being involved in the economic life of a particular country and obtaining financial advantages. This is one of the most critical issues for each and every country to address.[18] Often having their principal place of business and registered office in the USA or a low income tax country or haven, global OTT service providers are able to put in place international tax optimization strategies given the variation in regimes applied by different countries in this regard. The strategies that exploit the difference in treatment of economically equivalent transactions between jurisdictions are known as base erosion and profit shifting. The Organisation for Economic Co-operation and Development (OECD) estimates that between 4-10% of global revenue from corporate income tax is lost through BEPS by multinational enterprises (*'MNEs'*), including a majority of online service providers.[19]

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[17] See www.ispa.org.uk/about-us/ispa-code-of-practice/

[18] A2015 ITU paper, GSR15 Discussion Paper, The Impact of Taxation on the Digital Economy identified the distortive effect of taxes in the digital eco-system on three levels: (i) Potential disparity in tax burdens imposed on telecommunication operators when compared to other operators of the digital eco-system (for example, digital advertisers, social networks); (ii) Taxes on asymmetry among global players in the digital sector and (iii) In country taxation asymmetry between the telecommunication sector and other providers of other goods and services. Available at https://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2015/Discussion_papers_and_Presentations/GSR16_Discussion-Paper_Taxation_Latest_web.pdf

[19] From OECD, 2015, 'Information brief: summary', see www.oecd.org/ctp/policy-brief-beps-2015.pdf

While these corporate tax planning strategies may be technically legal and rely on carefully planned interactions of a variety of tax rules and principles, the overall effect of this type of tax planning is to erode the corporate tax base of many countries in a manner that is not intended by domestic policy.[20] In addition, this sort of activity undermines the fairness and integrity of tax systems, with global OTT services gaining a competitive advantage over enterprises that operate at a domestic level. Moreover, this sort of activity arguably undermines voluntary compliance by all taxpayers.[21]

Based on these conclusions, the starting presumption must be that taxation should be applied consistently and even-handedly, meaning that OTT service providers offering substitutable services should be subject to the same taxation on revenue and profits as traditional operators and broadcasters. For this to occur, taxation and related regulations will need significant updates in order to ensure that there is not a significant erosion of the tax base.

In Thailand, while the National Broadcasting and Telecommunications Commission ('NBTC') has no direct authority to shape taxation, the NBTC will have to cooperate with other related bodies such as the Revenue Department, the Bank of Thailand and the Finance Ministry to bring OTT-related businesses into the taxation system.[22]

On 1 October 2017, it was announced by the Office of Electronic Transaction Development Agency (*'ETDA'*) that it will be adjusting the Electronic Transaction Act so as to tax certain e-commerce transactions. These changes will consequently apply to some foreign OTT service providers. The second draft of the proposed amendment was released to the public in January 2018, and whilst the latest draft only focuses on applying the value added tax (VAT) to certain e-commerce transactions, there has been no confirmation that further amendments addressing previously raised corporate income tax and withholding tax issues will not be pursued.[23]

In response to the OECD report and growing concerns over global tax avoidance, several other countries and regions across the globe have attempted to bring global online service providers under their domestic tax regimes. For example, soon after Netflix's introduction into Australia at the beginning of 2015, the Australian Federal Government proposed to amend the Goods and Services Tax (GST) law to ensure digital products and services receive an

[20] From http://law.unimelb.edu.au/__data/assets/pdf_file/0007/1550653/Michael-DAscenzo-Spotlight-BEPS-Tax-Avoidance12.pdf

[21] From www.oecd.org/ctp/beps-about.htm

[22] From www.connectedasia.com/new-ott-regulations-in-indonesia-and-thailand-inching-towards-a-level-playing-field/

[23] From https://home.kpmg.com/th/en/home/insights/2018/01/tax-news-flash-issue-33.html

equivalent tax of 10 percent, whether they are provided by Australian or foreign entities. Consequently, digital products and services such as Netflix have been taxed from 1 July 2017.[24]

Similar taxation laws aimed at targeting the digital economy have been introduced in the European Union (EU), South Africa and Japan following the OECD recommendations.[25] At the start of 2015, the EU began to overhaul its consumption tax to extend it to providers of broadcasting and electronic services based on the location of their customers, instead of where the companies set up their head offices. Digital downloads and services sold to European retail consumers are taxed VAT rates of up to 27 percent, making the digital retail economy a significant source of tax revenue. The complexity and variation of VAT regimes in different EU member countries, however, has created huge challenges for the EU and digital companies.[26]

Finally, in August 2017, the Ministry of Communications and Informatics (*'MOCI'*) in Indonesia issued a new draft ministerial regulation on over-the-top (*'OTT'*) services, building on the guidance set by the previous 2016 draft regulation. The primary aim of the 2017 draft regulation is to establish criteria to ensure that the owners and operators of foreign OTT services, which make their services available in and generate revenues from Indonesia, will be subject to the payment of domestic corporate income tax set out under Article 17 of Income-Tax Law 2000. This will be equal to a 25 percent rate of taxable income. However, where the local company is not established an additional 20 percent branch profit tax is assessed, the latter being a levy payable only by foreign entities.[27]

The Proliferation of Troubling Content and Its Regulation

OTT services providers, such as Twitter, Facebook and YouTube, have created platforms used by billions of people to come together, communicate and collaborate. While such platforms remain overwhelmingly a positive force, these platforms can also be used to spread hate, violence, child sexual abuse and extremism. A recent study by think tank Demos suggests that hate and extremism is growing in parallel with the exponential growth of all social media, reflected in the fact that YouTube has experienced a 25 percent increase in *'flagged'* content year-on-year.[28] Social media sites such as Facebook can be considered a hotbed for terrorist

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[24] From www.ato.gov.au/business/international-tax-for-business/in-detail/doing-business-in-australia/combating-multinational-tax-avoidance---a-targeted-anti-avoidance-law/

[25] From http://theconversation.com/the-netflix-tax-coming-to-a-country-near-you-40475

[26] From www.ey.com/Publication/vwLUAssets/EYDigital_products_and_services_in_2015/FILE/Digital_VAT_Campaign_Brochure.pdf

[27] From Client Alert: The Indonesian Government Resumes Discussions on Over-The-Top Regulation, by HHP Law Firm, August 2017, Jakarta: Baker & McKenzie.

[28] From www.publications.parliament.uk/pa/cm201617/cmselect/cmhaff/609/609.pdf

recruitment, incitement, propaganda and the spreading of radical thinking. Twitter, YouTube and encrypted services such as WhatsApp and Telegram are also implicated. For example, Facebook's live video streaming service *'Facebook Live'* has been used as a platform for violent content, with a Thai man live streaming himself killing his 11-month-old daughter in early 2017. In Cleveland, a 74-year-old man was killed by a stranger who streamed the shooting live on Facebook.[29]

As it stands, existing broadcasters and news organisations globally are generally held accountable for everything that they broadcast or publish, including during live broadcasts and talkback calls. Despite the rising level of dangerous content prevalent, internationally there is still limited liability for social media platforms who aid users in distributing illegal content, leading to a mismatch of policy and an uneven playing field.[30]

At present, social media companies still heavily rely on their users to report dangerous content for review by moderators in accordance with the site's community standards. Critics argue that this means that they are, in effect, outsourcing the vast bulk of their safeguarding responsibilities at zero expense. In addition, data shows that the main social media companies' responses to these complaints are less than adequate. A 2017 report by the Common Home Affairs Committee in the UK argued that social media multinationals are more concerned with commercial risks than public protection. The Committee's investigation found that swift action was taken by the main social media conglomerates to remove content found to infringe copyright rules, however a 'laissez-faire' approach was adopted when complaints involved hateful or illegal content. Referring to Google's failure to prevent paid advertising from reputable companies appearing next to YouTube videos posted by extremists, the Committee's report noted: *"One of the world's largest companies has profited from hatred and has allowed itself to be a platform from which extremists have generated revenue."*[31]

In light of the perceived ineffectiveness of complaint procedures by the main social media platforms combined with the importance of efficiency in taking dangerous and illegal content down, it is recommended that regulators streamline content regulation and complaint-handling procedures to make them as efficient and effective as possible. In overall terms, all countries should have a clearly defined process, preferably involving joint work with the social media companies on tools and legal mechanisms required, which could include a decision by judicial officer for the issuance of take-down notices and similar in relation

[29] From www.wtsp.com/news/local/facebook-live-murder-renews-pressure-on-social-mediasite/434362974

[30] From www.abc.net.au/news/2017-05-17/facebook-livestream-murder-suicide/8500586

[31] From www.theguardian.com/media/2017/may/01/social-media-firms-should-be-fined-forextremist-content-say-mps-google-youtube-facebook

to online material which breaches domestic law. Such judicial mechanisms should be well-communicated to key global and regional social media companies ahead of time so there is no ambiguity as to the legal validity of the order.

A good example of a national regulator employing more efficient and effective complaint services for online child protection can be seen in Australia with the creation of the Office of the eSafety Commissioner in 2015 in accordance with the Enhancing Online Safety for Children Act 2015.[32] The eSafety Commissioner prioritises investigations into online child sexual abuse material and works with law enforcement and the global network INHOPE to remove this content wherever it is hosted. The Office in accordance with the National Classification Scheme[33] also investigates complaints about other prohibited material. Notably, the eSafety Commissioner has the power to direct a social media organization to take down offensive material, with penalties of up to AUD18,000 (USD13,670) per day for the social media organization if they delay in the request.[34]

Further, the UK and France have joined forces in June 2017 to tackle online radicalization with plans that could lead to much stronger action taken against social media companies who fail to remove unacceptable content. Plans include exploring the possibility of creating a new legal liability for social media companies if they fail to remove content. The two countries will lead joint work with the social media companies on this vital agenda, including working with them to develop tools to identify and remove harmful material automatically.[35] Similarly, Germany's Parliament has passed a new law in June 2017 that punishes social networking sites if they fail to swiftly remove illegal content such as hate speech or defamatory fake news, with fines of up to €50 million (USD53.4 million). Under the new law, social networks need to ensure that obviously criminal content – as defined by German Law – will be deleted within 24 hours and other illegal content after seven days.[36]

As pressure from governments heightens globally, social media companies and ISPs have also taken steps to further improve self-regulation of their platforms. Facebook, Microsoft, Twitter, and YouTube have launched a partnership in June 2017 aimed at combating terrorists online.[37]

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[32] Available at www.legislation.gov.au/Details/C2015A00024/Html/Text#_Toc415219266%20

[33] Refer to www.classification.gov.au/About/Pages/National-Classification-Scheme.aspx

[34] From https://theconversation.com/factcheck-qanda-what-has-the-childrens-esafetycommissioner-done-in-its-first-year-to-tackle-cyberbullying-64309

[35] From www.gov.uk/government/news/uk-and-france-announce-joint-campaign-to-tackleonline-radicalisation

[36] The Law is the Netzwerkdurchsetzungsgesetz (or NetzDG). Refer to www.bundestag.de/dokumente/textarchiv/2017/kw20-de-soziale-netzwerke/505074

[37] From www.theverge.com/platform/amp/2017/6/26/15875102/facebook-microsoft-twitteryoutube-global-internet-forum-counter-terrorism

Social media companies have also stated that they are seeking algorithmic solutions to reducing harmful content. YouTube, Facebook, Microsoft and Twitter have announced a partnership to share *'hashes'* to enable each company to scan for terrorist content and enable them to terminate associated accounts. Google also said that it had used *'matching technology'* to help prevent the re-uploading of content that violates its policies.[38] However, there remain serious questions as to the efficacy of such measures especially in relation to non-common Internet languages, including languages such as Thai.[39]

Social Media as a News Source

Social media platforms such as Facebook, Twitter and Google have arguably morphed into some of the world's biggest publishers and broadcasters. Where status updates and selfies once dominated, Facebook today has become a portal for news. The 2016 report on digital news from the Reuters Institute for the Study of Journalism found that more than 50 percent of all web users use social media for news each week, with increasing numbers saying it is their main source. While many publishers have linked with Facebook and Google to distribute their news, social media sites are increasingly becoming destinations in their own right.[40]

With this new role of social media as a news source, a specific concern has been the effect of false stories – or *'fake news'* – circulating on the internet. The issue with social media platforms becoming a source of news for consumers is that they have dramatically different structures from and operate in different legal frameworks than traditional media organisations, meaning that content can be relayed among users with no significant third-party filtering, fact-checking, editorial judgment or legal liability. This unregulated space has led to the proliferation of sites established entirely to print intentionally fabricated and misleading articles, with the names of these sites often chosen to resemble those of legitimate news organizations.[41]

The presence of fake news in a market has several negative social costs, including consumers with less-accurate beliefs who in turn may become more sceptical of legitimate news organisations. Even more concerning is the capability for fake news to undermine the ability of elections and the democratic process to select high-quality candidates during

[38] From http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/ome-affairs-committee/hate-crime-and-its-violent-consequences/written/49839.pdf

[39] Refer to https://en.wikipedia.org/wiki/Languages_used_on_the_Internet

[40] From www.theguardian.com/technology/2015/jun/16/news-outlets-face-losing-control-to-apple-facebook-and-google

[41] Ibid.

a democratic election, as arguably demonstrated during the 2016 U.S. election. Similar debates on the extent of fake news were debated in the French election.[42] The European Parliament was moved to issue a statement on *'Fake News'* and the EU's response in April 2017.[43]

It would now seem that all countries will need to address fake news and similar issues by putting in place a range of safeguards, fact checking and perhaps the certification of sites to maintain the integrity of their electoral processes.[44] Notably, Facebook, which came under heavy criticism for allowing fake news to be circulated during the U.S. election period, have taken steps to combat the issue. One of those steps is the enlisting of the International Fact Checking Network (IFCN), a branch of the Florida-based journalism think tank Poynter. Facebook users in the US and Germany can now flag articles that they think are deliberately false, these will then go to third-party checkers signed up with the IFCN.[45]

Spectrum Availability

Digital transformation, with more intensive use of OTT services, including video streaming services, will require additional International Mobile Telecommunication (*'IMT'*) spectrum allocation at national levels to support the high speed connectivity of smartphones, devices and IoT. ITU studies have modelled the amount of spectrum that will be needed nationally by 2020. Estimates suggest that current national spectrum allocations for IMT which, in general, provide for an amount of 440 MHz to 540 MHz, should be increased substantially by 2020.

This issue was addressed in the preparation of the ITU World Radiocommunication Conference (WRC-15), through Report ITU-R M.2290-0, which defined the future spectrum requirements estimate for cellular mobile services below 6 GHz as 1,340 MHz for lower user density settings and 1,960 MHz for higher user density settings. Additional spectrum requirements depend on the amount of spectrum already identified in each country and on the particular situation of the country.[46]

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[42] See www.20minutes.fr/politique/2065275-20170510-emmanuel-macron-victime-fausse-nouvelle-apl-bourses-etudiantes

[43] From www.europarl.europa.eu/RegData/etudes/ATAG/2017/599384/EPRS_ATA(2017)599384_EN.pdf

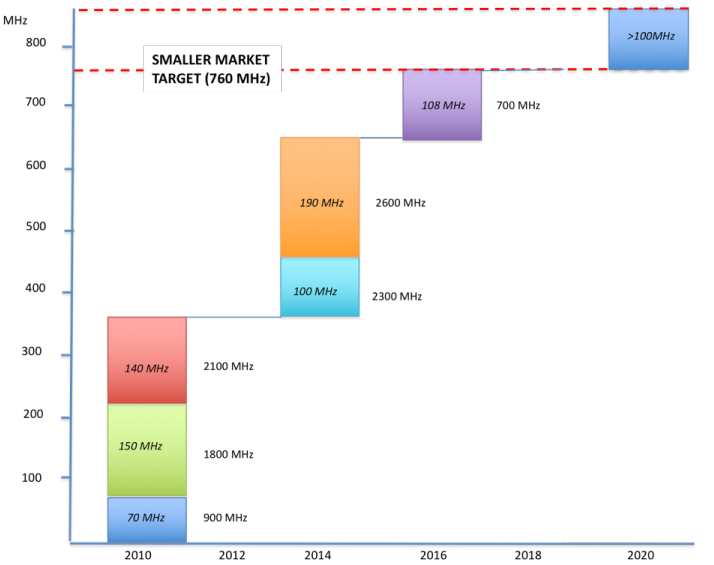
[44] This is in addition to putting in place strong cybersecurity measures in relation to their electoral rolls and voting systems given the reported number of cyber-attacks on such systems globally.

[45] From www.bbc.com/news/blogs-trending-38769996

[46] Summarised in IoT and IMT Spectrum Issues at the 4th Annual Asia-Pacific Spectrum Management Conference on 17 July 2018, (p. 22ff), by A. Riaz, 2018, Bangkok: n.p.

The ITU in its Guidelines for the Preparation of National Wireless Broadband Masterplans for Asia Pacific Region, October 2012, recommended that the minimum spectrum allocated and in use for cellular mobile services should be at least 760 MHz by 2020 and preferably 840 MHz[47]. This is shown in Exhibit 4.

Exhibit 4: Country suggested IMT allocation targets for wireless spectrum until 2020



Source : ITU, Guidelines for the Preparation of National Wireless Broadband Masterplans for Asia Pacific Region, October 2012.

These minimum IMT spectrum allocations do not include the required spectrum for 5G and similar services. As such the upcoming WRC-19 Agenda (namely items 1.1.3 and 1.16) provides that the following bands, which are already allocated to mobile, will be studied with a view to an IMT-2020 identification:

(i) 24.25 - 27.5 GHz;

(ii) 37 - 40.5 GHz;

(iii) 42.5 - 43.5 GHz;

(iv) 45.5 - 47 GHz;

(v) 47.2 - 50.2 GHz;

(vi) 50.4 - 52.6 GHz;

(vii) 66 - 76GHz;

(viii) 81 - 86GHz.

The current future spectrum needs estimation for IMT services for the bands (24/25 to 86 GHz) is between 14.8 to 19.7 GHz.[48] A huge increase in IMT spectrum allocations.

Countries including Thailand should therefore:

- (i) Hasten the process of refarming legacy broadcasting bands (e.g. 700 and 2600 MHz) where mobile broadband is considered by many a more valuable use of spectrum than television.[49] This is critical in Thailand and the NBTC is committed to an accelerated process to make the 700 MHz band available by 2021. These accelerated plans may also be further brought forward, given the recent speech by the Secretary General of the NBTC that the NBTC plans to auction 45 MHz of paired FDD spectrum in the 700 MHz band with auction preparation expected to begin in 2019 and to be finished by 2020;[50]

- (ii) Undertake the refarming of 2G bands for LTE/4G services (and plan for the switch off of 2G networks similar to Australia, Japan, Singapore, South Korea, Taiwan (China), United States and other developed countries). To do so various regulatory restrictions which do not permit technology neutral spectrum use should be eased so that operators are able to use the most efficient and affordable technologies; and

- (iii) Allocate and have in use at least 760 MHz by 2020 and preferably 840 MHz in IMT spectrum by 2020 with significant additional allocations for 5G services including in 700 and 2600 MHz, 3.X GHz (sharing with satellite), L-Band and mmWave. The total spectrum allocations per operator will need to substantially increase going forward.

There is no single spectrum management approach or technique that will be appropriate for all countries including Thailand in all contexts. However, flexible frameworks that adapt to changing needs are indispensable. Policy-makers and regulators must continually question

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[48] See ITU, WP 5D Liaison statement to Task Group 5/1.

[49] For the various benefits of making the 700 MHz band available refer to GSMA, Securing the Digital Dividend Across the Entire ASEAN: A Report on the Status of the Implementation of the APT700 Band for ATRC, August 2018. Available at www.gsma.com/spectrum/securing-the-digital-dividend-across-the-entire-asean/

[50] From Welcome Speech at the 4th Annual Asia-Pacific Spectrum Management Conference on 17 July 2018, (p. 4), by T. Tantasith, 2018, Bangkok: n.p.

whether historical uses of certain frequencies remain most productive, and assess whether those uses can coexist with new services and technologies.[51]

CONCLUSION

In conclusion, the current revolution in technology and telecommunications has both empowered consumers yet also challenged traditional business models who have been squeezed by the dual threat of declining users and the migration of advertising to online outlets.[52] As highlighted earlier, governments and sector regulators including those in Thailand need to find a balance between maximizing the benefits of the proliferation of OTT services and securing optimal policy and regulatory objectives designed to address potential and negative consequences. Such a balance will optimize sector-specific regulation and create an enabling environment that contributes to innovation and investment.

In order to achieve these goals, it is critical that regulators such as the NBTC have the appropriate tools to protect consumer interests and industry regulators have the ability to counter, if required, the – often global – market power of the OTT service providers. Progressively effective regulation will need to consider its effects across sectors and industries and this will require collaborative regulation between the regulators of various sectors who have traditionally not needed to work together. Further, international co-operation between governments and regulators will be necessary to address global issues such as taxation and the market power of MNEs. The search for the right regulatory measures recipe is a significant challenge and will be ongoing as the presence of OTT services in the market matures.

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[51] ITU, GSR16 Discussion Paper on Emerging Technologies and the Global Regulatory Agenda, www.itu.int/gsr16

[52] From www.accenture.com/us-en/_acnmedia/PDF-50/Accenture-Bringing-TV-to-Life.pdf One example, is the current receivership of Channel 10, Australia's third terrestrial television network. See www.news.com.au/finance/business/media/network-ten-secures-30-million-funding-package/news-story/a9603b3e949eb4bee509c29574f9e094