



## GTPRN May 2020 Newsletter

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Welcome to the 1<sup>st</sup> GTPRN newsletter.

We know how difficult it could be to live socially isolated, caring for self while caring for children, partners, elderly parents and loved ones in the COVID-19 times. Among all these things, we also strive to the ever-existing need of ‘productivity’, but that is what we want to tell you upfront that we are struggling too. Worldwide people are ‘grieving’ and experiencing discomfort and we felt the need to connect with our community: listen, share, discuss. That is why this research network and newsletter, So Welcome!

In particular, GTPRN aims to enable and support the collaboration between researchers who work in the telecom policy and allied fields around the globe. We empathize with the need of dialogue between academia and practitioners. This is important given that most of us are coming from interdisciplinary backgrounds (e.g. economics, law, engineering, management, business, policy), and only few conferences (e.g. TPRC, PTC, ITS) and journals (e.g. Digital Policy, Regulation & Governance, Telecommunication policy) address our intersectional interests.

As I have been involved with the ITU for almost two decades, I thought that our 1<sup>st</sup> newsletter should address one of the main ITU events that has global impact namely, the World Radiocommunication Conference of 2019 (WRC-19) that was held in Egypt in November 2019. Also, I wanted to share my learnings to encourage you for further dialogue. Unfortunately, the academia is not well-presented in the activities of the Radio Sector of the ITU (ITU-R). Therefore, you will find in this newsletter, a brief summary of the results of WRC-19 that I have personally prepared and also a link to the formal final acts that were published this month.

We are also honored to include in this month newsletter, a kind contribution on WRC-19 by Prof. Rob Frieden, Pioneers Chair and Professor of Telecommunications and Law Penn State University.

With respect to telecom policy conferences, unfortunately, in Europe, the 23rd ITS Biennial conference was postponed until June 2021. However, TPRC-48 will hopefully be held in time in September 2020. More details could be found here

The CFP for PTC-21 is out now. Please visit <https://www.ptc.org> to learn more. Please note that PTC-21 offers two awards for research papers. The first, Meheroo Jussawalla Research Award, is open to researchers and faculty members in the academic, non-profit, or private sector, and the second, Yale M. Braunstein Student Award, is open to currently enrolled students with a 2021 or later graduation date.

Also, if you are IT industry practitioner, and being locked down in your region is giving you thoughts about your work that you would like to share, consider submitting paper to [Practitioners Track](#), ICIS, 2020. Work of IFIP might be of interest <http://www.ifipjwc2020.org>

If you do not think you will be able to travel soon, please take a look on the Telecommunications Policy journal special issue CFP on “OTT and live streaming services: Past, present and future”. More details can be found in this newsletter.

There is some good news for researchers as applications are open for the 2020 ISIF Asia Network Operations Grants. Funding of USD 60,000 (two grants of USD 30,000 each) will be awarded to two research and development projects, focused on the availability, reliability, and security of the Internet, with a

particular focus on practical solutions around operational stability and security. More details are available in the newsletter.

The ITU, as one of the 5G key players, has issued an official statement entitled “No scientific basis between 5G and COVID-19”. For full statement, click [here](#).

The ITU has also launched a very good platform named “Global Network Resiliency Platform (REG4COVID)” that provides measures and experiences of telecom regulator and operators in response to the COVID epidemic. Please visit the following [link](#) for more details. For instance, you can browse spectrum management topics responses to COVID in specific region. Talking about spectrum, it seems that several countries have postponed their 5G auctions and assigned temporarily more frequencies to existing operators. However, it seems this was not the case at the first three months of 2020 with respect to spectrum. More information can be found at our newsletter with a kind contribution by Toby Youell from [PolicyTracker](#), the spectrum management newsletter.

Telemedicine/ telehealth is getting push worldwide amid COVID-19 Pandemic. Researcher From University of Hawaii have been working with Small Pacific Islands / Nations to deliver healthcare solutions using tele- technologies and this has become need of the time. More information can be found [here](#). In India, providing In-person healthcare is challenging, particularly given the large geographical distances and limited resources. Policy makers and healthcare providers are considering telemedicine as solution especially for COVID-19 (and non COVID-19) triage within OPD consultation. A Registry of Telemedicine providers in India will be made available online by Digital Health India Association by first week of May. We welcome articles for our June Newsletter on telemedicine and related aspects, specially focussing on low income and limited resource settings.

One major announcement in the last months was the press release by the Silicon Flatirons Center for Law, Technology, and Entrepreneurship at the University of Colorado Law School on interference limits and the report written by two senior FCC economists. For those who are not familiar with the topic, interference is the heart of spectrum policy and how to define and deal with it are the basis of how we manage the spectrum for more than a century. Pierre de Vries, a Director of the Silicon Flatirons Spectrum Policy Initiative, has been taking the lead within the US and at the FCC in changing the way we deal with interference limits. Having followed the work of Dr De Vries for years, I would not exaggerate to say that if his ideas are adopted by regulators in practice, spectrum management will change forever. Please take a look on the press release in this newsletter and on the important report entitled "Can Market Forces and an Interference Limit Together Promote the Efficient Co-existence of Radio Systems?"

You may also be interested in the AI Ethics Mentoring & Externship programs for Women & Non-Binary People that was launched by Women in AI Ethics™ to help them during COVID-19 pandemic. For more info click [here](#).

Please remember that all the website posts and the newsletter content would be mostly based on your contribution. Therefore, if you want to share an article, blog, news, job announcement, CFP, presentation, or opinion with GTPRN, please share it with us.

Take care, stay safe and well.

Dr. Mohamed El-Moghazi

GTPRN Team

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## **WRC-19 Final Acts**

Following the ITU World Radiocommunication Conference 2019 (WRC-19) held in Sharm El-Sheikh, Egypt, from 28 October to 22 November 2019, the Final Acts of the WRC-19 are now available online for free download through the following [link](#) from the ITU. For information on the key outcomes of the conferences, please check the following [link](#)

While the conference was finalized in November 2019, revising the agreed text to formulate the final acts can take several months as these acts are considered as a treaty document. WRC-19 was the 1st Conference to be conducted out of Geneva for the last 20 years, and it was also the highest WRC in terms of attendants (+3500). The conference discussed several issues in the form of agenda items. In the next section, we briefly provide an overview on the items.

### **Earth Station in Motion Systems (ESIMS)**

- Agenda Item 1.5: to consider the use of the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) by earth stations in motion communicating with geostationary space stations in the fixed-satellite service and take appropriate action, in accordance with Resolution 158 (WRC-15);
- Results: The conference agreed with the adoption of the new resolution providing the conditions for the operation of ESIM and protection of the services to which the frequency bands are allocated.

### **Non-GSO**

- Agenda Item 1.6: to consider the development of a regulatory framework for non-GSO FSS satellite systems that may operate in the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space), in accordance with Resolution 159 (WRC-15).
- Results: It was agreed to add footnotes to RR Article 5 that subjects non-GSO FSS systems to coordination provisions, add provisions to RR Article 22 in order to protect GSO satellite networks, and establishes a consultation group to coordinate aggregate interference in order to protect GSO satellite networks.

### **Short Duration Missions Satellites**

- Agenda Item 1.7: New assignments for short duration missions (SDM) satellites in the SOS service allocations within the VHF / UHF bands.
- Results: New assignment for SDM in the bands 137.025 - 138 / 148 - 149.9 MHz on secondary basis with condition not claim protection nor cause harmful interference to other allocated services and guard band to protect AMRs in the adjacent band.

### **GMDSS**

- Agenda Item 1.8 (Issue A): Modernization of the GMDSS system (MF/HF NADVAT).
- Results: A regulatory text to identify channels for MF/HF NADVAT.
- Agenda Item 1.8 (Issue B): Regulatory changes to facilitate Iridium as a second GMDSS operator
- Results: Operate the GMDSS system on only 5 MHz of Iridium band after upgrading it to a primary status, also not imposing constraints to adjacent bands

### **International Mobile Telecommunication (5G)**

- Agenda Item: 1.13 Identification of IMT in portion(s) of the frequency range between 24.25 and 86 GHz including possible additional allocations to the mobile services on a

primary basis.

- Results:  
Identify 24.25-27.5GHz with OOB limits:
  - 33 dBW in any 200 MHz of the EESS (passive) band for IMT base stations. The limit will be changed to -39 dBW by September 2027
  - 29 dBW in any 200 MHz of the EESS (passive) band for IMT mobile stations
- The frequency band 37-43.5 GHz, or portions thereof, is identified for use by administrations wishing to implement the terrestrial component of IMT, while taking into account the potential constraints to IMT in this band.
- The frequency band (45.5-47 GHz) GHz is identified for IMT in some countries excluding Egypt, while taking into account the potential constraints to IMT in this band.
- The frequency band 47.2-48.2 GHz is identified for IMT in Region 2 & some countries in Region 1& 3 including Egypt, while taking into account the potential constraints to IMT in this band.
- The frequency band 66-71 GHz is identified for IMT for all regions. Administrations wishing to implement IMT consider coexistence between IMT and other applications including wireless access systems.

#### **High-Altitude Platform Stations (HAPS)**

- Agenda Item 1.14: to consider appropriate regulatory actions for high-altitude platform stations (HAPS), within existing fixed- service allocations.
- Results: Upgrade of HAPS identification to global one subject to provisions to protect existing services in the frequency bands (31, 47, 48 GHz).
- New global HAPS identification in the band 38-39.5 GHz with added protection measures against unacceptable interference may be caused by HAPS

#### **Radio Local Area Networks (RLAN)**

- Agenda Item 1.16: Take appropriate regulatory actions including new allocations for mobile service identified for (Wireless Access Systems) WAS/(Radio Local Area Networks) RLANS in the frequency bands 5 150 MHz - 5 925 MHz.
- Results:
- No Change for the frequency bands (5250-5350 MHz, 5350-5470 MHz, 5850-5925MHz).
- Modification of Resolution 229, allowed outdoor usage for WAS/RLAN stations to operate with E.I.R.P = 1 WATT with choosing one of three optional elevation angle masks, restricted number of outdoor WAS/RLAN stations to 2% of total number of RLANS and added some measures to control number of outdoor WAS/RLAN, such as: authorization approach, registration procedures, domestic notification, limited application, limitation to fixed WAS/RLAN access points

#### **NGSO Milestones**

- Agenda Item 7 issue A: Bringing into use of frequency assignments to all non-GSO systems, and consideration of a milestone-based approach for the deployment of non-GSO systems in specific frequency bands and services
- Results: WRC-19 agreed to adopt a new milestone-based approach for the deployment of non-geostationary satellite (NGSO) systems in specific radio-frequency bands and services which gave administrations up to 7 year after the end of regulatory deadline to build their constellation.

## **5G Global Spectrum Planning: Significant Progress at WRC-19**

**Rob Frieden**

Pioneers Chair and Professor of Telecommunications and Law

Penn State University

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For nearly a month in late 2019, the world's nations sent delegates to Sharm el-Sheikh, Egypt with an important and exhaustive spectrum planning agenda. Every four years, the International Telecommunication Union ("ITU") hosts a forum with a mission to reach global consensus on spectrum allocations. Achieving this goal will enable stakeholders of all kinds to benefit from technology optimization and uniformity in the frequencies and technical standards used for such emerging services as the fifth generation of wireless services ("5G").

The ITU serves as the world's oldest, continually operating inter-governmental organization, now affiliated with the United Nations. National governments willingly give up the sovereign right of self-determination for a greater good accruing when, for example, wireless carriers can agree to use the same frequencies so that subscribers can capture efficiency gains in having access to handsets useable throughout the world.

However, reliance on the ITU comes as a cost that some stakeholders increasingly do not want to incur. The ITU emphasizes consensus building and inter-governmental coordination at the expense of speedy resolution of conflicts. ITU procedures require extensive study, deliberation and coordination that can span several World Radio Conferences ("WRC-19"), like the Sharm el-Sheikh event. Insatiable demand for 5G services, including video and the Internet of Things, has motivated some nations to act unilaterally, well before the ITU can complete its work.

WRCs have achieved measurable and positive progress, albeit on an incremental basis. ITU Deputy Director Mario Maniewicz reported an increase in the spectrum allocated for



mobile telecommunications services from 230 megahertz (“MHz”) in 1992-97 to 1886 MHz after conclusion of WRC-15, with WRC-19 nearly doubling that amount of bandwidth: 1535 MHz which translates into 15.35 Gigahertz (“GHz”).

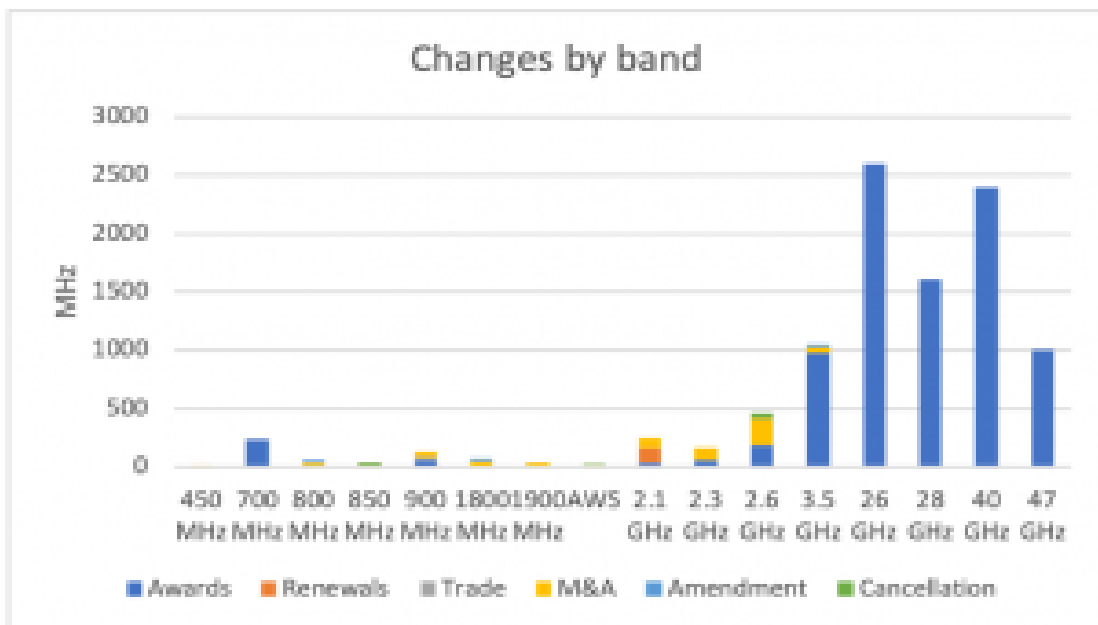
Over the length of its tenure as the oldest, inter-governmental organization, the ITU has persisted, despite challenges to its legitimacy, and criticisms about its effectiveness, ability to respond to changed circumstances and flexibility in meeting new requirements presented by Member nations. Notwithstanding these complaints, the completed work at WRC-19 included several forward-looking items well before entrepreneurial ventures expect to migrate from test and demonstration projects to offering commercial service. The conference identified additional radio-frequency bands for High Altitude Platform Station (HAPS) systems that will provide signal relays, located in the stratosphere around 20 kilometers above earth, for broadband access by users in a large geographical area, including remote locales with small populations. The conference also addressed technical coordination issues for mobile satellite broadband transceivers. Additionally, WRC-19 provided timely guidance on how nations can coordinate the launch and operation of small satellite constellations numbering in the hundreds and operating in low earth orbits.

The ITU faces growing challenges to its legitimacy as some nations grow increasingly impatient with its governance structure and ability to reach closure on spectrum allocations for next generation technology such as 5G. Nevertheless, WRC-19 evidences the reliability and resiliency of global inter-government coordination and consensus building.

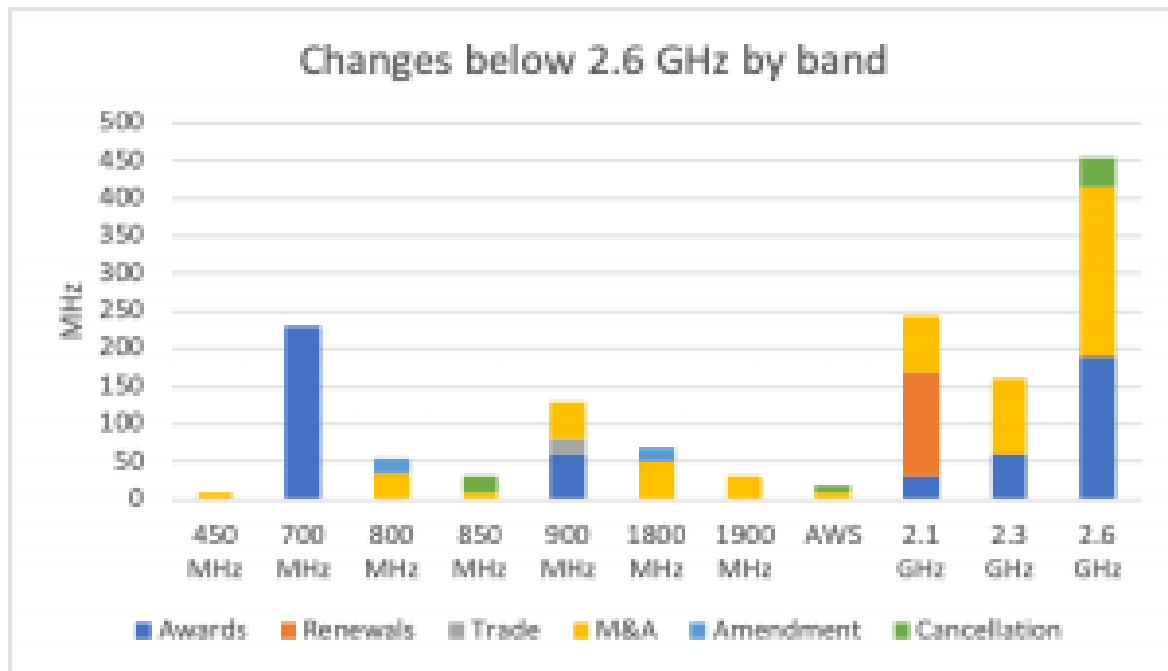
## First quarter of the decade sees record spectrum auctions

**Toby Youell**  
*PolicyTracker*

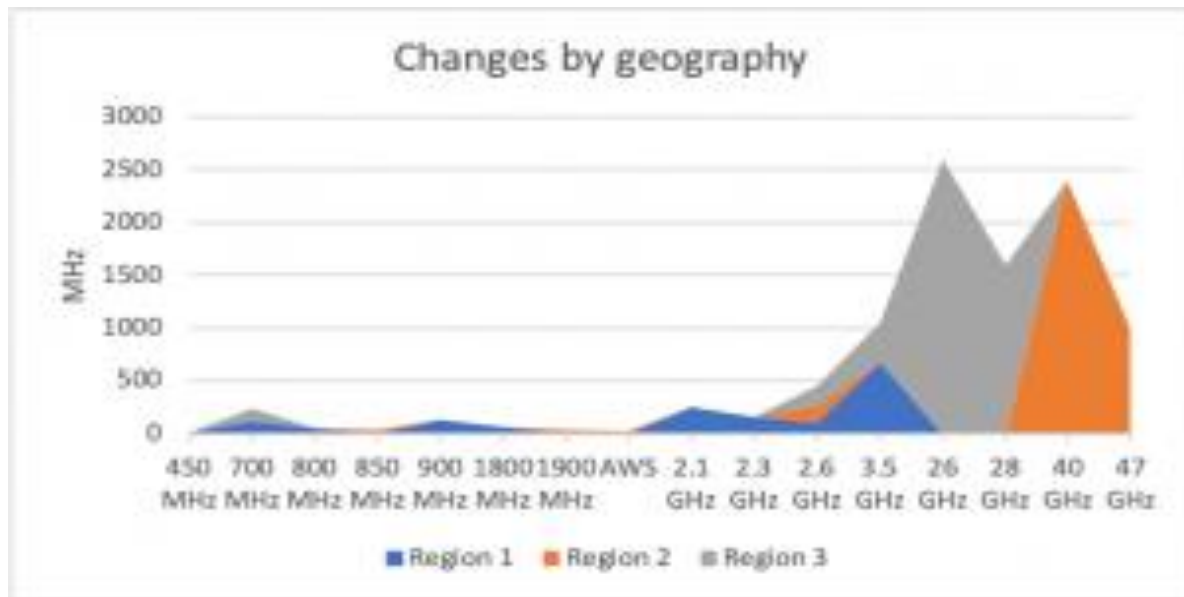
The new iteration of the PolicyTracker Spectrum Database (PSD) takes into account over 10,000 MHz of new or changed national spectrum assignments. The COVID-19 pandemic may have put several imminent spectrum auctions on ice, but the first three months of 2020 had already seen an enormous amount of spectrum put under the hammer.



This included three mmWave auctions: the 37.6—40 GHz and 47.2—48.2 GHz bands in the US, the 26 GHz band in Thailand and the 28 GHz band in Taiwan. Below 6 GHz, 1550 MHz of spectrum has been awarded. This includes four awards of the 700 MHz band and the 3.5 GHz bands across six countries: China, Denmark, Hungary, Iceland, Taiwan and Thailand. The US mmWave auction gained attention for the quantity of spectrum made available, but Taiwan’s auction is also notable for the large prices paid for the 3.5 GHz band. Despite the regulator’s attempts to calm the bidding, the band sold for the equivalent of \$0.70/MHz/POP.



Although most of the changes to the database arose from awards, assignments for 932.8 MHz of spectrum were down to other factors, predominantly in bands below 2.6 GHz. This includes a trade of 2 x 10 MHz in the 900 MHz band in Nigeria and Romania’s renewal of 138.8 MHz of spectrum in the 2.1 GHz band. In Nepal, the 1800 MHz band was reshuffled to make space for a new licence holder. Three mergers also completed in the first quarter of 2020: Vodafone Malta’s sale to Monaco Telecom, Tele2 Russia’s takeover by state-owned Rostelecom and the long-awaited merger of T-Mobile and Sprint in the US. Over 60 per cent of the changes below the mmWaves were in Region 1 (Europe, Middle East, and Africa) but significant changes also took place in the rest of the world. When the mmWave awards are taken into account, Region 1 only accounts for 16 per cent of the changes, while the Americas account for 36 per cent and Asia-Pacific for 48 per cent.



The PSD tracks changes to global spectrum allocations and assignments from auctions, beauty contests, renewals or the results of trades. It is updated quarterly and is available as part of our Spectrum Research Service.

# **Telecommunications Policy**

## **Special issue Call for Papers**

### **OTT and live streaming services: Past, present and future**

#### **Background and Motivation**

OTT is the abbreviation for “over-the-top” and refers to the distribution of video contents over a public network. With increasing popularity of smart connected devices and internet penetration, the global OTT service market is anticipated to grow from \$81.60 billion in 2019 to \$156.9 billion by 2024, exhibiting a CAGR (Compound Annual Growth Rate) of 14% (Markets and Markets, 2020). During the forecasted period, video on demand (VOD) services, especially subscription-based video-on-demand (SVoD) services and live streaming content, are expected to grow at the highest rate. In the SVoD market, Netflix remains to be the global market leader with 167 million subscribers worldwide. However, its dominance is estimated to weaken with the recent launch of Disney Plus and the rise of Asian OTT service providers. For example, Korea’s Wavve, China’s Youku and Malaysia’s iFlix are just a few local OTT platforms that can challenge global OTT service providers. With Asia being the next lucrative OTT market, severe competition between local and global players is expected.

The live streaming sector is a growing market with significant potential. From professional live content to user-generated content, the openness and authenticity of live streamed contents are engaging more audiences. Top performing players in the live streaming industry include but not limited to YouTube TV, Facebook Live, Periscope, and Twitch. Live streamed content is also popular in Asia with many audiences who consume live streaming content for entertainment and commercial purposes. For instance, Deloitte prospects China to be the largest live streaming market with more than 500 million users (Carnahan, 2020; Deloitte, 2018). Growth in the live streaming sector has led to the establishment of multi-channel networks (MCNs) that offer profound assistance to live content streamers.

Despite the growing interest in OTT services, emerging literature highlights the need for more research. In the domain of OTT SVoD services, many studies appear to examine the platform’s businesses and its impacts on various areas. For studies related to business strategies, case studies and modelling techniques are adopted to understand the service systems of OTT service providers (i.e., Hallinan & Striphos, 2016; Hiller, 2017). Studies comparing different OTT SVoD service providers and their business strategies provide an understanding of the industry (i.e., Park, 2017; Sanson & Steirer, 2019; Wayne, 2018). In light of global OTT platforms’ entrance into different countries, there are studies comparing local and global service providers to explicate the competitive dynamics between them (i.e., Dwyer et al., 2018; Kim et al., 2016). Recent studies further examine this phenomenon through the conceptual lens of imperialism to investigate the cultural impacts of global service providers (i.e., Fitzgerald, 2019; Lobato, 2018). Besides cultural impacts, OTT services’ influence on telecommunication providers, traditional industries, and users are also topics that continue to be discussed (i.e., Kim et al., 2017; Kim et al., 2019; Sujata et al., 2015).

Live streaming contents and MCNs are recent terminologies and thus the literature is still in its infancy. Many prior studies focus on YouTube and examine why and how live video streaming has become the new alternative to mainstream contents (i.e., Koch et al., 2018; Hu et al., 2017). In addition, studies on live streamers’ self-presentation techniques focus on the monetary profits or streamers’ influences (i.e., Johnson & Woodcock, 2019; Lee et al., 2019; Mardona

et al., 2018). With MCNs being a new type of entity created for online streamers, prior literature investigates the evolution and role of MCNs in the live streaming industry although it is still in its early stage of research (i.e., Gardner & Lehnert, 2016; Hou, 2018; Lobato, 2016; Vonderau, 2016).

### **Objectives and Topics**

This special issue aims to provide both theoretical and practical studies on the past, present and future of OTT and live streaming services, and their market and policy implications. Considering the wide scope of the *Telecommunications Policy* journal, we welcome work on various, multi-disciplinary topics regardless of the types of research methodologies adopted. Below is a list of potential topics, but topics for this special issue are not limited to the following:

- The OTT market structure and ecosystem;
- Competitive dynamics between Traditional pay TV platforms and OTT platforms;
- Impacts of global OTT service providers such as YouTube and Netflix on local broadcasting markets;
- The rise and prospects of new OTT service providers;
- The relationships between content providers and OTT service providers;
- AI (Artificial Intelligence), algorithms, and content strategies by OTT players;
- Users' adoption and switching behaviors in OTT service markets;
- Determinants of the success of VoD contents in OTT platforms;
- Determinants of user engagement with VoD and live streamed content
- Factors influencing the success of live streaming channels and contents;
- New business models for OTT, live streaming contents and MCNs
- Regulations for OTT and live streaming services;
- Policy issues related to OTT and live streaming services;
- Comparative studies at regional and international levels;

### **Important Dates**

Paper submission: August 31, 2020

Final acceptance: December 31, 2020

Publication: June 30, 2021

### **Submissions Guidelines**

Papers should follow the standard guidelines of *Telecommunications Policy* and they will be selected competitively according to their intrinsic quality. All papers will be subject to a standard refereeing process.

Telecommunications Policy website for on-line submission:

<https://www.evise.com/profile/#/JTPO/login>. Choose Special Issue "OTT and live streaming" as Article Type in the drop down menu. Journal information can be found at: <https://www.journals.elsevier.com/telecommunications-policy>. Authors' guidelines are available at: <https://www.elsevier.com/journals/telecommunications-policy/0308-5961/guide-for-authors>. Only original submissions will be considered, not submitted in parallel elsewhere.

### **Guest Editors**

Prof. Seongcheol Kim (Managing Guest Editor, Korea University)

Prof. Hyunmi Baek (Guest Editor, Korea University)

Prof. Dam Hee Kim (Guest Editor, The University of Arizona)

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## **New Report Provides Support for Establishment of Interference Limits for Radio Systems Silicon Flatirons Center for Law, Technology, and Entrepreneurship, University of Colorado Law School,**

Today, two senior FCC economists published a report on the Social Science Research Network (SSRN), entitled, "Can Market Forces and an Interference Limit Together Promote the Efficient Co-existence of Radio Systems?". The report provides a detailed economic analysis of an interference limit regime, and concludes that, under certain economic and regulatory conditions, it can improve the efficiency of radio system co-existence.

Authored by William W. Sharkey and Mark M. Bykowsky, the report analyzes the economic benefits of establishing an interference limit, a policy tool that specifies the level of radio interference that receivers should be expected to tolerate before a radio service operator can make a claim to the regulator of harmful interference. It finds that "an interference limit can increase the likelihood that two radio system operators can come to a mutually beneficial agreement about both the level of interference that should exist between [them]," as well as "lead to the manufacture of higher quality receivers."

The role of receivers in interference is a long-standing topic of the Silicon Flatirons Spectrum Policy Initiative. The idea of an interference limit (also known as a harm claim threshold) was first broached in a Silicon Flatirons event in December 2009. It was further developed in a series of papers, including a 2014 report by the FCC Technological Advisory Council (TAC) on "Interference Limits Policy and Harm Claim Thresholds." Pierre de Vries, a Director of the Silicon Flatirons Spectrum Policy Initiative, was the principal author of the TAC report, which recommended a three-step process the FCC could adopt to roll out interference limit policy.

The following may be attributed to **Pierre de Vries**: "My colleague Dale Hatfield has noted that the spectrum policy community has spent more than a decade developing good policy ideas, and the time has now come to turn them into reality. This report is an essential step in deploying interference limits policy, which will increase the value of radio services by helping to balance transmitter- and receiver-created interference, something Dale has championed for decades. This report is the first economic analysis of the interference limit concept, and a significant milestone in its development. It not only provides reassurance of the economic value of interference limits, but also describes the kinds of information a regulator needs to implement it effectively. We commend Drs. Sharkey and Bykowsky on this important work and thank the FCC for providing the authors the time and resources needed to examine this important issue."

The following may be attributed to **Dale Hatfield**, former Chief of the Office of Engineering and Technology at the FCC, and a Director of the Silicon Flatirons Spectrum Policy Initiative: "My colleague, Dr. De Vries, is a true polymath and a fountain of original ideas as exemplified by his development of the interference limit concept. Recent events have shown how vital radio spectrum is to the nation's economic and social wellbeing, and to national defense and homeland security. In that context, I cannot think of anything more important than creating economic incentives for all segments of the wireless industry to improve receiver performance without the government resorting to heavy-handed regulation. I am grateful to my former

colleagues at the FCC, Mark Bykowsky and Bill Sharkey, for the work they have done to move the concept forward."

The following comment may be attributed to **Drs. Bykowsky** and **Sharkey**: "This work would not have been done without Pierre and Dale's determined efforts to find an efficient mechanism to allow the co-existence of multiple radio systems. It is our hope that this paper will help to re-start a careful examination of the role of an interference limit in this endeavor."

The Silicon Flatirons Spectrum Policy Initiative is directed by Dale Hatfield and Pierre de Vries. In October 2020, the Initiative will host a conference on "Evidence-Based Spectrum Policy" at the University of Colorado Law School in Boulder, Colorado.

## 2020 ISIF Asia Grants applications open

Applications are open for the 2020 ISIF Asia Network Operations Grants.

Funding of USD 60,000 (two grants of USD 30,000 each) will be awarded to two research and development projects, focused on the availability, reliability, and security of the Internet, with a particular focus on practical solutions around operational stability and security.

Funding for these grants is provided in full by APNIC.

Research proposals must be focused on one or more of the following three areas:

- Practical solutions to improve security of the Internet routing system through use of the Resource Public Key Infrastructure (RPKI) standard.
- Practical solutions that promote the use of registry data through Registration Data Access Protocol (RDAP).
- Tools and applications that facilitate analysis of live or historical datasets related to Internet infrastructure and its security.

Applications are open now until 21 June 2020 at 11:59 (UTC).

Before you submit your grant proposal, please read the:

- [ISIF Asia Frequently Asked Questions](#)
- [Guidelines for Grant Application](#)
- [Selection Criteria](#)
- [Key dates](#)

[Submit a research grant proposal](#)

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About ISIF Asia

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The Information Society Innovation Fund (ISIF Asia) is a grants program empowering communities in the Asia Pacific region to research, design and implement Internet-based solutions for their own needs, placing

particular emphasis on the positive role the Internet has in social and economic development in the region.

ISIF Asia offers support through annual competitive grants processes and offers support for a range of capacity-building opportunities for selected recipients.

ISIF Asia is administered by the APNIC Foundation.

For more information, please contact Sylvia Cadena | APNIC Foundation - Head of Programs | [sylvia@apnic.net](mailto:sylvia@apnic.net)