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**BHUTAN INFOCOMM AND MEDIA AUTHORITY**

**ROYAL GOVERNMENT OF BHUTAN**

## **Report on Regulatory Aspect of Over-The-Top (OTT) services**

**June, 2021**

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## **1. Introduction**

Information and communication technology is developing at a faster rate with rapid penetration of mobile broadband internet and smartphones across the world. With such trends, numerous digital platforms have been created where digital services and contents nowadays are being delivered to the people using the public internet as a medium. One such popular digital platform is OTTs (Over-the-Top) services which have supplemented the traditional telecommunication services provided by telecom operators. The additional features and functionality of OTT over traditional telecommunication services has attracted millions of OTT consumers around the world. With the emerging OTT applications and online services, the transformation and widening of the communication ecosystem has taken place to greater extent where OTTs have played a vital role in strengthening global digital connectivity and providing social and economic benefits to its consumers.

There is a perception that the growth of OTT services is a reason for drop of revenue from traditional telecom services and increase in investment of telecom operators for building additional infrastructure to meet growing demand of OTT services. There is also a perception that the internet television over fixed broadband and mobile broadband networks are impacting the broadcasting, content /creative industries. On another dimension, the growth of OTT services has increased the data traffic of telecom operators and their revenue from sale of data has also increased. The increased competition due to the growth of OTT services has also provided societal welfare to consumers by offering services at cheaper rates.

The real time OTT services providing the voice call and instant messaging services poses threat to the traditional voice and SMS services. However, the complete functional substitutability of traditional voice and SMS services by the OTT messaging app like WhatsApp, WeChat, Viber and etc. is still under question. The OTT services create value for the use of bandwidth to its users. The smart-phone penetration may still be in its infancy in developing countries. The broadband penetration is still very low in those countries. Therefore, some form of partnership will be required with OTT service providers taking into consideration both security and privacy issues.

## **2. Overview of OTT services**

OTT (Over-the-Top) can be defined as any application or service which is capable of delivering digital content /services over an internet access network that can be regarded as potentially substituting for traditional telecommunications and broadcasting services such as voice telephony, SMS, video on demand and television.

A wide variety of OTT services are available and they can be broadly classified into three categories:

1. OTT communication and Messaging Services e.g. Viber, Telegram, Skype, WhatsApp, WeChat, Google Talk, etc.
2. OTT audio and visual broadcasting services e.g. YouTube, Netflix, Pandora, Spotify, IP TV, video on demand etc.
3. OTT Applications like, e-commerce, e-health, e-education apps, banking apps, social networking apps etc.

## **3. OTT services in Bhutan**

OTT and online services in recent times has become popular in Bhutan and most public service delivery, entertainment services, communication services and banking or financial service in Bhutan has shifted to OTT platforms. OTT banking app like MBOB, MPAY, TPAY and BDD ePAY have become popular and they have made banking services easier and more convenient.

Regarding OTT audio and visual broadcasting services in Bhutan, Bhutan Telecom limited (BTL) have introduced an over the top (OTT) application called B-Trowa to stream videos on demand, audio on demand, live television and live radios. The service was initially named as BBTV and launched on 17<sup>th</sup> May, 2019 coinciding with the World telecommunication and Information society day. Currently, B-Trowa provides live streaming of two television channel (BBS I and BBS II), five Radio channels (BBS radio1, BBS radio 2, Kuzu FM Dzongkha, Kuzu FM English and Radio valley FM) and More than 200 Dzongkha movies. In March 10, 2021 the Business Bhutan newspaper reported that “SAMUH Mediatech, a technology based media startup in the country, is all set to launch Bhutan’s own ‘Netflix’ equivalent platform in June this year. The startup’s OTT platform – SAMUH (meaning cloud in Dzongkha) – will be available through mobile and smart TV Apps and a web platform for laptop and PC users in Bhutan and around the world. SAMUH will offer exclusive original Bhutanese films, series, children’s animations, music videos and other local programs”<sup>1</sup>. International OTT services like WhatsApp, Facebook, Instagram, Telegram, WeChat, Netflix and YouTube are popular among people. Most people here in Bhutan like in other countries are now using WhatsApp, Telegram and WeChat for voice communication and messaging purposes. Due to such trends, telcos in Bhutan has also reported increase in 3G and 4G

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<sup>1</sup> <https://businessbhutan.bt/2021/03/10/bhutans-first-ott-platform-to-be-launched-this-year/>.

subscriber over years <sup>2</sup>which have increased the data traffic of telcos thereby increasing their revenue from data services.

#### **4. Benefits and opportunities of OTT**

The access to public internet by the people around the globe has increased drastically due to increase in mobile internet penetration across the world. The internet connectivity has an immense impact on social, economic and political aspects of most countries. The growing availability of broadband networks, increased competition, and declining data charges has enabled the rise of various OTT services. OTT services have further contributed to societal welfare and economic progress in countries around the world. The following can be considered as benefits of OTT services and underlying benefits creates opportunities like creation of ecosystem for innovation and OTTs impact on societal welfare.

1. Effective and efficient delivery of public services using OTT service has made life easier for the people e.g. E-Commerce, M-Commerce, E-Health, E-Education emerging in the form of OTT services.
2. Creates an ecosystem for innovation for internet services.
3. Creating value for bandwidth or network (utilization).
4. OTT Apps like Facebook, Instagram, WhatsApp, WeChat and etc. have created a social media platform which has a huge impact on the social and economic aspect of a people.
5. Increase in internet traffic and increase in revenue from data services.

#### **5. Impact of OTT services**

The impact of OTT services can be discussed on the following issues:

##### **5.1. Impact on traditional service (voice and SMS services) revenue of Telecom Service Providers (TSPs).**

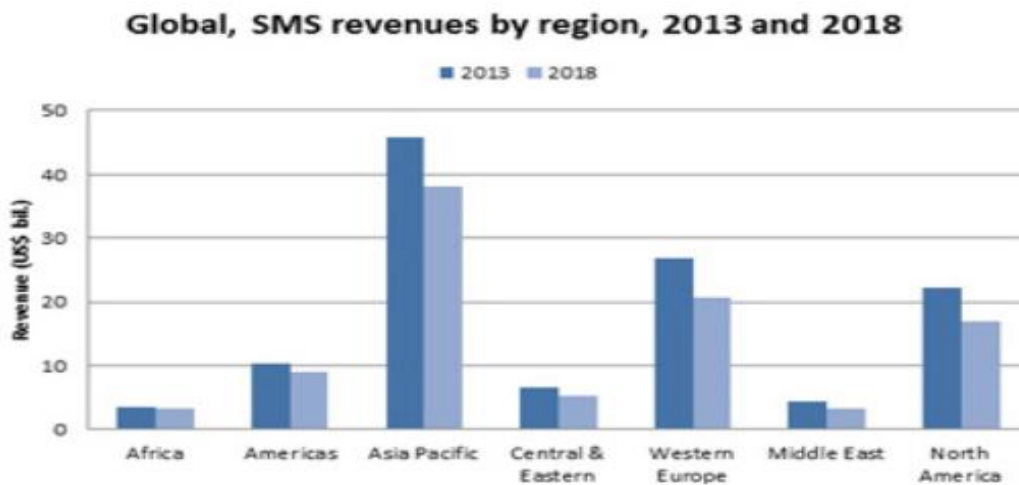
In general, an OTT application rides over the infrastructure of TSPs (Telecom Service Providers) to reach their user and deliver products/services that compete with the services offered by the TSPs (voice, SMS etc.). The various value added features in OTT application, cheaper rate and more convenient to use the OTT services compared to the traditional telecommunication services has led to growth and popularity of OTT services. Most of the people around the globe now have

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<sup>2</sup> <https://www.moic.gov.bt/wp-content/uploads/2020/12/3rd-Quarter-July-August-September2020.pdf>

switched to OTT messaging applications like WhatsApp, WeChat, Viber and etc. for messaging and voice call services. With such a trend, there is a decrease in users of voice and SMS services which has directly led to decrease in revenue of Telecom Service providers (TSPs) from the voice and SMS services thereby impacting the overall revenue of the TSPs.

The use of SMS services, traditionally a lucrative business for mobile operator, is declining<sup>3</sup>. Though the real cause of this decline in use of SMS service is not proven, most of the studies/ research suggest that the growth of OTT messaging applications like WhatsApp, WeChat, Telegram and etc. has substituted the traditional service like Voice and SMS. It was estimated that the worldwide amount of messaging revenue loss to TSPs because of OTT apps was around \$ 50 billion in 2016. The figure 1 below shows the global trend of decline in SMS revenue from 2013 to 2018.



Source: Informa Telecoms & Media <sup>4</sup>

*Figure 1: Global SMS revenues by region of the world (2013 and 2018)*

The increased penetration rate of smartphones is considered to be one of the attributes for the growth of OTT messaging applications like WhatsApp, WeChat, etc. and many studies have indicated that there is a downfall in traditional service (voice/SMS) revenue with the increase in smartphone penetration. According to a study, in Spain in 2012, 63% of Smartphone users were using OTT apps for messaging because Sending videos and images through such messaging platforms has become easier and cheaper when compared with traditional messaging or MMS messaging messages.

<sup>3</sup> ITU-T Technical Paper “Economic impact of OTTs”.

<sup>4</sup> <https://www.informa.com/media/press-releases-news/latest-news/global-annual-sms-revenues-will-be-us23-billion-less-by-2018/>

## **5.2 Impact of OTT services on data traffic and revenue from services**

The increase in mobile broadband internet penetration, smartphone penetration and trend of reduced data rate has somehow attributed to the growth of OTT application and services. The growth of OTT on the other hand has increased the data traffic and internet bandwidth utilization of Internet Service Providers (ISPs) and mobile operators. TSPs around the globe has recorded the increase in revenue from sale of data services with the advent of online and OTT services.

The report on “Regulatory Framework for Over-the-top (OTT) services” by TRAI, India, have stated that “In India, data usage has increased from 49645 TB in Oct 2013 to 90267 TB in December 2014, showing a cumulative annual growth of 65.2%. The data revenue has nearly doubled, from Rs. 3057.83 Crores in June 2013 to Rs. 5910.28 Crores in September 2014. It is estimated that data revenue as a percentage of overall mobile revenue will reach 32% by 2015 as compared to 14% in 2010.”<sup>5</sup> It is worth noting that although the TSPs are affected by the decrease in traditional services revenue by huge margin, the increase in sale of their data services in some way have compensated the decrease in traditional services revenue. Most studies reveal that the data consumption of OTT messaging does not contribute to the revenue of TSPs as much as what voice and SMS services would have generated revenue for the TSPs. In some countries, the net effect is an increase in network operator revenues rather than a decrease. Circumstances could however vary greatly from one country to the next. The effects of online and OTT services on revenues including the compensation of revenue from increase in data services to the decrease in traditional service revenue is complicated topic which is beyond the scope of this study.

## **5.3. On infrastructure cost and investment.**

The rapid growth of OTT services has made a tremendous impact on TSP’s infrastructure cost and shift in their investments to cater the growing demand of OTT services. “With ubiquitous presence of high speed broadband networks and the large number of smartphone users, there will be greater and greater shift of subscribers from traditional telephony or mobile to OTT communications for voice and video calling”<sup>6</sup>.

The growth of OTT services has increased the demand of data services by the people and the TSPs around the world has been experiencing rapid increase in data traffic and internet bandwidth utilization. To meet this demand, the mobile network operators have been pumping huge

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<sup>5</sup> Telecommunications Regulatory Authority of India (2015), “Regulatory Framework for Over-the-top (OTT) services”.

<sup>6</sup> “SATRC report on policy, regulatory and technical aspects of OTT services in SATRC countries” , Adopted by 17th Meeting of the South Asian Telecommunications Regulator’s Council 4 - 6 October 2016, Dhaka, Bangladesh.

investment in building a high capacity network infrastructure. This may impact the network operator investing in the next generation network such as VoLTE, 5G, IoT in access network and future fiber technologies and millimeter wave technology in long haul and backhaul networks.

#### **5.4 Consumer welfare due to competition.**

In principle, the competition law and economics are relevant to all services and this has also impacted on the online and OTT services. Besides OTT services having negative impact on the revenue from traditional telecommunication services and additional investment on infrastructure of TSPs, OTT services have positive impact on consumer welfare. ITU technical report on Economic Impact of OTTs have reflected that “Consumers presumably view OTT services as offering better price/performance than the services for which they substitute (otherwise, they would not be purchased). The OTT service is either less expensive than an equivalent service, or else offers better value overall”.

OTT and online services can intensify competition and thus, it reduces the profit margin (spread between cost and price). This increases the market efficiency where reduced retail price has two effects on societal welfare. First, the reduction in transfers of societal welfare from producers to consumers. Second, the reduced retail prices lead to increased consumption due to the price elasticity of demand. More of the product or service is consumed. Thus, this effect benefits both suppliers and consumers. In OTT and online service contexts, both OTT service providers and consumers can be benefited due to increased competition.

### **6. Policy and Regulatory Aspect on Competitive neutrality (level playing field)**

A number of the regulatory debates are ongoing with respect to OTT services. With the growth of OTT and related online services, numerous challenges to public policy have also emerged. The similarity and difference in nature of services provided by OTT services and conventional telecom and broadcast services is widely debated at international level (ITU).

The discussion on OTT services (including messaging services, VoIP services, and streaming video) competing with traditional services (SMS, voice telephony, and conventional broadcast services) remains ambiguous. The telecom operators contend that OTT players offering real-time communication services e.g. voice, messaging and video call services are competing in the same market segment as that of mobile and fixed line operators. The telcos also contend that the OTT service providers have competitive advantage over the traditional telecom services due to OTT service providers facing less regulatory barriers. With this, an issue of regulatory imbalance between OTT service providers and telecom service providers have been raised.



The regulatory imbalances between OTT players and Telecom operators are identified in the following:

- **Licensing:** The telecom service provider needs to have an operation license for different services with a license fee whereas no such licenses or costs are applied to OTT service providers.
- **Spectrum related Charges:** TSPs need to bear the spectrum costs. OTT service providers do not have to bear spectrum cost and their services ride over the TSPs network infrastructure.
- **Operating area:** Telecom operators are only serving customers within the regulated jurisdiction whereas OTT service providers are serving all over the globe.
- **Interconnection:** TSPs are required to establish interconnection facilities as required by the license terms and condition and requirement to interconnect entails costs. OTT service providers don't have any interconnection requirements.
- **Infrastructure/Investment:** Telecom operators are investing huge amounts for building their network/ infrastructures. OTTs are only riding over their network and running their business.
- **Security conditions:** TSPs need to adhere to security conditions as per the Act and regulations. No such requirement for the OTT service providers.
- **Lawful interception and monitoring:** TSPs are required to abide by the provisions of lawful interception and monitoring as per the Act and regulation. No such requirement for the OTT service providers.

On the other hand, many OTT service providers argue that there are significant differences between OTT services and traditional services (Voice and SMS). They have even stated that the demand for OTT services actually drives demand for greater access and broadband speeds, as well as levels of data usage, therefore resulting in greater overall revenue for telcos. “As such, they contend that further regulation would be inappropriate and risks stifling innovation and the economic and social benefits that OTT services provide”.<sup>7</sup>

Another issue is even if we regulate the national/local OTT service provider, it will be cumbersome to regulate foreign or international OTT platforms due to limitation on jurisdiction and difference of regulatory regime within countries worldwide. Therefore, there is a difference in level playing field between national/local OTT service providers and international OTT players.

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<sup>7</sup> <https://www.gp-digital.org/wp-content/uploads/2017/12/itu-ott-2.pdf>

## **7. Challenges**

The challenges posed by OTT services to policy makers and regulatory bodies can be discussed in the following headings.

### **7.1 Security and Reliability**

The security of all electronic services is important. In most countries, network operators are subject to security obligations of their network where governments or regulators monitor the reliability and security of major networks. OTT and related online service providers tend to be subject to fewer security obligations. They may however be subject to obligations to report significant security breaches. Lawful Interception (LI) is the legally approved surveillance of a telecom network. It is an important tool for investigating and prosecuting criminal (cyber) activities and terrorism. The regulation on Lawful interception reposes an obligation on TSPs to grant Law Enforcement Agencies (LEAs) access to their network/services as and when required by the LEAs. However, some regulatory authorities have expressed concerns over lack of clarity on the applicability of these obligations to OTT services.

The challenges on the applicability of provision of Lawful interception to the OTT services can be due to the jurisdiction barrier of international OTT services. For local OTT providers, regulatory requirements can be created on data storage and data book keeping. For Global service providers, regulators should work within the region so as to bring Global OTT service providers within the regulatory framework.

### **7.2 Privacy (data protection)**

OTT communications and OTT media can pose a threat to privacy. Given the large amounts of personal information and data generated, collected and used by OTT services, it is important that there are sufficient protections in relation to individuals' right to privacy and data protection. This information may also be used to commit a crime, or the location itself may be the target of a crime. Such threats can impact the nation's security and financial health. The cybercrimes such as cracking, phishing, piracy, identity theft and child pornography and cyber-extortion have been gaining ground in recent years. Further, there is very little regulation for OTT players on data privacy and users have very little or no control on user data.

“Local OTT service providers should be liable for the national data privacy regulation and should be registered in the regulatory framework. For Global service providers, the regulators need to work with regional regulators so as to bring Global OTT players within regulatory framework”<sup>8</sup>.

### **7.3 Net Neutrality**

Network neutrality is best defined as a network design principle. The idea is that a maximally useful public information network aspires to treat all content, sites and platforms equally. This allows the network to carry every form of information and support every kind of application” - Professor Tim Wu, who coined the word “Net Neutrality”.

The Body of European Regulators for Electronic Communications has defined net neutrality as “The principle that all electronic communication passing through a network is treated equally.” In other words, Net Neutrality implies that there cannot be any price discrimination between suppliers of content and also among the customers that access such content. Yet other economists, and a majority, argue that price discrimination is legitimate especially in view of externalities i.e. if a video service demands more bandwidth it ought to pay more. Different countries have different approaches to implementing the principle of Net neutrality. The discrimination between normal traffic and OTT application traffic seems to be persist in most countries since the regulation and approach on net neutrality principle differs from country to country.

## **8. Regulation on OTT services in other jurisdictions**

Various countries have taken different approaches on regulating OTT services in their jurisdiction. Some jurisdiction like United States of America (USA)<sup>9</sup>, European Union (EU)<sup>10</sup> and Qatar<sup>11</sup> have specific laws and policies for regulating VoIP services. The Countries like Japan and South Korea does not have specific policy and regulation on OTT services, but the OTT apps such as Kakao Talk (South Korea) and LINE (Japan) have expanded worldwide following successful adoption in

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<sup>8</sup> SATRC report on policy, regulatory and technical aspects of OTT services in SATRC countries” , Adopted by 17th Meeting of the South Asian Telecommunications Regulator’s Council 4 - 6 October 2016, Dhaka, Bangladesh.

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<https://www.fcc.gov/consumers/guides/voice-over-internet-protocol-voip>

<sup>10</sup> [EUR-Lex - 32018L1972 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/lexuri-uri.do?uri=CELEX:32018L1972:EN:EUR-Lex)

<sup>11</sup> <https://www.motc.gov.qa/en/news-events/news/qatar-voice-over-internet-protocol-voip-policy>

their launch countries<sup>12</sup>. In countries like UAE, Egypt, China, Russia and Vietnam, there is precedence of blocking VOIP<sup>13</sup> in their jurisdiction.

Regulatory framework on OTT service in south Asia region is still at nascent stage, where only India (TRAI) has published a consultation paper on “Regulatory Framework for Over-the-top (OTT) services” in March, 2015<sup>14</sup> . While other south Asian countries like Afghanistan, Bangladesh, Iran, Maldives, Nepal, Pakistan and Sri Lanka are planning for the same.

## **9. Relationship between telecom service providers and OTT service providers**

OTTs effect on decrease or increase of revenue of telecom service providers is subject of debate between TSPs and OTT service providers. In the other context, OTTs and network operators need each other to thrive in the contemporary communications marketplace. TSPs or network operators can be benefited by the increase in use of OTTs. Faster augmentation of broadband networks to increase the revenue from data services while at the same time maintaining the traditional voice and SMS services till it requires phase out may also help TSPs to boost their revenue. OTT service providers can be benefitted from the increased penetration of mobile broadband networks by the TSPs and enhanced quality of service delivered by the TSPs. It is rather a Win- Win relationship given the OTTs and TSPs work in symbiotic relationship manner.

There is always an interdependence between content and access. More content brings more people online, which scales up revenue of access providers, which further increases available and relevant content thereby increasing the revenue of OTT service providers and content providers.

Some operators still contend that the consumer demand for OTTs is responsible for decreasing volumes of international voice calling and a subsequent thinning of their high operating margins. However, much contemporary research does not support claims that operators are either losing revenue from decrease in voice traffic because of OTTs. “For example, voice traffic has grown every year on Airtel’s African network since 2012. As a further example, since 2013, revenues have increased in 11 of the 13 African markets in which MTN operates. MTN’s revenue developments demonstrate two important points: one, the general revenue trends are positive

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<sup>12</sup> <https://www.linkedin.com/pulse/customer-service-via-ott-messaging-apps-next-step-social-atul-arora>

<sup>13</sup> [https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2016/Jul-RR-ITP/OTT\\_by\\_Telenor.pdf](https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2016/Jul-RR-ITP/OTT_by_Telenor.pdf)

<sup>14</sup> “SATRC report on policy, regulatory and technical aspects of OTT services in SATRC countries” , Adopted by 17th Meeting of the South Asian Telecommunications Regulator’s Council 4 - 6 October 2016, Dhaka, Bangladesh.

despite growing numbers of OTT users and OTT traffic;and two, revenues and profitability are mainly the results of an operator’s ability to seize revenue opportunities and mitigate risk”<sup>15</sup>.

The indirect effect of OTTs on operators’ revenues is a matter of debate, now most people have accepted that the partnership between network operators and providers of OTTs have vast potential for both the TSPs and OTT service providers. Analysys Mason estimates that if OTTs and telecommunication operators partnered more closely together, it could increase telco operational free cash flow by almost 50 per cent – or more than EUR 15 billion – in Europe, the Middle East and Africa <sup>14</sup>.

## **10. Conclusion**

The growth of OTT services have contributed to societal welfare and economic progress in countries around the world. The prominent benefit of OTT services can be enabling effective and efficient public service delivery, impact on economic growth, consumer welfare and creation of an ecosystem for innovation. The ineffective regulation on OTT services may reduce consumer welfare and stifle innovation. On the other hand, the impact of the OTT service on the business model of traditional services providers (voice, SMS, and audio visual broadcasting services) is a widely debated topic worldwide. With such trends, there is a discussion on the need to regulate OTT services based on OTT services impact assessments, opportunities and challenges of OTT services. Apart from discussion on the need to regulate OTT services, most people now have accepted that the partnership between network operators and providers of OTTs have vast potential for both the TSPs and OTT service providers.

The regulation on OTT services in most countries is under discussion, regulating OTT services in Bhutan may not be needed at this point of time. However, developments on OTT can be monitored and intervention as felt necessary can be done at appropriate time. The choice between traditional services versus OTT services may be made by the market, with as little interference as possible by regulatory authorities. The privacy and security aspect of OTT services can be monitored by relevant agencies like BtCIRT, DITT,MoIC since the growth of OTT services is associated with risk of cyber threat and attacks. Further, the regulatory action towards a more level playing field with regard to consumer’s privacy, data protection and consumer protection may also be considered. The other challenge of OTT services is with regard to the principle of Net Neutrality, in order to have proper guiding regulation on OTT services, there is need of clear policy/regulation on Net neutrality.

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<sup>15</sup> [https://www.itu.int/dms\\_pub/itu-d/oth/07/23/D07230000030001PDFE.pdf](https://www.itu.int/dms_pub/itu-d/oth/07/23/D07230000030001PDFE.pdf)