Regulatory and tax treatment of OTTs in Africa

RIS

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Table of Contents

Executive Summary

In July 2018, the Ugandan government imposed two new excise duties: a mobile money tax of 1% on the transaction value of payments, transfers and withdrawals and a social media tax of 200 UGX per day. The impact was immediate and the estimated number of Internet users in Uganda dropped by nearly 30% between March and September 2018. But the impact is far wider than just the number of internet users. An initial estimate in August 2018 was that Uganda had forgone 2.8% in economic growth and UGX 400 billion in taxes.

Additional ICT sector taxes are being discussed across Africa, mostly in the form of end user consumption taxes for social media, IP communication or just general data use. Demands to subject Over The Top (OTT) providers to ICT sector specific regulations are also frequently raised. These taxes and regulations are justified by a misconceived understanding of the Internet value chain and the role of OTTs. To understand the impact of taxes and regulations targeted at social media, this report looks at available evidence as well as a select number of case studies from around the world. The main findings of the report are:

- OTTs suffer from the lack of a clear definition, which makes an evidence based discussion about the impact of OTTs difficult. This report proposes a definition of OTTs for Africa.
- The lack of a clear definition is exacerbated by a misunderstanding of the impact of social media taxes on the Internet Value Chain. The introduction of social media taxes has a negative impact on all segments of the value chain, not just on the connectivity component.
- The rise of OTTs has coincided with a changing business model for MNOs as networks are transformed from circuit switched to packet switched networks. Data revenues are going to replace 'traditional' voice and SMS revenues. Further investments are being made into creating faster data networks and data demand is driven by user generated content and social media. Obstructing OTTs, specifically social media, would reduce demand for data and thus data revenues.
- OTT providers are generally not subject to telecommunication regulation. African regulators are in the process of assessing the impact of OTTs on mobile telecommunication revenues in response to complaints raised by operators.
- OTTs are currently complements not substitutes for voice and SMS due to issues such as interoperability and quality of service. However, OTTs may act as substitutes in the future, which would mean lighter regulation for voice and SMS services.
- Social media taxes are imposed without any cost/benefit analysis. None of the African countries that have either imposed or proposed an OTT tax have conducted a rigorous assessment on the impact of these taxes. Also, the processes for arriving at these taxes has been often opaque and outside of any public consultation process.

This report uses a set of case studies to illustrate the way that social media taxes have been implemented around the world. The report concludes that regulators should see the ICT sector as an engine for economic growth and social inclusion and not as a cash cow; that taxes should be broad-based and not single out the ICT sector and that any new taxes, as well as existing taxes, must be subject to a detailed economic impact assessment.

1. Introduction

Additional taxes are being imposed on Internet users across Africa for social media use, IP communication or just general data use. Demands to subject Over The Top (OTT) providers to ICT sector specific regulations are also frequently raised. These taxes and regulations are justified by a misconceived understanding of the broadband value chain and the role of OTTs. The discussions at ITU Plenipotentiary (ITU-PP) Conference in Dubai in November 2018 further laid bare the vast differences in what OTTs are and how they should be addressed from a regulatory and tax perspective.

The result of the lack of a clear definition of OTTs and that several issues are often conflated that can only be resolved when treated separately. This is due to different oversight institutions being responsible for the various issues raised, including telecommunication and broadcasting regulators as well as tax collection institutions and consumer right protection agencies. The issues raised include:

- Some mobile operators complain that OTTs cause a decline in revenues from voice and SMS and that data revenues are not growing quickly enough to compensate for the voice and SMS revenue loss;
- Some pay TV broadcasters complain that streaming services provided over the public Internet result in a loss of subscription revenue and that internet streaming services do not have to pay local income and consumption (VAT or GST) taxes;
- Governments and Non-Governmental Organisations complain about disinformation campaigns (fake news) and that broadcasting standards that apply to public television do not apply to user generated content on the public Internet;
- Governments complain that multinational companies, such as Apple, Amazon, Google, Facebook avoid corporate income tax by taking advantage of tax shelters around the world.

Working with a clear definition of OTTs allows us to address these challenges in the appropriate fora and with relevant tools (Table 1).

Table 1: OTT related complaints/challenges and potential approaches and fora to resolve them

Claims		Potential Resolution	Primary Fora
OTTs harm the ICT Secotor	MNO's lose revenues	Analyse overall revenues not segment revenues of MNOs	Telecommunication regulators
	MNOs have to pay local taxes while OTTs are effectively exempt	Understand each segment of the Internet value chain with its specific investment and revenue models	
	OTTs benefit from MNO investment but don't pay for it.		
Broadcasting Sector	OTTs undermine broadcasting standards	Subject pay TV streaming services to national broadcasting standards	Broadcasting regulator
	Speed of disinformation	Increased emphasis on information literacy in education	Ministry of education
	Streaming services to not pay local taxes and thus disadvantage pay TV providers that are registered in the country	Reviewing GATTs commitments and tax treatment of export of services	World Trade Organisation
Multilateral companies ship profits to countries where they pay the least Corporate Income Tax		Closing loopholes that allow multinational companies to shift profits where taxes are lowest.	

Currently, the main problem is that interventions use the wrong tools or are implemented by the wrong organisations. For example, Uganda imposed a UGX200 social media tax in July 2018. The purpose of

the tax was both to cut down on fake news as well as reimburse mobile operators for losses from their voice and SMS business. However, the effect was to dramatically reduce the number of internet users. This has no impact on the proliferation of fake news and the reduction of Internet users means lower data revenues.[1]

This paper proposes a definition of OTTs that identifies its competitive impact and the responsible regulatory body. The proposed definition is intended to be a starting point for discussion and does not represent the views of Mozilla. As far as we are aware, this is one of the few discussion papers on the impact of OTTs that attempts to clearly define OTTs as well as their competitive impact and potential regulatory intervention (or non-intervention, as the case may be).

The focus of this paper is on the ICT sector only. It does not address:

- The issue of transfer pricing and fair corporate income tax regimes. The OECD[2] and the European Commission[3] are investigating this issue and the G20 has stated that changes to the corporate income tax regime will take place soon.[4]
- "Fake" news and the debate around censorship and freedom of expression.

Chapter 2 discusses various approaches to define OTTs. Chapter 3 discusses the changing mobile operator business models and investment and revenue trends. Chapter 4 deals with the regulatory treatment of OTTs and chapter 5 with some broad taxation issues. Chapter 6 concludes the paper and gives recommendations for the regulatory and tax treatment of OTTs in Africa. A fundamental consideration throughout the paper is the unintended consequences the current regulatory landscape creates for the Internet and its architecture.

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[1] See: https://researchictsolutions.com/home/wp-content/uploads/2019/01/Unleash-not-squeeze-the-ICT-sector-in-Uganda.pdf

[2] OECD. 2019. Addressing the Tax Challenges of the Digitalisation of the Economy. Available at https://www.oecd.org/tax/beps/public-consultation-document-addressing-the-tax-challenges-of-the-digitalisation-of-the-economy.pdf

[3] European Commission, Fair Taxation of the Digital Economy. Available at https://ec.europa.eu/taxation_customs/business/company-tax/fair-taxation-digital-economy_en

[4] Reuters, 7 June 2019. G20 agrees to push ahead with digital tax: communique. Available at https://www.reuters.com/article/us-g20-japan-tax/g20-agrees-to-push-ahead-with-digital-tax-communique-idUSKCN1T903D

2. Definition of OTTs

The confusion surrounding how to regulate OTTs is partly due to the lack of a common definition. There is no commonly accepted definition of OTTs that has been adopted by regulators in Africa. Several submissions were made to the ITU's Council Working Group on International Internet-Related Public Policy Issues (CWG-Internet) on policy considerations for over-the-top services (OTTs) in 2017:

- APC (2017:1) noted in its submission to the ITU: "the definition of what constitutes an OTT service has not been broadly agreed, and clearly means different things to different people."
- The Information Technology Industry Council (ITI, 2017) stated that "[t]he term "OTT" itself poses several challenges, as it is overly broad and poorly characterizes the actual role that these applications play. There is not a single prevailing global definition of the term "OTTs" nor should there be."
- Article19 (2017) commented: "OTTs operate at the content layer of the network: they are the platforms on which Internet users generate, consume, and exchange information. This layer is what makes connectivity meaningful, what elevates the Internet from a network of networks to a civic space for economic, social, civil, and political development."
- The Asia Internet Coalition (AIC, 2017) wrote: "Online content or services that operate separately from the network layer without the direct control or commercial distribution by network operators are often referred to as Over-The-Top (OTT) applications. This term, however, is vague and does not acknowledge the global infrastructure and engineering efforts in which OTT providers invest, the results of which are valuable new benefits to consumers, and increasing demand for Internet Service Providers' (ISP) data services. Different definitions of OTT vary wildly, in some cases capturing only a subset of messaging services, and in other cases the entire content layer of the Internet. Different definitions can cover diverse applications including communication services, transportation services, entertainment services, educational services, business services, and health services and pet welfare services."

The ITU used a working definition first proposed by Godlovitch et al (2015) for its 2017 report on the Economic impact of OTTs: "*an over-the-top (OTT) service is an online service that can be regarded as potentially substituting for traditional telecommunications and audiovisual services such as voice telephony, SMS, video on demand and television."* (ITU 2017:4)

The most recent ITU recommendation (ITU 2019) uses a definition that is the result of a complex consultation process at the ITU-PP in November 2018. OTTs are defined as: *"An application accessed and delivered over the public Internet that may be a direct technical/functional substitute for traditional international telecommunication services"* (ITU 2019).

This definition is limited to OTTs that compete with international electronic communication services (ECS) and as such is more confusing than existing definitions and does not aid an evidence based discussion. It excludes content applications such as Youtube and Instagram but also Twitter and even Facebook (apart from Facebook Messenger). The recommendation notes, unhelpfully, that the *"definition of OTTs is a matter of national sovereignty and may vary among Member States"* (ITU 2019).

Ofcom (2015) referred to OTTs as a range of services, including messaging services, voice services (VoIP), and TV content services. For communication services, the discussion document defined OTTs as unmanaged digital communications services provided over an Internet connection. Where 'unmanaged' refers to calls and messages being routed in the same way as other Internet traffic. (Ofcom, 2015). Ofcom (2018) defines OTT video as audiovisual content delivered on the 'open' Internet rather than over a managed IPTV architecture.

The Body of European Regulators for Electronic Communications (BEREC, 2016) uses a similar definition to Ofcom. It defines OTTs as a "content, a service or an application that is provided to the end user over the public Internet" (emphasis added).

- Content can be streaming services like Netflix, broadcasting commercial content, such as those provided by BBC and CNN, broadcasting user generated content via YouTube and online newspaper and magazine content.
- Services can include online retail, cloud services and search services such as Yahoo and Google.
- Applications include social media applications such as Facebook, WhatsApp and Instagram.

OTTs in this context are not provided by the mobile operator[5] but by third parties over the Internet. BEREC defines three subsets of OTTs, where the defining characteristic are based on whether OTT services or applications have the ability to connect to public telephone networks (Table 2).

Table 2: BEREC definition of OTTs

	OTT-0	OTT-1	OTT-2
Electronic communication service	Electronic communication services (ECS)	Not ECS but potentially competing with ECS	No
Description	OTT voice with possibility to make calls to fixed or mobile telephone networks (e.g. Skype Out)	OTT voice, instant messaging (eg iMessage, WhatsApp)	E-commerce, video and other streaming (e.g. CNN, Uber)
Direct revenues for MNOs	Fixed or mobile telephone networks receive termination payments from OTT providers	No	No
Indirect revenues through data consumption	No	Yes	Yes
Contractual obligations with national ECNS?	Yes	No	No

Mobile communication networks were initially designed for providing voice services (1G) and later SMS services were added in 2nd generation networks (2G). Data as a third revenue stream was scalable only with the upgrade to 2.5G or Edge. Since then, any further iteration is just about delivering better data connectivity.

BEREC (2016) defines OTT-0 as electronic communication services (ECS) that are able to terminate on fixed-line or mobile networks such as Skype-out calls. In the case of Skype, Skype-out pays the terminating operator a termination rate fee. It is thus the same whether a call originates from Skype or another international operator. In this case, a legal agreement between the OTT-0 provider and the receiving network exists and also users of these services are being billed per minute or per SMS.

OTT-1 is defined by BEREC (2016) not as an electronic communication service but potentially competing with electronic communication services. An example is a Skype to Skype call, which is routed like any other traffic over the public Internet. If both users are mobile subscribers, then both operators receive revenues from data use. OTT-1 consists of data applications that complement[6] voice

[5] The regulatory focus is on mobile operators and not ISPs and fixed-line networks since ISPs and fixed line networks do not see OTTs as a threat to their business model. ISPs are different from MNOs in that they build networks with the intention of connecting their users to other networks. MNOs initially built their networks with the intention of connecting their subscribers to other subscribers on their network or other networks for voice services. SMS and data services were added with later upgrades. OTTs drive data and quality of service (QoS) demand and are thus driving the ISP business model.

[6] OTTs are currently complements not substitutes according to Ofcom and ICASA. More about this in the regulatory section.

and SMS services provided by MNOs (1G and 2G services) while generating revenues for MNOs in the form of mobile broadband data consumption (2.5G, 3G, 4G and 5G).

OTT-2 encapsulates all other OTT services that are not captured by OTT-0 and OTT-1, mostly e-commerce, video and music streaming. BEREC's distinction between OTT-0, OTT-1 and OTT-2 is based on the current regulatory frameworks for mobile operators, which in turn are mostly based on the legacy circuit switched world of voice and SMS (1G and 2G).

This approach is useful to understand current regulatory regimes and assess their suitability to deal with a shift to packet-switched only business models (4G+). However, the BEREC definition is mainly pertinent to telecommunication regulation and less relevant to other types of OTTs such as those in the broadcasting and streaming sectors. An OTT definition for Africa needs to be based on a taxonomy that separates out issues that would be addressed by different regulators. Call termination is, for example, addressed by a telecoms regulator while streaming services may be subject to broadcasting standards and regulation. This study outlines four categories of OTTs: OTT-ECS, OTT-Com; OTT-Content and OTT-Other (Table 3) and we propose the following definition:

OTTs can be content, a service or an application that is provided to the end user over the public Internet. OTTs can be distinguished between those that are electronic communication services (OTT-ECS), those that potentially compete with electronic communication services (OTT-Com), those that potentially compete with broadcasting services (OTT-Content) and those that neither compete with electronic communication services nor broadcasting services (OTT-Other).

Table 3: Proposed definition of OTTs for Africa

	OTT-ECS	OTT-Com	OTT-Content	OTT-Other
Competing with ECS?	Yes	Potentially	No	No
Competing with national broadcasting services?	No	No	Potentially	No
Description	OTT voice and text with the ability to make calls to fixed or mobile telephone networks (eg Skype Out)	Applications that allow voice calls and instant messaging provided to the end user over the public Internet	Content provided to the end user over the public Internet	E-commerce and online services provided to the end user over the public Internet
Ex-Ante Regulatory Bodies	Telecom Regulator	Telecom Regulator	Broadcasting Regulators	None
Potential regulatory impact	Termination and roaming regulation	Lighter voice and sms wholesale regulation	VAT collection from foreign streaming services	None

OTT applications typically fall into more than one subset. Skype, for example, is an OTT-ECS because voice and text can terminate on PSTN and mobile network for a fee, and it is also an OTT-Com because it also offers free services between Skype users. Facebook provides access to user generated content (OTT-Content) while also allowing instant messaging and voice calls via its integrated Messenger feature (OTT-Com). OTT applications can be subject to various regulatory regimes at the same time.

This policy paper focuses on the ICT regulatory and tax aspects of OTT-Com, i.e., applications that potentially compete with electronic communication services (ECS).

3. The Internet Value Chain

ATKearney[7] compiled an Internet value chain analysis in 2010 and the study was updated in 2016 for the GSMA.[8] The study distinguishes between five segments of the Internet value chain GSMA (2016a):

- **Content rights:** Includes premium rights with content that is produced professionally and that is distributed via the Internet or other channels (e.g., TV) and is paid for by subscription fees or advertising-funded broadcasters. Content rights also include user generated content which is made available via social media platforms such as YouTube, Twitter, Instagram, Vimeo and Facebook, amongst others.
- **Online services:** Covers a wide range of services provided over the Internet including e-commerce; entertainment (gaming, gambling, video, music, publishing); search and reference services (Wikipedia, Google, Yahoo); social media and cloud services (Dropbox, online bookkeeping services, etc.).
- **Enabling technologies:** Consists of essential services for the smooth running of the Internet such as the design and hosting of websites; payment platforms (credit cards, PayPal, MPESA), platforms enabling machine-to-machine (M2M) based services; advertisement platforms (ad exchanges and brokers); and managed bandwidth and content delivery (wholesale interconnect).
- **Connectivity:** End users access to the Internet via mobile (2.5G+), wireless (Wifi) or wired (xDSL, fibre) broadband connections or satellite (VSAT). The connectivity segment of the Internet value chain is the only segment that falls under the jurisdiction of the National Regulatory Authorities (NRA).
- **User interface:** Devices used by the end user to access the Internet include smart and feature phones; PC, laptops and tablets; as well as digital TVs or digital set-top boxes. Operating software (OS) for these devices also falls into this segment as well as applications that run on top of the OS. NRAs in Africa typically accept type approvals from other larger jurisdictions and access devices such as iPhones get an automatic approval. This segment is mostly regulated based on the principle of forbearance.

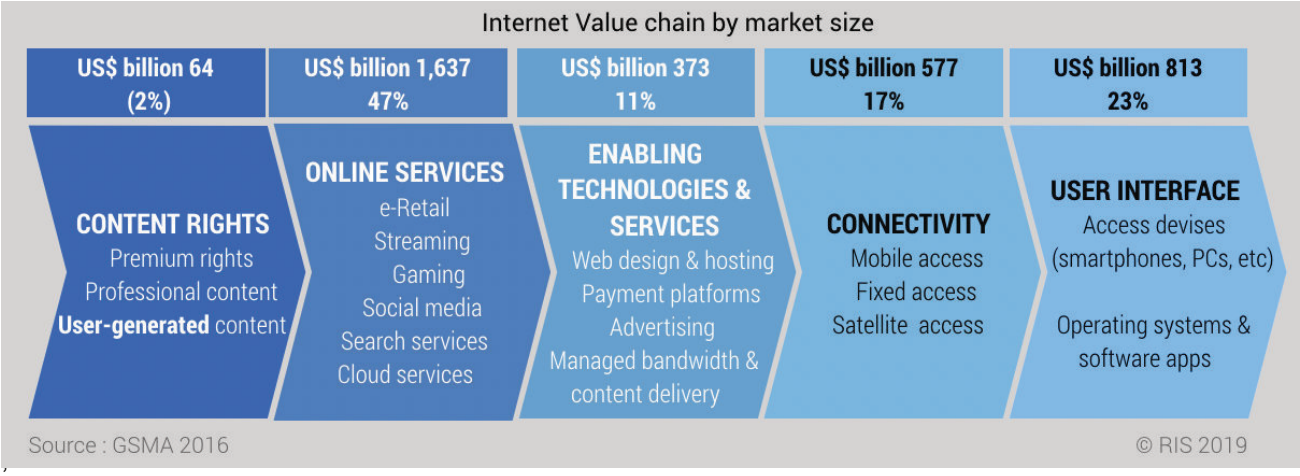

Figure 1: share in market size of global Internet value chain in 2015

While the Internet value chain could be more granular from the perspective of an ICT regulator, the advantage of this segmentation is the ability to put a US dollar figure to each segment. The segment

[7] https://www.atkearney.com/communications-media-technology/article?/a/Internet-value-chain-economics

[8] https://www.gsma.com/publicpolicy/wp-content/uploads/2016/05/GSMA_The-Internet-Value-Chain_WEB.pdf

that national ICT regulators control is the connectivity platform. It made up only 17% of the global Internet value chain or USD 577 billion in 2015.

While online services made up the bulk of value in the value chain (47%), social media and communication applications make up less than 3.4% of the total online services, USD 55 billion. The main value contributors are e-retailers (GSMA, 2016a).

3.1. Laws regulations and Institutions in the Internet Value Chain

Each segment of Internet Value chain is subjects to own laws, rules and regulations, implemented by different bodies. Table 4 provides a very general overview, while countries may differ to some extent in their implementation.

Table 4: Example Laws, rules and regulations and corresponding institutions shaping the Internet Value Chain

Internet Vale Chain	Institutions	Laws	Other
Content Rights	• Broadcasting regulator • Film and Publication Board • Registration of copyright • Courts • Competition Commission	• Broadcasting Code • Patent/copy right/trademark laws	Self regulation based on company policies
Online services	• Courts • Competition Commission • Consumer protection agencies	• Consumer protection law • Hate speech laws • Privacy laws • Cyber security laws • Patent/copy right/trademark laws • Gambling legislation	
Enabling technologies & services	• Courts • Competition Commission	• Privacy laws • Cyber security laws • Financial sector regulation & laws	
Connectivity	• Telecommunication regulator • Communications, science & technology agencies • Courts • Competition Commission • Local authorities & municipalities	Communications laws	
User interface	• Telecommunication regulator • Consumer protection agencies	• Consumer protection laws • Type approval from telecom regulation	

For any government, the Internet posses legal and regulatory challenges. Goods and services are sold across borders, news content watched from other jurisdictions and applications may replicate regulated services such as voice calls and SMS.

OTTs are not subject to local telecommunication regulation simply because they do not compete for limited resources, such as spectrum, rights of way, numbering range, etc. Further, most OTT providers do not have legal representation in a country and therefore cannot be regulated by national regulators.

3.2. Unintended consequences of ICT sector taxes on the Internet value chain

Taxes can have a negative impact on all segments of the Internet value chain (Figure 1). Higher taxes on end users means higher data prices, which reduces adoption. Higher end user data prices means lower demand for connectivity. This has an impact on the user interface segment of the value chain, with lower demand for handsets and applications. The impact of lower demand for data is also felt upstream.

Lower demand means that there is less of an incentive to push content delivery networks (CDNs) closer to the edge of the network because there is less volume to justify such an investment.

As a result, MNOs will continue to incur the cost of fetching most of the CDN content from outside the continent or country compared to locally which adds international capacity costs.

At the same time local CDNs boost revenues for MNOs. A study of the impact of the Kenya IXP in 2012 showed that the establishment of a Google cache in Kenya increased the data revenue for mobile operators (Kende and Hurpy, 2012). Google could be accessed faster after the establishment of the Google cache at the KIXP which led to wider use and thus more revenues for MNOs and ISPs.

In Africa, a number of OTTs have extended their networks to emerging regional hubs, e.g., Egypt, Djibouti, Nigeria, Kenya and South Africa. This investments by OTTs (mostly the ones with the bulk of the traffic) lowers the cost of access to their content, leaving the mobile operators to focus their investments on the last mile.

With less volume, CDNs are not pushed out to the edge and latency and download speeds are less likely to improve, thus not providing an incentive for wider use.

Higher taxes could also have an impact on the local Internet value chain via Virtual Private Networks (VPNs). For instance, a VPN could be used to bypass the requirement to pay local social media taxes, such as in Uganda when the government imposed a daily tax on social media or OTT use. A VPN sends the data request straight to the origin and bypasses the local cache (or CDN)[9], increasing international bandwidth requirements and therefore increasing an ISP's costs.

VPN use may increase the costs for end-users that pay per MB because VPNs can require 5% to 15% more data compared to a regular, unsecured connection.[10] Higher VPN use can benefit MNOs because it increases data revenues.

Table 5: Impact of end user OTT taxes on the value chain

Internet Value Chain	Consequence of lower Internet adoption as a result of taxes
Content Rights	Less revenue for local content rights
Online services	Fewer online sales
Enabling technologies & services	Fewer incentives to move CDNs to the edge of the network
Connectivity	Lower revenues for MNOs and ISPs and thus lower investment incentives
User interface	Potentially lower sales of smartphones

The extent of VPN use is determined by the monthly cost of a VPN subscription and the monthly tax burden. While some VPN services are free, free VPN services may not work with some social media

[9] https://www.comparitech.com/blog/vpn-privacy/transparent-proxy-detect-and-bypass/

[10] https://www.technadu.com/does-vpn-increase-data-usage-more-than-normal/45450/

tools like WhatsApp. In the case of Uganda, the OTT tax equates to USD 1.5 per month. A highly secure and fast VPN costs about USD 3 per month. This means that users of VPNs in Uganda are motivated by concerns other than tax avoidance, such as access to content which is restricted in their country or privacy concerns.

Table 5 lists the potential impact of lower Internet use on the Internet value chain segments described in Figure 1. Internet access providers, MNOs and ISPs in the connectivity segment, will be directly impacted by lower Internet use. The impact on other segments depends on the scale of reduced Internet adoption. While Uganda's taxes may not affect the international Internet value chain, they do affect the local ICT ecosystem, similar taxes imposed by more populous countries may propagate through the entire international value chain and have a significant impact.

4. OTTs and changing mobile business models

Initially, OTTs such as Facebook Zero and WhatsApp were eagerly embraced by mobile network operators (MNOs) because they grew broadband subscribers and data volumes. OTTs also provided a competitive incentive for MNOs to either gain or defend market share.[11]

Ever since mobile operators transitioned from circuit switched to packet switched networks, data revenues have increased. The technological upgrades in the past 10 years to 3G, then 4G and now 5G are all about faster data for the end user. Judging by revenue growth and the allocation of investment leaves no doubt that data will be the main business for MNOs and that voice and SMS will be insignificant applications in the not so distant future.

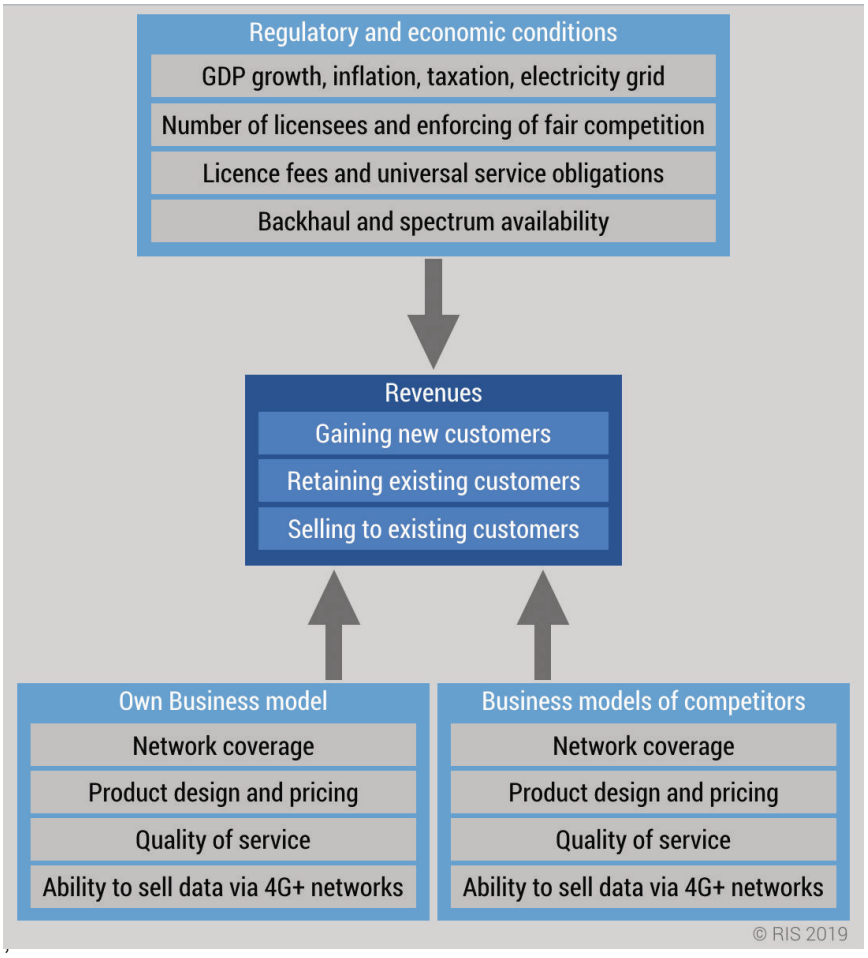

Figure 2: Factors impacting operator revenues

Some mobile operators in Africa have been arguing for the regulation of the OTTs on the basis that the falling SMS and voice revenues are jeopardising investments.[12] However, growth in data revenues typically crowds out any losses in voice and SMS revenues.

Further investments are being made into creating faster data networks and data demand is driven by user generated content and social media. Obstructing OTTs, specifically social media, would reduce demand for data and thus data revenues.

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[11] Stork, C., Esselaar, S. and Chair, C. (2017). OTT - threat or opportunity for African Telcos?, Telecommunications Policy, Volume 41 (2017), http://www.sciencedirect.com/science/article/pii/S0308596117302069.

[12] See eg https://www.socialnetlink.org/2019/03/whatsapp-facebook-font-perdre-plus-de-20-milliards-a-la-sonatel/

MNOs would have no data revenue if there was no content. Also, MNOs do not pay for any of the infrastructure that OTTs require, like the massive data centres that OTT providers operate. Without content to drive data usage, operators would have no broadband revenues and investment in networks would suffer.

Generally, each player in the Internet value chain has its own infrastructure investment. Equally, each player has its own revenue source. While OTT apps allow users to communicate with each other, OTTs do not provide physical access to Internet services. Mobile operators, while making some money from advertisements through premium SMS, rarely purchase and market premium content. While the business models in the Internet value chain may overlap to some extent, each segment comes with specific investment requirements and revenue opportunities. The following sections analyse operator revenues and the claim that OTTs cause falling revenues in more detail.

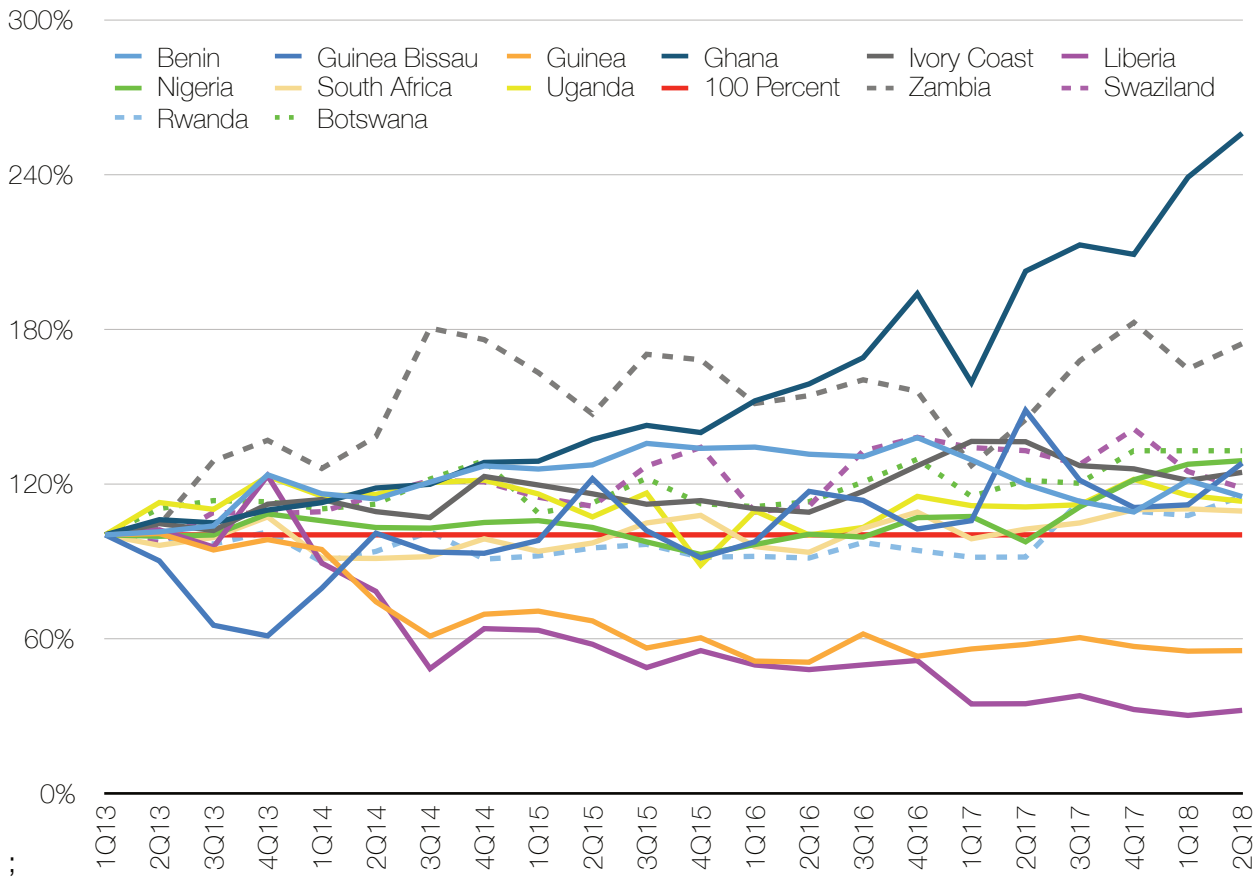
4.1. Impact of OTTs on Operator revenues

Revenues of a mobile operator depend on many interrelated factors, including own product design and product design of competitors; quality of service of own network and that of competitors; and the general regulatory and economic conditions (Figure 2). If OTTs impact revenues of MNOs negatively, then the following conditions would need to hold:

1. Overall MNO revenues need to decline as the number of OTT users increases. OTTs may compete with voice and SMS revenues but at the same time they drive data demand. A change in segment revenues does not matter, only a change in overall revenues.
2. All MNOs in a country experience the same decline in response to OTT user growth. Otherwise, if only one MNOs experiences falling revenues it can be due to a wide array of factors. If OTTs had a negative impact then overall revenues on all operators should be affected similarly.
3. If OTTs affect MNO revenues negatively then this would need to be the case not just for one or two African countries but generally for most, if not all, countries.

An analysis of African MNO performance based on publicly available, audited financial statements shows that most operators have experienced strong revenue growth due to an OTT-induced increase in data revenues in the past five years. Moreover, data revenue growth outpaces potential decreases in voice and SMS revenues. Another explanation is that the declining revenues of a subset of operators are due to insufficient 3G or greater network coverage, excessive regulation or adverse economic conditions.

Figure 3: MTN Revenue in percent of Q1 2013 revenues: i.e., 2013 revenues are 100%



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Operating a mostly 2G network makes an operator vulnerable to losses in domestic and international voice and SMS revenues because they are unable to generate data revenues from 3G or 4G networks. Operators with extensive 3/4G coverage are able to increase their data revenues, which then compensates for any losses in voice or SMS.[13]

The only two operators with declining revenues were MTN Liberia and MTN Guinea (Conakry), which had declining revenues due to macro economic shocks (such as the Ebola outbreak).[14] All the other countries have increasing revenues. This key message is that business decisions taken by MNOs, economic conditions and the role of the country regulator are the most significant determinants of MNO revenues.

3.1. Transition to an ISP access model

Recent figures show that the number of OTT users is steadily increasing (Figure 4) and so is the number of messages sent each day via OTTs (Figure 5). If OTTs cause a decline in revenues, then one should be able to see a systematic decline in revenues over time. The overall impact of OTTs on the financial performance of mobile operators depends on whether data revenue growth can make up for declining voice and SMS revenues. It was OTTs, specifically social media, that led to the explosion mobile broadband adoption and usage and consequently to a massive upgrade in mobile network infrastructure across Africa since 2011 (Stork et al, 2013).

[13] Esselaar, S. and Stork, C. (2018). OTTs driving data revenue growth, ITS Seoul Korea 2018, https://itsseoul2018.org/program/.

[14] For more details: https://researchictsolutions.com/home/ict-evidence-portal/liberia/.

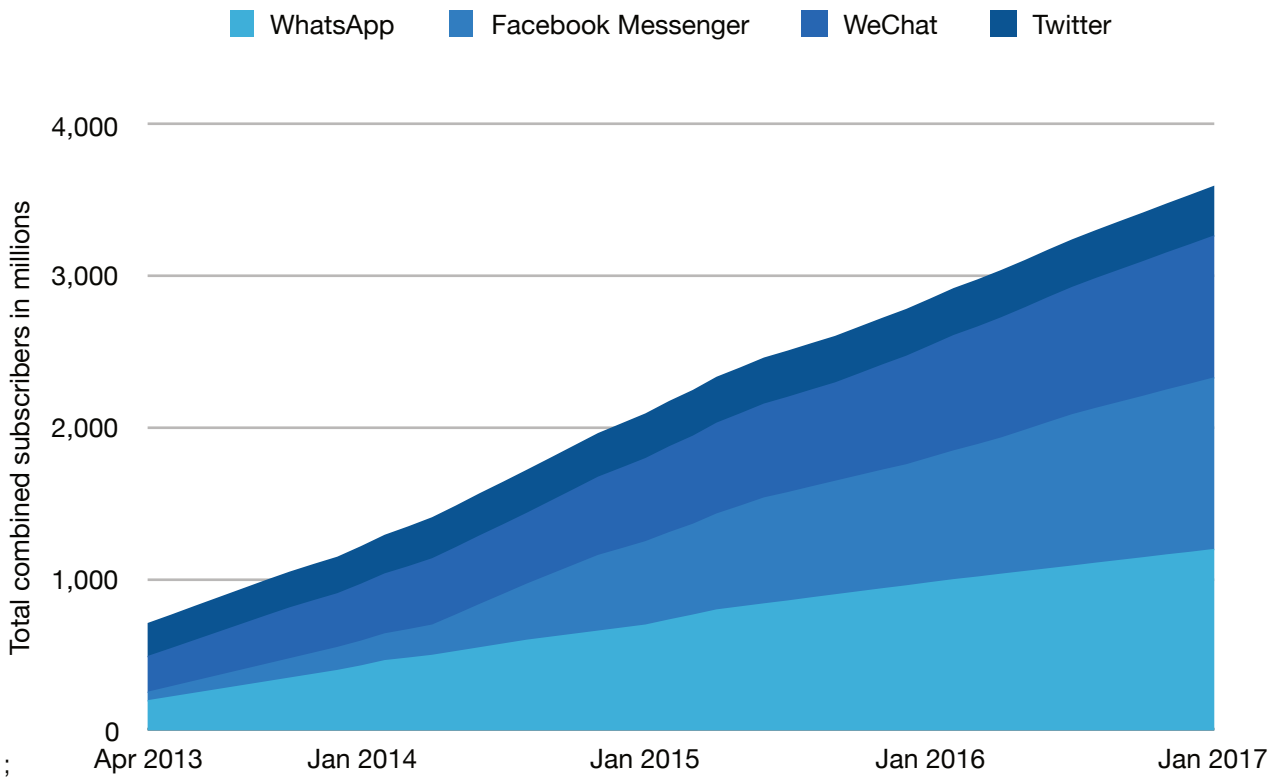

Figure 4: Consistently increasing subscriber numbers of instant messaging applications (Source: statista.com)

OTTs allow for cheaper and more convenient communication between customers of the same network as well across networks and countries. Being able to call a name instead of a number and effortless multimedia messaging (instead of clumsy and expensive MMS), along with cost effective video calling, provides a more interactive form of communication compared to traditional voice and SMS services. This means that voice and SMS services are gradually being replaced by consumers through OTT applications.

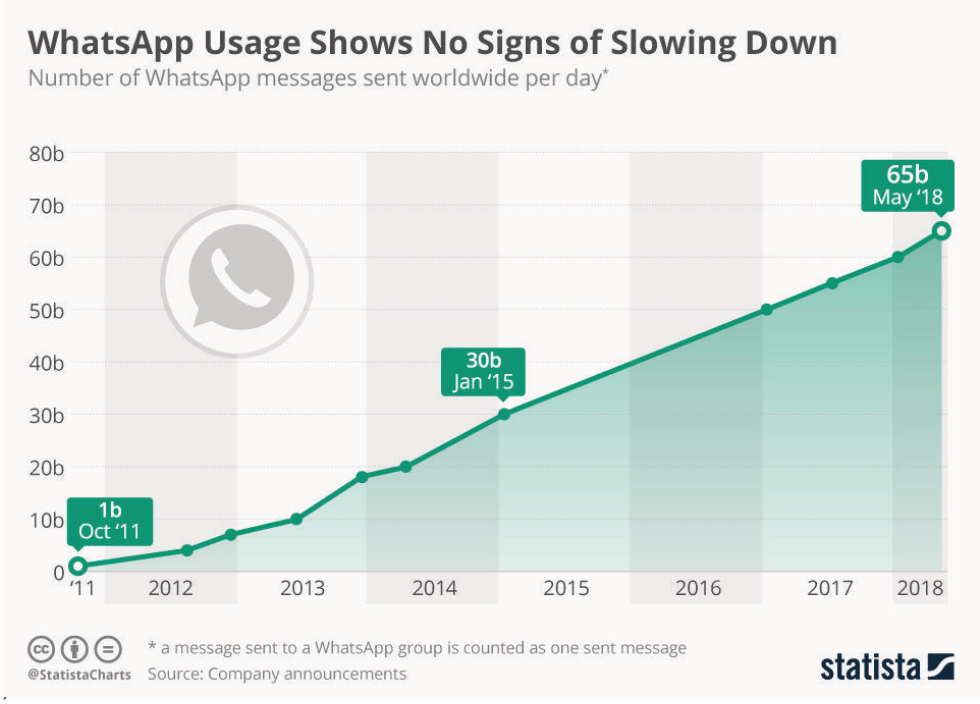

Figure 5: Number of Whats app messages sent worldwide per day (Source: Statista)[15]

Esselaar et al (2017) predict that OTTs will replace regular voice and messaging services globally in the near future altogether. Figure 6 depicts the transition from traditional voice and SMS to data-access-only services, which rely on OTTs for communication. The x-axis is an average period of time, because some countries may reach a phase sooner than others, and some countries will lag behind these trends for a longer period of time, depending on the level of competition within the ICT sector of each country.

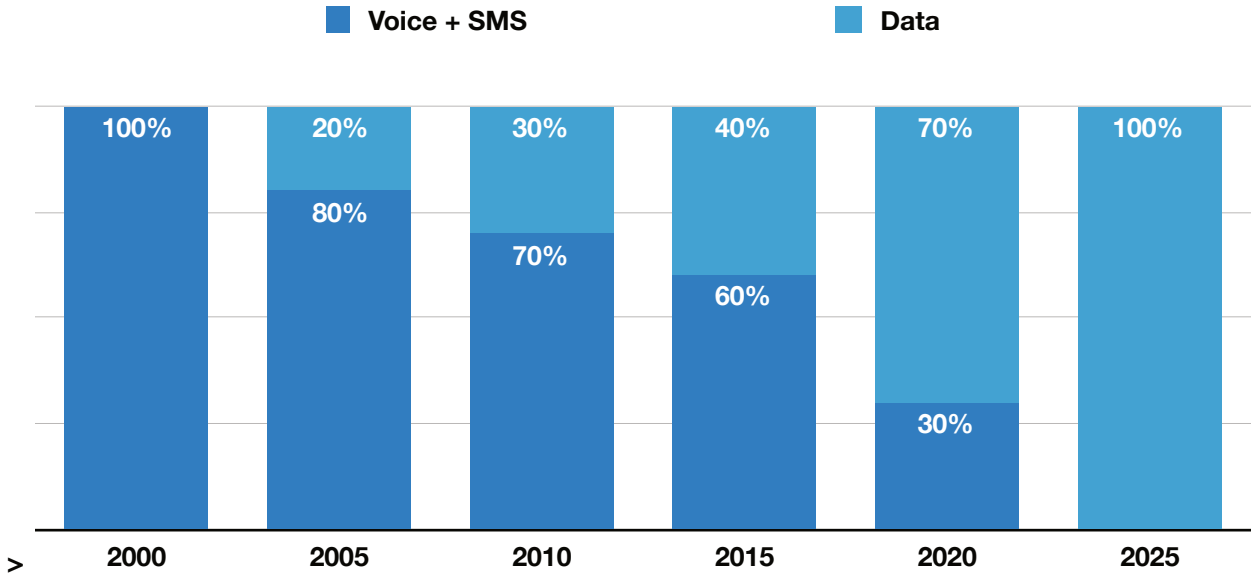

Figure 6: Illustrative trends towards "Access" only business models (source: Esselaar et al, 2017)

The general trend is a shift away from voice and SMS revenues towards data revenues, driven by OTT applications, such as social media and other IP-based applications, which will be increasingly used for voice and message communication.

MNOs will eventually become "access only" providers, distinguishing their products by speed and quality of service, and competing with other forms of access, such as Public WiFi and connectivity in places of work, study and home. MNOs thus will eventually become national mobile ISPs.

Apart from competitive pressure, the trend described in Figure 6 depends also on smartphone penetration and 3G+ network coverage. The migration to a data-only business model will take longer for countries that have little 3G and 4G coverage and low smartphone penetration. Insufficient 3G+ network coverage is one of the main reasons why some mobile operators struggle to generate enough data revenues to compensate for declining voice and SMS revenues (Esselaar and Stork, 2018).

What is clear is that a transition is taking place from the last century's voice and SMS business model to todays's data business model. This change is irreversible. Units for billing will no longer be minutes, SMS and destination but data use. Voice is no longer the primary service and has been replaced by data, not only because of revenue trends but also because this is where the last decade of mobile network investment has gone. The business model of MNOs has to evolve, along with the technology they deploy.

[15] https://www.statista.com/chart/13762/whatsapp-messages-sent-per-day/

4. Regulatory treatment of OTTs

That the regulatory framework is in urgent need of an upgrade is recognized by nearly all major regulatory agencies, including BEREC, European Commission, OECD and regulators across Africa.[16] The existing framework favours an analogue world that no longer exists.

One question, based on the definitions provided in the previous section, is whether OTT-Com services are substitutes for voice and SMS, rather than complements. Ofcom (2018b) concluded that they are not and will not be substitutes for the next 2 to 3 years. However, with 5G rollout, OTT services will eventually be substitutes. This would mean that current regulation for voice and SMS can be lightened. If OTT-Com services are substitutes for end user voice and SMS, then the end user market for voice and SMS is more competitive and hence needs less regulation.

Call and SMS termination is generally seen as a monopoly since only the operators providing the SIM card / mobile number can terminate the SMS or call. The ITU (2009) notes that the Calling Party Network Pays (CPNP) regime together with Calling Party Pays (CPP) principle creates a termination monopoly problem (as there are no other ways to terminate a call). OTTs as substitutes make the voice and SMS market more competitive and reduces the market power of operators. A call or a message can be terminated by the OTT application, like public Wifi. Call termination regulation may then be eased since MNO's would lose their monopoly on voice and SMS termination. The logical consequence is that OTT-Com as a substitute for voice and SMS does not mean that NRAs should attempt to regulate OTT-Com. It merely means that wholesale voice and SMS services have to be regulated less.

OTT providers also typically do not have legal representation in a country. While it would not be impossible for larger OTT providers such as Google and Facebook to incorporate in all African countries it would certainly be impossible for small OTTs. Saya, for example, is a local messaging platform developed by two students at the Meltwater incubator in Accra, Ghana in 2014 with a strong following in Turkey and Indonesia.[17] The students could not possibly afford to incorporate either in Ghana, Turkey or Indonesia during the first few years and may still not be able to afford to incorporate. While everyone focuses on the big global companies, it is important to realise that access to iTunes or Android stores is enough to launch a global OTT-Com.

4.1. UK: Voice termination and OTTs

Regulators around the world are considering the impact of OTTs and whether the impact justifies regulatory intervention. There are two markets where OTTs are perceived to have had a significant impact: voice calls and streaming movies and TV shows.

In the UK, Ofcom has been monitoring the impact of OTTs on voice calls since at least 2015 and considering whether "OTT services represent a close substitute for traditional services" and could "*weaken the need for wholesale regulation*."[18]

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[16] See appendix for a list of discussion documents from African regulators.

[17] See eg http://www.infodev.org/sites/default/files/mobile_apps_at_the_base_of_the_pyramid_ghana_0.pdf

[18] Ofcom, 2015. Strategic Review of Digital Communications, available from https://www.ofcom.org.uk/__data/assets/pdf_file/0021/63444/digital-comms-review.pdf

The key question is whether OTTs are being used in sufficient quantity to act as a constraint on pricing for traditional voice calls. In its 2018 report, Ofcom's conclusion was that OTTs are not a competitive constraint at this stage.[19] In particular:

- The prepaid market is where OTTs are most likely to be used as a substitute for traditional voice calls because prepaid consumers are more price conscious than postpaid consumers. Ofcom finds that only 8% of all prepaid consumers have used an OTT service to make domestic voice calls (Ofcom 2017);
- OTT usage is far higher for international calls and which have significantly higher retail prices;
- Research[20] has found that OTT calls and voice calls are complementary because they have different functionality, such as video calling compared to making a voice call to organize a meeting, etc.

OTTs may act as a substitute in the future, but Ofcom (2015) concludes that issues such as Interoperability[21] and quality of service[22] mean that currently they are complementing voice and SMS services, not substituting them.

While quality of service may be a barrier to increased usage and therefore substitutability,[23] that may be overcome in future as technology advances and high speed 5G networks are rolled out.

Another reason regarding the substitutability of voice calls and OTTs is that voice traffic, for some countries, continues to increase. For example, voice traffic in South Africa has continued to increase.[24] In the UK, voice traffic increased every year between 2012 and 2016. In 2017, the UK saw it's first drop in mobile voice traffic.[25]

4.2. ICT regulatory treatment of OTTs in Africa

There is no formal or consistent regulatory positions on OTTs in Africa. Several countries (Table 6) have discussed regulatory interventions but this has not resulted in any formal regulations.[26]

The closest any African country has come to regulating OTTs is Senegal, when it passed the Electronic Communications Bill of 2018. In the Bill, the regulator may impose any traffic management measure to maintain competition in the electronic communications sector. This could, theoretically, be used by MNOs to block OTTs and force users to only use traditional voice and SMS, which would harm users by denying them a choice of services. and a

Throttling and blocking is not an appropriate remedy for competition concerns. In the same way that these traffic management practices can distort the level playing field when used by ISPs and MNOs,

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[19] Ofcom, 2018b. Mobile call termination market review 2018-2021, available at https://www.ofcom.org.uk/__data/assets/pdf_file/0011/103340/mobile-call-termination-consultation.pdf

[20] Arnold, R. Schneider, A. and Hildebrandt, C., 2016, All Communications Services Are Not Created Equal – Substitution of OTT Communications Services for ECS from a Consumer Perspective, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2756395 sourced from Ofcom, 2017.

[21] For example, an OTT call on Apple's FaceTime is only possible between Apple phones

[22] An OTT call suffers from poor QoS when the subscriber is moving or if subscribed to a low-speed data plan.

[23] Ofcom, 2015. Strategic Review of Digital Communications, available from https://www.ofcom.org.uk/__data/assets/pdf_file/0021/63444/digital-comms-review.pdf

[24] ICASA, 2017. Amendment to call termination regulations of 2014. Available at https://www.ellipsis.co.za/wp-content/uploads/2017/06/Call-Termination-Amendment-Regulations-2017-Findings-Document.pdf

[25] Author calculations based on Ofcom, 2018a. Communications Market 2018: Data Downloads, available from https://www.ofcom.org.uk/research-and-data/multi-sector-research/cmr/cmr-2018/data-downloads

[26] A more detailed table, along with source URLs and document titles is available in Appendix A.

there is no reason to think that a regulator could employ these techniques without unacceptable distortionary effects. The way that this regulation is being implemented may have unintended consequences, including depressing demand for mobile broadband. However, this Bill has not yet been promulgated and it is not clear that this clause would be implemented.

Table 6: OTT regulatory developments in Africa

	Date	Description
Angola	09/06/2016	Overview of challenges facing the sector. Regulator will monitor developments.
Burundi	05/12/2018	Presentation by Mr. Constaque HAKIZIMANA, Technical Director of ARCT. Conclusion was to investigate the regulatory framework around OTTs specifically to address tax evasion, data privacy, unequal playing field with MNOs
	05/12/2018	Regulator has held a workshop on the impact of OTTs.
DR Congo	14/06/2018	Data prices were increased by the regulator based on 2 factors: 1) MNOs were apparently in a price war and 2) the impact of OTTs was reducing operator revenue
Cote d'Ivoire	01/12/2016	Analysis of the impact of OTTs in Cote d'Ivoire. Aim of document is to encourage debate especially in light of the fact that OTTs must be governed globally.
Ghana	5 May 2016	NCA is reviewing the situation and will in due course take decisions for an enabling environment that will benefit all stake holders.
Guinea	30 Sep 2017	Recommends 4 strategies to regulate OTTs, all of them negative, none implemented to date.
	30 Sep 2017	Presentation on the OTT Strategic Report by Guinea to the African Council of Regulators
Kenya	9 Jan 2019	Request for consultancy services for the study of OTTs in Kenya.
	21 Sep 2018	Excise duty on mobile money transfer services increased from 10% to 12%.
Liberia	no date	The LTA will also consider the demand and supply-side substitution effects posed by over-the-top (OTT) services when looking at competition assessment
Morocco	4 Nov 2016	The ANRT is following the question of OTTs with interest
Mozambique	1 Dec 2016	Review of the telecom market for 2016. Mobile revenues overall increased (Figure 6 of the Moz report). On-net call increased as well.
Nigeria	4 Mar 2016	NCC has no plans to regulate OTTs and encourages operators to explore more efficient business models to take advantage of the move to data
Senegal	18 Feb 2018	Meeting between ARTP and Facebook. ARTP repeated the claim that mobile operators losing revenues due to OTTs
	30 Apr 2017	EOI for an analysis of impact of OTTs on the Senegal ICT ecosystem. No information as to whether this was actually conducted or findings made public.
	30 Jun 2018	The last paragraph of Article 27 of the Code provides: "The regulatory authority may authorize or impose any traffic management measure that it considers useful for, inter alia, maintaining competition in the electronic communications sector and ensure fair treatment of similar services." The imprecise wording has people worried that this might be used by operators to block OTTs.
South Africa	15 Jan 2019	Included a discussion on impact of OTTs on the broadcasting sector.
	22 Sep 2017	OTTs are not a substitute for traditional voice and doesn't have an impact on the analysis of whether there is effective competition in the voice market. Future market analysis should take OTTs into account.
Tanzania	27 Aug 2018	Consultancy services to establish OTT service tariffs. No information on whether study was conducted or if findings were made public.
Zimbabwe	30 Jun 2016	Consultation document that discusses whether OTT services should be regulated, asking stakeholders to respond to 21 questions.

African regulators are in the data-gathering phase and the most common activity is a request for proposals for assessing the impact of OTTs. This has been the approach for regulators in Kenya, Tanzania, Zimbabwe, Guinea and Cote d'Ivoire.[27]

4.3. South Africa: Broadcasting content and OTTs

One of the more thoughtful interventions is from the Independent Communications Authority of South Africa (ICASA) in a discussion document on subscription TV broadcasting services.[28] In the discussion document, ICASA concluded that OTTs are unlikely to be substitutes for traditional broadcasting and satellite services because of the cost of data. A study by Showmax (a subsidiary of Multichoice) found that the amount of data needed to stream TV shows and movies can be more than 1GB per hour.[29] Showmax implemented a data capping service that would allow users to individually control the amount of data required to watch for 5 hours per week based on the resolution of the TV show.

Table 7: Showmax data capping service

	Data per hour	Data per week
Low bandwidth cap (resolution of 360p)	0.3GB	1.5GB
Medium bandwidth cap (resolution of 480p)	0.7GB	3.5GB
Uncapped (resolution of 720p)	1.4GB	7.1GB

Ofcom and ICASA argue that there are pathways in the future for OTTs to be significant constraints on traditional services and for the current regulatory assessments to change. However, this is not the current situation.

[27] Countries not listed in the table have no OTT regulatory developments as of January 2019.

[28] ICASA, 2017. Discussion Document: Inquiry into Subscription TV Broadcasting Services, available at http://pmg-assets.s3-website-eu-west-1.amazonaws.com/ICASA.pdf

[29] Catton, C. 2016. Cost of data holding back adoption of Internet TV, available at https://www.screenafrica.com/2016/08/30/digital/cost-of-data-holding-back-adoption-of-Internet-tv/

5. Taxation and OTTs

There is a growing perception amongst policy makers that the ICT sector is a cash cow for government. As a result, taxes imposed only on the ICT sector are gaining in popularity. Several governments, like Zambia, Uganda and Benin have either contemplated or implemented taxes on OTTs. The Internet value chain in Figure 1 explains the financial motivation. In these cases, taxation is used to raise revenue for government activities.

ICT taxes targeted at end-users lower access and usage to the Internet, along with associated negative economic consequences.[30] ICT sector specific taxes ignore the role of the ICT sector as an economic multiplier for the entire economy. OTTs are one of the main drivers of broadband usage, producing content that is relevant to its users. Increased broadband usage also drives innovation and productivity. Governments across Africa have an opportunity to accelerate mobile broadband adoption, and therefore stimulate economic growth and raise tax revenues by removing ICT sector specific taxes. Increasing ICT taxes will achieve the opposite.

A related argument is that taxes need to be imposed on the end-user because OTT providers are avoiding taxes. This claim that OTTs don't pay taxes is false. OTTs are no different from any other Internet content. OTT providers such as Facebook make money from advertisers. So do broadcasters such as CNN and BBC, search engines such as Google and Yahoo, but also ordinary websites that include clickable banners. Internet companies like Uber and bookings.com have a service fee based business model. Whatever the business model, each company is obliged to comply with the tax laws wherever the company is incorporated.[31]

The difference between MNOs and OTTs is the source of revenues. For MNOs, revenues come directly from users and MNOs pay VAT, PAYE and Corporate Income Taxes. For OTTs, revenues come from either advertisers or service fees (e.g., booking.com or Uber) and OTT companies pay VAT, PAYE and Corporate Income Taxes in their country of incorporation. In an IP-based world, consumers pay VAT on data only, compared to the legacy business model where consumers pay VAT on voice, SMS and data. As long as overall revenues increase, VAT collection will also increase. The VAT collected on airtime is independent from whether airtime is used for voice, SMS or data.[32]

5.1. Tax Best Practice Principles

Any government has to balance the opposing objectives of collecting taxes, on the one hand, and economic growth, job creation and inclusion of the poor into the information society, on the other. Balancing these objectives should be governed by the five best practice principles that contribute to an efficient tax system.[33]

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[30] Research ICT Solutions, 2019. ICT Sector Taxes in Uganda, https://researchictsolutions.com/home/wp-content/uploads/2019/01/Unleash-not-squeeze-the-ICT-sector-in-Uganda.pdf

[31] The issue of transfer pricing and fair corporate income tax regimes will not be addressed in the policy brief. The OECD and the European Commission are both investigating this issue.

[32] The issue that multinational companies can declare taxes in countries that offer the best tax deal will not be addressed in the paper. This issue cannot be addressed by a single country but needs to be addressed internationally, ideally through the UN framework.

[33] See GSMA. (2016b). Digitalisation and mobile sector taxation in Europe: The experience in Hungary. Retrieved from https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/03/GSMA_Digitalisation_and_mobile_sector_taxation_experience_in_Hungary.pdf ; OECD. (2015). Final Report Addressing the Tax Challenges of the Digital Economy. https://doi.org/http://dx.doi.org.10.1787/9789264202719-en; Coplin, N., Altamirano, P., Omiyi, P. & Rowen, D. F. (2014). IMF Advice to Low-income countries on tax policy. Retrieved from http://www.new-rules.org/storage/documents/IMF_Advice_to_Low-Income_Countries_on_Tax_Policy.pdf.

- **Broad-based:** A broad base of taxation means that a lower tax rate is required to raise the same revenue, while sector specific taxes distort incentives and require higher levels of taxation to get the same revenue.
- **Take into account externalities:** Sector specific taxes should be imposed on activities with negative externalities where the objective is to lower consumption, such as alcohol or tobacco, and should not be imposed on sectors with positive externalities, such as telecoms.
- **Simple and enforceable:** Taxes should be clear, easy to understand, and predictable, thereby reducing investor uncertainty and ensuring better compliance.
- **Incentives for competition and investment should be unaffected:** Higher taxes for one sector in comparison to the rest of the economy could reduce investment in that sector.
- **Progressive not regressive:** The tax rate should increase as the taxable amount increases. Specific value taxes on small amounts should be avoided because they make the poor pay more.

One of the biggest challenges in this conversation, is that none of the African countries that have either imposed or proposed an OTT tax have conducted a rigorous assessment on the impact of these taxes. Also, the processes for arriving at these taxes has been opaque and outside of any public consultation process. This is in contrast to European countries where taxes are subject to public scrutiny and debate. The result of the lack of public scrutiny has been poorly structured taxes that penalize the poor, lower connectivity, suppress usage and have a negative impact on economic growth. The case studies in the next section illustrate the need to conduct detailed impact assessments and that any interventions in the ICT sector should be designed to support economic growth and social inclusion.

5.2. Case study - Uganda

In July 2018, the Ugandan government imposed new taxes on the ICT sector in the form of excise duties on social media use and mobile money services. Two new excise duties were introduced: a mobile money tax of 1% on the transaction value of payments, transfers and withdrawals and a social media tax of 200 UGX per day.[34] The excise duty on mobile money (MM) fees was also increased from 10% to 15%. The result was that the additional taxes have increased the cost of data consumption and it is expected to lead to slower broadband and mobile money adoption. Immediately after the imposition of the taxes, data use and mobile money transaction values declined. On the 25th of January 2019, the UCC tweeted out the latest figures on the impact of the OTT taxes.[35] The estimated number of Internet users dropped by nearly 30% between March and September 2018, indicating even more severe consequences of the OTT tax than anticipated.

Table 8: Impact of OTT taxes in Uganda

2018	March	July	August	September	% Change since	
					March	July
Estimated Internet users in million	19.31	16.1	13.74	13.58	-29.7%	-15.7%
OTT tax revenues in UGX billion		5.6	4.1	3.97		-29.1%
OTT tax payers in million		8.05	6.87	6.84		-15.0%

[34] See: https://researchictsolutions.com/home/wp-content/uploads/2019/01/Unleash-not-squeeze-the-ICT-sector-in-Uganda.pdf
[35] https://researchictsolutions.com/home/ott-tax-causes-massive-decline-in-internet-subscriptions-in-uganda/

Uganda's social media tax suffers from myriad problems. First of all, it is difficult to implement because it can be bypassed by using WIFI or a VPN, though these options are not easily available to everyone due to income reasons.

Moreover, the tax of UGX 6,000 per month[36] represents 71% of MTNs monthly average revenue per user (ARPU), so it is wildly unaffordable. It has the effects of dampening consumption, reducing mobile operator revenues and reducing the incentive to invest in future network upgrades (or to get a return on investment for upgrades that have already been undertaken in 2018). However, the main negative effect is the impact on the overall economy. An initial estimate in August 2018 was that there would be a reduction of 2.8% in economic growth and UGX 400 billion in foregone taxes. Based on the latest figures from the UCC, this estimate is likely to be conservative and the reduction in economic growth and foregone taxes much higher.

Table 9: Evaluation of best practices principles for taxation on Uganda's OTT tax

Principle	Evaluation	Description
Broad-based	**No**	The new taxes single out the ICT sector.
Take into account externalities	**No**	There are multiple layers of taxes for a sector that is meant to be a growth engine for the economy.
Simple and enforceable	**No**	The social media taxes can be circumvented by using VPNs or shifting social media use to Wifi. Also, excise duties on mobile money and social media have been imposed without any analysis of the effects, and they are difficult to understand. The mobile money tax has been subject to two clarifications from the URA, and the Excise Act of 2018 is being revised by parliament three weeks after its initial passing.
Incentives for competition & investment should be unaffected	**No**	The mobile money tax discriminates the mobile money channel compared to other payment channels, like credit cards and bank transfers. The tax has led to a drastic drop in mobile money transaction volumes and value since its introduction. The social media tax resulted in declining data revenues, which will may have follow-on impacts on investment decisions regarding 3G and 4G upgrades.
Progressive not regressive	**No**	The social media tax is regressive and not progressive. The poor and the rich have to pay the same, whether they are in metropolitan Kampala or in rural Bukedi. For example, the social media tax is only 2.4% of average individual income in Kampala, but 22.6% of the average individual income in Bukedi. Also, users effectively pay a double tax by paying excise duty and VAT on airtime and then the social media tax as well.

Initial estimates show that users have been affected by recent taxation policies. In Uganda, for instance, it has been reported that its social media tax has reduced the number of Internet users by 5 million.[37]

5.3. Case study - Benin

In September 2018, the Government of Benin introduced a new tax on over-the-top (OTT) services, for the purpose of protecting investment in network infrastructure and encouraging OTT providers to pay their fair share of regulatory fees and taxes.[38] In defending the tax, the regulator ARCEP, stated that

[36] 30 times the daily fee of UGX200

[37] https://cipesa.org/2019/01/%EF%BB%BFsocial-media-tax-cuts-ugandan-internet-users-by-five-million-penetration-down-from-47-to-35/

[38] ARCEP, 2018, available at https://arcep.bj/decret-2018-341-portant-introduction-dune-contribution-sur-la-consommation-des-services-des-communications-electroniques/ Translation is via Google Translate.

"between 2016 and 2018, operators lost around 30 billion [CFA] of turnover due to the invasion of OTTs, which do not contribute to the turnover of the operators they use, infrastructure or national tax revenues".[39] After protests by citizens and discussions with mobile operators, Benin's government revoked the tax. According to the government, the reasons for the withdrawal were:

- The negative impact on consumption;
- Technical difficulties in implementing the tax;
- Insufficient warning to consumers;
- Collusion between operators on pricing.[40]

Even though the tax was withdrawn, the initial explanation for the imposition of the taxes was that MNOs lost revenue due to OTTs. However, during the period 2016 to 2018, traffic on the mobile network and mobile Internet subscribers increased while prices declined. The briefly introduced and withdrawn taxes by the Government of Benin would have resulted, based on a conservative estimate, in a forgone GDP growth of USD 260 million and forgone taxes of USD 40 million.[41] Aside from the economic impact, the justification that the aim of the taxes was to rescue mobile network operators because their revenues had declined by 30% due to OTTs, is incorrect. Instead, market consolidation, regulatory uncertainty and a price war led to a decline in revenues between 2016 and 2017. Since Q4 2017, MNO revenues have increased.

Table 10: Evaluation of best practices principles for taxation for Benin's OTT tax

Principle	Evaluation	Description
Broad-based	**No**	Single out the ICT sector.
Take into account externalities	**No**	The effect of the tax is lower mobile and broadband usage.
Simple and enforceable	**No**	One of the reasons for withdrawing the tax was that difficulties and technical disruptions were experienced during the implementation.
Incentives for competition & investment should be unaffected	**No**	Taxing airtime and mobile data consumption favors fixed broadband and Wifi at the expense of mobile broadband.
Progressive not regressive	**No**	The 5% tax is on airtime and the 5 FCFA per MB are regressive.

5.4. Case study - Zambia

On the 12th of August 2018, in a press statement released by Cabinet, the Zambian government introduced a 30 Ngwee per day tariff on Internet phone calls. The purpose of the tariff was to protect "traditional phone calls" and "jobs in companies such as Zamtel, Airtel and MTN".[42] However, the tariff has not yet been implemented.

[39] ARCEP, 2018, available at https://arcep.bj/decret-2018-341-portant-introduction-dune-contribution-sur-la-consommation-des-services-des-communications-electroniques/ Translation is via Google Translate.

[40] Communiqué of the Council of Ministers on Decree No. 2018-341 of 25 July 2018, available at https://www.presidence.bj/actualites/comptes-rendus/117/Communique-du-Conseil-des-Ministres-a-propos-du-decret-n%C2%B0-2018-341-du-25-juillet-2018

[41] For more details see: https://1e8q3q16vyc81g8l3h3md6q5f5e-wpengine.netdna-ssl.com/wp-content/uploads/2019/03/A4AI_Benin-Tax-Report_Screen_AW.pdf.

[42] Cabinet of the Government of Zambia, 12 August 2018, available from https://www.zambianobserver.com/press-statement-on-the-decisions-made-by-cabinet-at-the-12th-cabinet-meeting/.

Table 11: Evaluation of best practices principles for taxation on Zambia's proposed OTT tax

Principle	Evaluation	Description
Broad-based	No	Single out the ICT sector.
Take into account externalities	No	The effect of the tax is lower mobile and broadband usage.
Simple and enforceable	No	The unofficial reason for not implementing the tax was that there were already too many taxes on the sector.
Incentives for competition & investment should be unaffected	No	Taxing mobile data consumption favours traditional phone calls at the expense of mobile broadband.
Progressive not regressive	No	The 30 Ngwee tariff is regressive.

5.5. Case study - Columbia

The government of Colombia issued a tax reform package in 2016 that included imposing VAT on foreign suppliers of digital services (OTT-Content). Foreign Service Providers (FSP) are required to register in Colombia and pay bi-monthly. Colombia has targeted the payment process and proposes to charge VAT prior to the payment reaching the off-shore beneficiary.[43] There is no discrimination and all companies pay the same VAT of 19%. If the FSP doesn't register for VAT in Colombia, payment processors are required to deduct the VAT on the FSPs behalf before remitting payment to the FSP. As of January 2019, this system had not been implemented.[44]

Table 12: Evaluation of best practices principles for taxation on VAT in Columbia

Principle	Evaluation	Description
Broad-based	Yes	The application of VAT to off-shore digital firms means that all firms now pay equal amounts of VAT.
Takes into account externalities	No	Taxes on usage constrain the positive externalities associated with mobile connectivity.
Simple and enforceable	Yes	Application of VAT is consistent across all goods and services and reduces the costs of compliance
Incentives for competition & investment should be unaffected	Yes	Making off-shore digital firms pay VAT means that the applications of VAT is the same for all firms and does not distort investment.
Progressive not regressive	No	VAT is a regressive tax because the poor pay proportionately more on consumption compared to the wealthy.

In addition to the implementation of VAT on foreign digital services, a national excise tax was implemented as part of the same tax reform package. The national excise tax was applicable to voice prior to the reform and added a national excise tax on data after the tax reform package of 2016. The excise tax is 4% and is only applicable on data and usage above $16.

Comparing VAT and excise taxes in terms of their compliance with taxation best practices shows that VAT complies with three of the five best practices. In comparison, excise taxes don't comply with four out of five best practices. So, while VAT doesn't meet all the criteria for best practices, it is preferable to excise taxes.

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[43] GSMA, 2017, p. 42.

[44] Limbatto, C. December 2018. Taxation of digital platforms in Latin America. Available at https://www.google.com/ https://www.cullen-international.com/dam/jcr:6668ece6-40ce-4d7a-9707-f20fc32b5778/2018-12-06%20DigitEco%20and%20Taxation_Cullen-International_CAL_GSMA360LATAM-min.pdf

Table 13: Evaluation of best practices principles for taxation on Excise Tax in Columbia

Principle	Evaluation	Description
Broad-based	**No**	The excise tax on voice and data is specific to the mobile sector. This increases distortionary incentives on investment across the economy.
Takes into account externalities	**No**	This is an additional tax on consumption and reduces usage by increasing prices, reducing the positive economic benefits associated with greater usage of voice and data.
Simple and enforceable	**No**	These taxes impose an additional cost on the mobile operators in terms of collection.
Incentives for competition & investment should be unaffected	**No**	The excise tax distorts usage by encouraging users to buy lower value packages (to avoid the application of the tax on values above $16). The tax also distorts competition because OTTs allow users to bypass the voice tax (as long as they don't purchase high value data packages.
Progressive not regressive	**Yes**	The excise taxes on data are progressive because they only apply to high value packages. However, these packages are easy to bypass.

5.6. Case study - Latin America

Several other countries in Latin America have implemented digital taxes and specifically on OTT-Content. Uruguay has followed Colombia's lead and has also targeted the payment process, charging VAT to all digital companies, regardless of location. In Argentina, the city of Buenos Aires implemented a municipal tax of 3% on all offshore OTT-Content providers, such as Netflix.[45] The tax is charged on debit and credit card issuers that remit payments to the OTT-Content providers. The tax only applies to consumers that live in Buenos Aires (or at least presumably have a credit or debit card registered in Buenos Aires). The federal government followed Buenos Aires's lead in June 2018[46] and also implemented a digital tax (OTT-Content) for non-resident digital service providers.[47]

Table 14: Taxes on OTTs in Latin America

Country / City	Tax	Date of reform
Buenos Aires	Municipal tax 3%	2015
Argentina	VAT 21%	2018
Brazil	Municipal tax 2–5%	2017
Colombia	VAT 19%	2017
Uruguay	VAT 22%	2016–2017
Sources:	GSMA, 2017. Taxamo, 2018.	

In Brazil, local states have the right to charge a state-level sales tax.[48] Sao Paulo initially implemented a tax of 2.9% on streaming services but withdrew the tax in March 2018.[49]

[45] Ferdeline, A. F. Argentina's "Netflix tax" isn't surprising. Available at http://blogs.lse.ac.uk/mediapolicyproject/2014/11/06/argentinas-netflix-tax-isnt-surprising/

[46] The law was actually passed earlier in December 2017 but there was no enforcement mechanism until June 2018.

[47] Taxamo, May 30 2018. Argentina starts to tax digital services supplied by non-residents. Available at https://blog.taxamo.com/insights/argentina-digital-services-tax

[48] In Brazil, states may impose a sales tax of between 2% and 5%.

[49] KPMG, 2018. Tax News: CAT Ordinance No. 24. Available at https://home.kpmg/br/pt/home/insights/2018/03/tax-news-portaria-cat-n24.html

6. Conclusions & Recommendations

Uganda has clearly shown the disastrous effects of taxing end users for social media use. The negative effects are not just limited to internet access and affordability, but also to foregone economic growth and productivity. As a result, it's critical that OTTs are clearly defined and that their role in accelerating access to the Internet is clearly understood.

For the last decade, investments from mobile operators for the last decade went into 2.5G, 3G and 4G networks, all with the aim of providing data at faster speeds. This is certainly also true for any future network investments. The business model of MNOs has to evolve along with the technology that they deploy. The billing units of minutes and voice will be replaced by data related billing units in the same way that packet-switched networks have replaced circuit-switched networks. This can be observed in developed markets and for innovative new entrants such as Jio in India.

Generally, regulatory frameworks have struggled to keep up with these commercial realities. Based on the traditional framework of regulation, regulators have generally taken a wait-and-see approach, pointing out that OTT-Coms are currently complements to voice and SMS and that there is a lack of interoperability between OTTs.

OTT-Content, streaming services, is also seen as a complement to traditional broadcasting because of high data prices. In large parts of Africa prices are too high for streaming services to be a viable alternative to traditional TV and video.

In order to distinguish between regulatory oversight roles we propose the following OTT definition for African regulators:

OTTs can be content, a service or an application that is provided to the end user over the public Internet. OTTs can be distinguished between those that are electronic communication services (OTT-ECS), those that potentially compete with electronic communication services (OTT-Com), those that potentially compete with broadcasting services (OTT-Content) and those that neither compete with electronic communication services nor broadcasting services (OTT-Other).

This definition is a starting point for understanding the nuances of the impacts of OTTs on the ICT ecosystem.

In the medium to long term, OTTs will become substitutes for traditional voice calls and SMS, which would reduce the need to regulate voice and SMS markets. It could potentially mean that mobile voice and SMS regulation could be transferred from sector specific (ex ante) to competition regulation (ex post). In the interim, however, new tools and standards for ex ante regulation have to be defined. These new tools will have to be flexible and address different issues. For instance, quality of service can no longer be measured by number of dropped calls and call duration but by IP-based indicators. Our recommendations are:

- Utilise the ICT sector for economic growth and social inclusion and not as a cash cow.
- Taxes should be broad-based and not single out the ICT sector specifically.
- Any new taxes, as well existing taxes, must be subject to a detailed economic impact assessment.
- Unintended consequences to the Internet architecture and the Internet value chain need to be considered, especially when importing ICT sector taxes from other jurisdictions.

7. References

APC (2017). Submission to the International Telecommunications Union (ITU) CWG-Internet on Public Policy Considerations for OTTs from the Association for Progressive Communications (APC), August 2017. https://www.itu.int/en/Lists/consultationJune2017/Attachments/75/APC-ITU-OTT-Submission_FINAL_31%20August%202017.pdf.

ARCEP, 2018, available at https://arcep.bj/decret-2018-341-portant-introduction-dune-contribution-sur-la-consommation-des-services-des-communications-electroniques/.

Article19 (2017). OTTs at the ITU: A Case of Over the Top Mandate Expansion, https://www.article19.org/resources/otts-at-the-itu-a-case-of-over-the-top-mandate-expansion/.

BEREC (2016). BEREC Report on OTT services, https://berec.europa.eu/eng/document_register/subject_matter/berec/download/0/5751-berec-report-on-ott-services_0.pdf.

Bundesnetzagentur, 2016. Regulatory Issues relating to OTT communication services, available from https://www.bundesnetzagentur.de/DE/Allgemeines/DieBundesnetzagentur/WAR/Stellungnahmen/Stellungnahme_OTT_EN.pdf?__blob=publicationFile&v=2.

Cabinet of the Government of Zambia, 12 August 2018, available from https://www.zambianobserver.com/press-statement-on-the-decisions-made-by-cabinet-at-the-12th-cabinet-meeting/.

Catton, C. 2016. Cost of data holding back adoption of Internet TV, available at https://www.screenafrica.com/2016/08/30/digital/cost-of-data-holding-back-adoption-of-Internet-tv/.

Communiqué of the Council of Ministers on Decree No. 2018-341 of 25 July 2018, available at https://www.presidence.bj/actualites/comptes-rendus/117/Communique-du-Conseil-des-Ministres-a-propos-du-decret-n%C2%B0-2018-341-du-25-juillet-2018.

Coplin, N., Altamirano, P., Omiyi, P. & Rowen, D. F. 2014. IMF Advice to Low-income countries on tax policy. http://www.new-rules.org/storage/documents/IMF_Advice_to_Low-Income_Countries_on_Tax_Policy.pdf.

Esselaar, S., Song, S. and Stork, C. (2017). Universal Basic Internet as a Freemium Business Model to Connect the Next Billion, in DigiWorld Economic Journal, No. 108, 4th quarter 2017.

Esselaar, S. and Stork, C. (2018). OTTs driving data revenue growth, ITS Seoul Korea 2018, https://itsseoul2018.org/program/.

Ferdeline, A. F. Argentina's "Netflix tax" isn't surprising. Available at http://blogs.lse.ac.uk/mediapolicyproject/2014/11/06/argentinas-netflix-tax-isnt-surprising/.

GODLOVITCH, I., KOTTERINK, B., MARCUS, S., NOOREN, P. ESMEIJER, J., Arnold AND ROOSENDAAL, A. (2015). Over-the-Top (OTTs) players: Market dynamics , and policy challenges, IP/A/IMCO/FWC/2013-046/ PE 569.979, http://www.europarl.europa.eu/RegData/etudes/STUD/2015/569979/IPOL_STU(2015)569979_EN.pdf.

GSMA (2016a). The Internet Value Chain: A study on the economics of the Internet, May 2016, https://www.gsma.com/publicpolicy/wp-content/uploads/2016/05/GSMA_The-Internet-Value-Chain_WEB.pdf.

GSMA (2016b). Digitalisation and mobile sector taxation in Europe: The experience in Hungary. Retrieved from https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/03/GSMA_Digitalisation_and_mobile_sector_taxation_experience_in_Hungary.pdf.

ICASA, 2017. Amendment to call termination regulations of 2014. Available at https://www.ellipsis.co.za/wp-content/uploads/2017/06/Call-Termination-Amendment-Regulations-2017-Findings-Document.pdf.

ICASA, 2017. Discussion Document: Inquiry into Subscription TV Broadcasting Services, available at http://pmg-assets.s3-website-eu-west-1.amazonaws.com/ICASA.pdf.

ITI (2017). Comments of the Information Technology Industry Council In Response to the ITU CWG-I Online Open Consultation: "Public Policy Considerations for OTTs", https://www.itic.org/dotAsset/4e0d807e-e5fe-4dfc-9be8-3110b7021ec8.pdf.

ITU (2009). Mobile Termination Rates –to regulate or not To regulate?, http://www.itu.int/ITU-D/treg/events/seminars/gsr/GSR09/doc/GSR09_Lazauskaite_MTRs.pdf

ITU (2017). Economic Impact of OTTs, Technical Report, https://www.itu.int/dms_pub/itu-t/opb/tut/T-TUT-ECOPO-2017-PDF-E.pdf.

ITU (2019). Collaborative framework for OTTs, Recommendation ITU-T D.262, https://www.itu.int/itu-t/recommendations/rec.aspx?rec=13595.

Kende, M. and Hurpy, C. (2012). Report for the Internet Society, Assessment of the impact of Internet Exchange Points – empirical study of Kenya and Nigeria, https://www.internetsociety.org/wp-content/uploads/2017/09/Assessment-of-the-impact-of-Internet-Exchange-Points-–-empirical-study-of-Kenya-and-Nigeria.pdf.

KPMG, 2018. Tax News: CAT Ordinance No. 24. Available at https://home.kpmg/br/pt/home/insights/2018/03/tax-news-portaria-cat-n24.html.

Limbatto, C. December 2018. Taxation of digital platforms in Latin America. Available at https://www.cullen-international.com/dam/jcr:6668ece6-40ce-4d7a-9707-f20fc32b5778/2018-12-06%20DigitEco%20and%20Taxation_Cullen-International_CAL_GSMA360LATAM-min.pdf.

OECD. (2015). Final Report Addressing the Tax Challenges of the Digital Economy. https://doi.org/http://dx.doi.org.10.1787/9789264202719-en.

Ofcom (2015). Strategic Review of Digital Communications Discussion document, https://www.ofcom.org.uk/__data/assets/pdf_file/0021/63444/digital-comms-review.pdf.

Ofcom (2018a), Communications Market Report- Annex 1: Methodology and Glossary, https://www.ofcom.org.uk/__data/assets/pdf_file/0023/116753/CMR-2018-methodology.pdf.

Ofcom, (2018b). Mobile call termination market review 2018-2021, available at https://www.ofcom.org.uk/__data/assets/pdf_file/0011/103340/mobile-call-termination-consultation.pdf.

Statista. https://www.statista.com/chart/13762/whatsapp-messages-sent-per-day/.

Taxamo, May 30 2018. Argentina starts to tax digital services supplied by non-residents. Available at https://blog.taxamo.com/insights/argentina-digital-services-tax.

8. Appendix A: Regulatory treatment by country

	Date	Title	URL
Angola	9 Jun 2016	Diario da republica	http://www.inacom.gov.ao/Portals/0/Legislacao/Em%20Vigor/Dec.Pres.%20122%20de%2009%20de%20Junho%202016-%20Aprova%20o%20PERL.pdf?ver=2017-10-03-170400-753
Benin	25 Jul 2018	Decret No. 2018 341 Du 25 Juillet 2018	https://arcep.bj/wp-content/uploads/2018/08/De%CC%81cret-N%C2%B02018-341-du-25-Juillet-2018.pdf
Burundi	5 Dec 2018	Impact des OTT dans l' ecosystem du numérique	http://www.arct.gov.bi/index.php/2-non-categorise/117-atelier-de-sensibilisation-sur-l-impact-des-otts-reseaux-sociaux-et-des-services-emergents
	5 Dec 2018	Minutes on the Sensitisation workshop on the impact of OTTs	http://www.arct.gov.bi/index.php/2-non-categorise/117-atelier-de-sensibilisation-sur-l-impact-des-otts-reseaux-sociaux-et-des-services-emergents
DR Congo	14 Jun 2018	Mobile telephony: ARPCE informs the public about the new Voice and Data pricing	http://www.arpce.cg/lire-tous-les-articles/item/341-t%C3%A9l%C3%A9phonie-mobile-l%E2%80%99arpce-%C3%A9claire-le-public-sur-la-nouvelle-tarification-voix-et-data
	31 Mar 2018	Reforming mobile sector taxation in the Democratic Republic of the Congo: Enabling economic growth through a supportive tax system	https://www.gsma.com/publicpolicy/wp-content/uploads/2018/07/GSMA_DRC-report_ENGLISH_72pp_WEB.pdf
Cote d'Ivoire	1 Dec 2016	La Régulation des OTT: cas des réseaux sociaux	http://www.artci.ci/images/stories/pdf/publication/bulletine_veille_technologique_decembre2016.pdf
Ghana	5 May 2016	Press Release on the regulation of Over the top (OTT) service	https://www.nca.org.gh/assets/Uploads/Press-Release-OTT-Services-v2.pdf
Guinea	30 Sep 2017	The Impact of Over-The-Top Services in Telecommunications Industries	https://www.arpt.gov.gn/sites/default/files/Documentation/5._en_-_ott_strategic_paper_0.pdf
	30 Sep 2017	Council of African Regulators	https://www.arpt.gov.gn/sites/default/files/Documentation/_03rd_car_meeting_guinea_-_14_december_2017_v2.pptx
Liberia	no date	Draft competition guidelines	http://www.lta.gov.lr/doc/Appendix%20B_Comp%20Guidelines.pdf
Morocco	4 Nov 2016	Press Release	https://www.anrt.ma/sites/default/files/rapportannuel/cp-voip-fr.pdf
Mozambique	1 Dec 2016	Communications Regulation Report	http://www.incm.gov.mz/index.php/sala-de-imprensa/postal-2/149-relatorio-de-regulacao-das-comunicacoes-2016
Nigeria	4 Mar 2016	NCC Has No Plans To Regulate OTT	https://ncc.gov.ng/stakeholder/media-public/news-headlines/45-ncc-has-no-plans-to-regulate-ott-danbatta

	Date	Title	URL
Senegal	18 Feb 2018	DG ARTP / Facebook meeting at the GSMA 2018: The issue of OTTs at the center of discussions	http://artpsenegal.net/fr/rencontre-dg-artp-facebook-au-gsma-2018-la-problematique-des-ott-au-centre-des-discussions
Senegal	30 Apr 2017	Avis d'appel public à manifestation d'intérêt	https://www.artpsenegal.net/sites/default/files/docs_actualites/ami_etude_cadre_de_regulation_des_nouveaux_services_lies_au_numerique_.pdf
	30 Jun 2018	Electronic Communications Bill	http://webfoundation.org/docs/2018/08/Bill_CodeofElectronicCommunications_Senegal.pdf
South Africa	15 Jan 2019	Discussion Document: Inquiry into Subscription TV Broadcasting Services	http://pmg-assets.s3-website-eu-west-1.amazonaws.com/ICASA.pdf
	22 Sep 2017	Amendment to call termination regulations 2014	https://www.ellipsis.co.za/wp-content/uploads/2017/06/Call-Termination-Amendment-Regulations-2017-Findings-Document.pdf
Tanzania	27 Aug 2018	Consultancy service for a cost study to establish cost based Internet and OTT tariffs provided by ISPs and fixed Mobile Broadband Service providers	https://tcra.go.tz/images/headlines/Expression_of_Interest_on_Cost_Stufy_-_OTT_FIANAL.pdf
Uganda	19 Jan 2019	Uganda: Parliament Orders Assessment on Impact of Social Media Tax	https://allafrica.com/stories/201901180685.html
	7 Nov 2018	OTT raises Shs20b in first quarter, URA fails on targets	https://www.monitor.co.ug/Business/Finance/OTT-raises-Shs20b-in-first-quarter-URA-fails-targets/688608-4839866-qoxx55z/index.html
Zimbabwe	30 Jun 2016	Consultation Paper on Over the Top (OTT) services	http://www.potraz.gov.zw/wp-content/uploads/2016/01/Consultation_OTT.pdf

9. Appendix B: List of acronyms

Acronym	Description
2G	Second Generation GSM
3G	Third Generation
4G	Fourth Generation
ARPU	Average revenue per user
BBU	Baseband Unit
BEREC	Body of European Regulators for Electronic Communications
BTS	Base Transceiver Station
CDN	Content delivery network
ECS	Electronic communication service
GSM	Global System for Mobile Communications
IXP	Internet Exchange Point
KIXP	Kenyan Internet Exchange Point
LTE	Long Term Evolution (4G)
M2M	machine-to-machine
MNO	Mobile Network Operators
NBI	National Backbone Infrastructure
NRA	National Regulatory Authority
O&M	Operation and Maintenance
OTT	Over the Top Application
RAN	Radio Access Network
RRU	Remote Radio Unit
SME	Small and Medium-sized Enterprise
TC	Tower Company
UAS	Universal Access and Service
USD	United States Dollar
VPN	Virtual Private Network