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Over The Top (OTT) Applications & the Internet Value Chain

Recommendations to Regulators, Policy
Makers and Tax Authorities



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FOREWORD



Gisa Fuatai Purcell
Acting Secretary General, CTO

The Commonwealth Telecommunications Organization (CTO) in collaboration with Research ICT Solutions (RIS)¹ and Cenerva Ltd² is pleased to present this study report on the current assessment, challenges and opportunities of Over-The-Top (OTT) applications in the digital value chain. This Report builds on the 2018 OTT report published by the CTO which analysed the market dynamics, policies and regulatory challenges and opportunities of OTTs. The 2018 OTT study was commissioned by Commonwealth ICT Ministers at the Commonwealth ICT Ministers Forum in London in June 2016.

Since the publication of the 2018 OTT Report, new OTT-related developments and issues have emerged in the ICT policy and regulatory space. At the same time, OTT applications have become even more pervasive in enhancing digital communications and interactions. What's more, the COVID-19 pandemic has further fast-tracked the digitalisation of the way people work and live

around the globe. With most nations introducing social distancing rules or lockdowns, we have seen an increase in the use of OTT applications, such as Zoom, Skype, Messenger, WhatsApp and Netflix, for audio and video communications. OTT applications have also been used to digitalise business processes and teamwork. As the world continues to combat this pandemic, it has become increasingly obvious that the post-COVID-19 world will be more digital than the pre-COVID-19 world. More business processes will become cloud-based, larger parts of education will be online, and a lot of entertainment will be consumed on-demand. Service providers will increasingly focus on providing more high-speed data access. OTTs are at the heart of this transformation and the innovations to come.

Without a doubt, the COVID-19 pandemic has underlined the critical role that OTT applications play in our lives. OTTs have enabled people all over the world to access information to stay well and safe. Schools are using different types of OTTs to deliver online education. Institutions continue to function by leveraging OTTs enable to enable their employees to work from home. People are using OTTs to connect with loved ones despite the physical isolation caused by lockdowns and social distancing. Indeed, OTT applications, which can only be used with access to the internet and serve as a driver for increased internet use, will enable increased productivity across all economic sectors, and facilitate the sharing of information and delivery of services across global digital value chains.

Despite these positives, many stakeholders across multiple jurisdictions continue to have concerns with the use of OTT applications. These are highlighted and covered extensively in this report. It is critical that while we address these concerns through ICT policies and regulations, we continue to encourage fair competition, innovation and investment and enable users to continue to benefit from the use of OTT applications. This report aims to provide evidence-based advice for policymakers and regulators, on the regulatory treatment of OTT applications.

¹ www.researchichtsolutions.com

² www.cenerva.com

The CTO is keen to support countries in elaborating national policy and regulatory frameworks on OTTs and related data protection and privacy issues, based on the findings, recommendations and opinions presented in this report and align with their respective national objectives.

Finally, I would like to take this opportunity to thank the authors of this report, from RIS, Cenerva Ltd, and the CTO technical team, for their effort and time in producing this report. My gratitude also goes to the CTO members and partners, who have provided their input.

A handwritten signature in black ink, featuring a large, stylized 'G' followed by a series of loops and a horizontal line.

Gisa Fuatai Purcell
Acting Secretary General
Commonwealth Telecommunications Organization (CTO)

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This CTO OTT Study was coordinated by the Technical Support and Consultancy Division, ICT Development Department within the CTO.

The CTO acknowledges Mrs Gisa Purcell Fuatai, Ag Secretary General, for her leadership, direction and support and the core CTO technical team comprised Dr. Martin Koyabe and Leonard Obonyo.

Special thanks to the authors, Dr. Christoph Stork and Steve Esselaar of RIS, Prof H. Sama Nwana of Cenerva Ltd, and Dr. Martin Koyabe of CTO.

The report includes references from relevant work by other organisations and partners, which are duly acknowledged.

The CTO also appreciates the cooperation we received from relevant stakeholder contacts based in different countries, who provided the much-needed additional data captured during the study.

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EXECUTIVE SUMMARY

In June 2018, the Commonwealth Telecommunications Organisation (CTO) published its first Over The Top (OTT) Report on the perspectives of several ICT stakeholder groups on OTT services. The results were interesting and highlighted often-mentioned current allegations in the OTT debate. They were illustrative of several myths, misunderstandings and missteps by Governments, tax authorities, policy-makers and regulators about OTTs. These missteps occur because the cry for OTT intervention—"to do something about OTTs"—*prima facie* is easily believable based on superficial understanding of the many allegations.

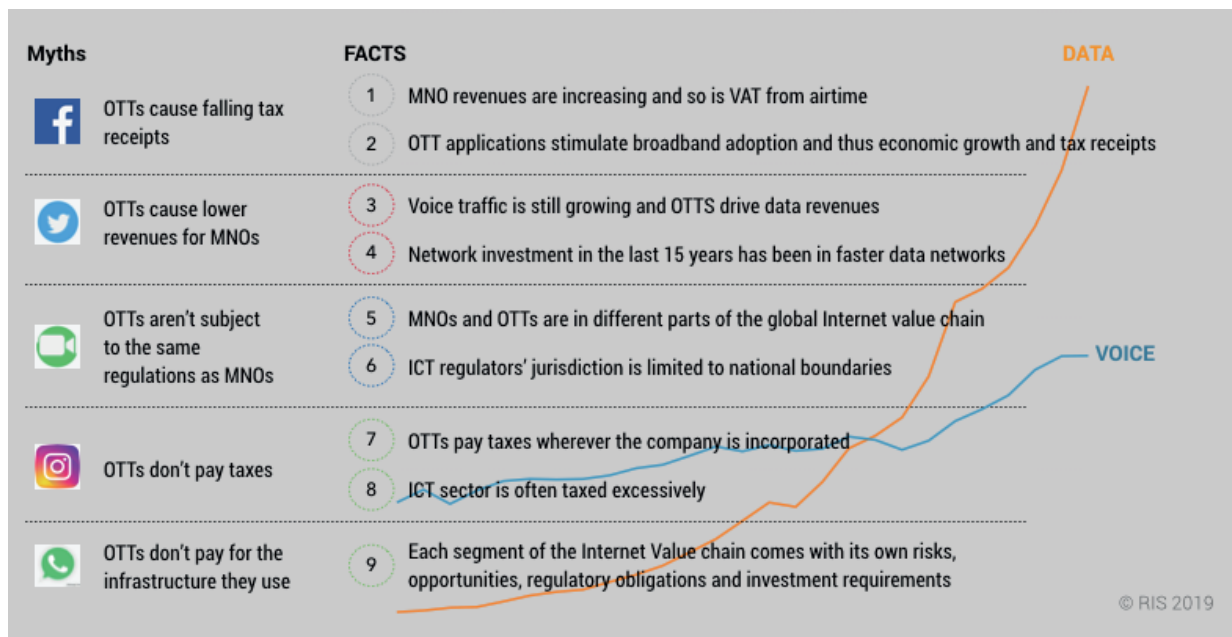


Figure 1: Myths vs facts in the OTT debate

As with many things in life, the devil is in the details. Several of the key allegations against OTT applications turn out to be myths when real data and results from premature OTT interventions (tax or regulatory) are analysed and scrutinised. Figure 1 summarises some key myths against evidence-based facts. This report debunks these myths using case studies from several countries and an analysis of OTTs within the context of the Internet Value Chain.

Intervening in any way with OTTs requires a clear acknowledgement and fundamental understanding of the reality of the encroached Internet value chain into telecoms and a detailed assessment of the potential impacts and unintended consequences that an intervention may have.

This report unapologetically draws and derives much of its lessons and key messages from data and case studies from many African countries, but its essential tenets apply elsewhere beyond Africa.

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Steve is an ICT ecosystem and regulatory expert with a focus on how to connect everyone to digital services. Steve has designed innovative business models for mobile application developers and mobile operators and helped regulators across Africa to determine universal access and service gaps to guide infrastructure investment through GIS modelling. The universal service and access projects Steve managed or led resulted in millions of dollars in subsidies to areas that were perceived to be economically unviable. His employment record straddles academia (WITS University, South Africa), public sector (Independent Communications Authority of South Africa – ICASA) and the private sector (Intelecon Research and Research ICT Solutions).



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Martin is the Head of Technical Support and Consultancy at the Commonwealth Telecommunications Organization (CTO). He has over 25 years experience in ICT innovation, research and development. He holds a PhD in Communications Engineering and has been involved in various ICT projects mainly in Europe, US, Caribbean, Asia Pacific and Africa. He is also a technical expert for the European Commission (EC), World Bank, UN, GFCE and the ITU. He has led and delivered a number of national strategies in Cybersecurity, Broadband, Telecom Regulation and ICT for a number of organisations and countries. Most recently he has led various CTO projects in assisting countries develop National Cybersecurity, Broadband Strategies, Universal Service Framework and CERT/CSIRT including Botswana, Cameroon, Uganda, Fiji, Malawi, Mozambique, Tanzania, Senegal, Eswatini, Sierra Leone, The Commonwealth of Dominica, Bermuda, Afghanistan and St. Kitts & Nevis. Most notably is his recent contribution towards the development of the National Cybersecurity Strategy Guide, published in 2018 with other partners, including the ITU. He led the CTO team to conduct a global OTT study to better understand the market dynamics, policy and regulation of OTT services both in the context of impact on traditional telecommunication business models and opportunities for innovation and stimulation of economic growth. He is an alumni of Harvard Kennedy School and Cambridge University, Judge Business School.

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1 INTRODUCTION

Governments and regulators are facing demands to intervene on behalf of MNOs:

Telecommunication and broadcasting regulators as well as tax authorities are being confronted with demands "to do something" about OTTs. The central claim is that falling voice and SMS revenues are causing an overall decline in sector revenues, resulting in lower investment in network infrastructure, substandard quality of service, lower tax revenues and lower licensing revenues.

Operators are also calling for regulators to intervene:

From an operator perspective, the call for intervention was clear after Digicel Chairman Denis O'Brien made a case for OTT operators in July 2017 to share revenue with governments and operators.³ Allied to this claim, operators demand a regulatory "level playing field", i.e., to either reduce the regulatory burden on MNOs or to impose a similar regulatory burden on OTTs.

Concern about declining tax revenues:

Some governments are concerned about the potential loss of tax revenue from the (alleged) declining sector revenues or from the potential loss of revenues because OTTs, in many instances, do not pay local taxes, such as VAT. Several Governments are seeking a way of tracking revenues derived from their citizens by OTTs so that they can raise revenues from them via consumer taxation. Some other governments frankly just fear the political loss of control over their national media that comes with the introduction of social media into their countries, and therefore proceed to douse the demand for their use by taxing the use of OTT applications.

Broadcasters complain that streaming services have an unfair advantage:

Streaming services are not subjected to local broadcasting regulations and in some countries do not have to charge their clients' Value Added Tax (VAT). For example, UK pay-TV behemoth and telco BSkyB in July 2018 joined the chorus⁴ citing "level playing field" arguments. Governments have seen how multi-national companies can shift profits to where the taxes are lowest. This is much easier where the service relies on an online application and not physical infrastructure.

CTO Online OTT survey assessed the status of OTT legislation and regulation:

The Commonwealth ICT Ministers Forum mandated the Commonwealth Telecommunications Organisation (CTO) in June 2018 to conduct a study on OTT applications in order to understand the market dynamics, policy and regulatory issues of OTT services (CTO, 2018). OTTs were to be considered in terms of their impact on traditional business models and the potential that OTT services had in terms of innovation and stimulating economic growth. The issues addressed included taxation, cybersecurity, privacy, quality of service and taxation. A core component of the study was an online survey administered to relevant stakeholders based in Commonwealth jurisdictions. The report aimed to assist ICT regulators and policy-makers in assessing what policy and regulatory framework is needed to ensure sustainable competition, innovation and investment. In addition, the study assessed if current legislation and policies were fit for purpose. CTO sent questionnaires to dozens of Commonwealth and non-Commonwealth countries – and ran OTT consultations in UK, Trinidad & Tobago, Uganda, Tanzania, Kenya, Nigeria, South Africa & the BVI. Subsequently, CTO launched the report by presenting it to Commonwealth ICT Ministers in June 2018. The main recommendations of the report were that further consultations are required, that

³ <http://www.loopjamaica.com/content/obrien-calls-revenue-share-among-ott-operators-govts-and-telcos> (last accessed October 2019)
⁴ <https://www.digitaltveurope.com/2018/07/05/sky-chief-calls-new-regulator-to-hold-internet-giants-to-account/>

regulatory tools need to be adjusted and new ones developed to address challenges that the sector faces (as shown in Table 1).

Table 1: Results of the 2018 CTO OTT Survey

		Regulators & policy makers	ISPs, MNOs, broadcasters	OTTs
Respondents agree that current regulatory regimes, laws and regulations are able to address OTT issues		29.7%	0%	88.9%
Respondents agree that OTT providers should contribute to the upkeep of the networks that they utilise		64.9%	100%	11.1%
Respondents agree that Net Neutrality should be considered when addressing the dynamics of OTTs		91.9%	88.9%	100%
Respondents agree that changes to regulation might stifle OTT innovation	not at all	13.5%	22.2%	0%
	slightly	18.9%	11.1%	0%
	moderately	48.6%	33.3%	0%
	very much	10.8%	22.2%	11.1%
	extremely	8.1%	11.1%	88.9%
Respondents agree that the provision of OTT services affect QoS of network providers	not at all	13.5%	22.2%	0%
	slightly	18.9%	11.1%	0%
	moderately	48.6%	33.3%	0%
	very much	10.8%	22.2%	11.1%
	extremely	8.1%	11.1%	88.9%
Respondents agree that OTT providers should be required to contribute to the Universal Service Fund (USF)		51.4%	66.7%	0%
Respondents agree that OTT providers should contribute to the upkeep of networks they utilise		64.9%	100%	11.1%
Source		Compilation based on CTO (2018)		

This report is a follow-up to the survey:

CTO partnered with Cenerva Ltd⁵ and Research ICT Solutions⁶ (RIS). This study draws some salient lessons from several countries which have seen OTT regulation and taxation initiatives. The purpose of this additional work is to provide evidence-based recommendations to regulators, policy

⁵ Cenerva (www.cenerva.com) is a Telecoms Regulatory Master Class (TRMC) training-led consultancy which has been training regulators and operators independently and objectively for more than 20 years. Cenerva has authored 2 OTT papers, all on its website.

⁶ Research ICT Solutions (www.researchictsolutions.com) provides objective transparent and evidence-based ICT policy and regulatory advice. Research ICT Solutions has published more authoritative papers on OTT than any other boutique consultancy in recent years with no less than 6 papers.

makers and tax authorities, drawing evidence from countries that have carried out some OTT interventions. This report assesses the following:

- Petitions to intervene in the market on behalf of MNOs are assessed from the perspective of where OTTs fit in the Internet value chain. Each segment of the value chain has its own business model, risks and opportunities as well as regulatory framework.
- The starting point is a clear and practical definition of OTTs that explains why a regulatory intervention can only be justified if it is evident in which segment of the Internet value chain the regulator plans to intervene and what the impact of the intervention is going to be.
- This report also explores the transition from an analogue business model dominated by voice and SMS to a digital business model dominated by data and the challenges and opportunities of this transition. Business decisions taken by MNOs, economic conditions and the role of the country regulator are arguably the most significant determinants of MNO revenues – and much less so the role of OSPs.
- The impact of ICT sector taxation is assessed in a range of case studies.
- The study further discusses new regulatory tools and measurements required for the evolving business models, guided by the minimal intervention and proportionality principles.

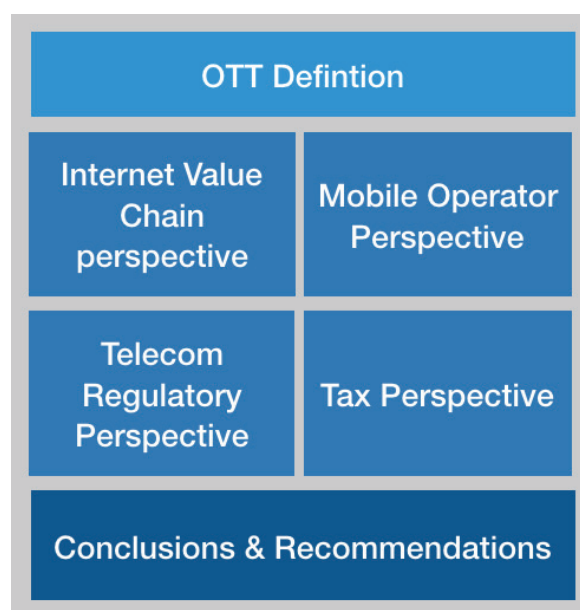


Figure 2: Study outline

This report looks at the impact of OTTs from different perspectives:

The first problem is how to define OTTs because without a clear definition, the impact is impossible to assess. The location of OTTs in the value chain is assessed next. The value chain perspective allows us to assess the impact of OTTs from a mobile operator perspective to see whether claims for intervention by MNOs are justified. The telecom regulatory perspective looks at how regulation has changed over the past 100 years and specifically what the impact of OTTs is on current regulatory tools. The next section looks at how governments are trying to tax OTTs. These various perspectives combine to show that existing regulatory tools are in urgent need of an update. We list the next steps for a regulator and what problems they need to assess in order to update their regulatory framework.

Questions and Answers

Q: Who is this report aimed at and why?

A: This report is aimed at senior regulators, ICT policy makers, tax authorities and financial ministries. Over the Top (OTT) Services are both relatively new and misunderstood. Along with other ICT services, they tend to be prematurely taxed by finance ministries or tax authorities whilst ICT regulators and policy makers are still grappling to understand them. This report would help all these stakeholders to cooperate in dealing with the regulatory and tax questions pertaining to OTTs.

2 OTT DEFINITION

OTTs mean different things to different stakeholders:

The confusion surrounding how to regulate OTTs is partly due to the lack of a common definition. 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), shown in Table 2. This definition was the result of a consensus, not the result of a technical and commercial understanding of OTTs. It 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, and 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).

Table 2: OTT definitions (Esselaar & Stork, 2019c)

From	Date	Definition or description		Suitability?
Ofcom	2015	A range of services, including messaging services, voice services (VoIP), and TV content services		Definition is correct but too general
BEREC	2016	Content, a service or an application that is provided to the end-user over the public Internet		Much better definition but telecommunications Focused
		Distinction	OTT-0 as electronic communication services (ECS) that are able to terminate on fixed-line or mobile networks such as Skype-out calls.	
			OTT-1s are not electronic communication services (ECS) but potentially competing with them.	
			OTT-2 encapsulates all other OTT services that are not captured by OTT-0 and OTT-1 (e-commerce, video and music streaming, etc.)	
ITU	2019	An application accessed and delivered over the public Internet that may be a direct technical/functional substitute for traditional international telecommunication services		International Telecommunication Focused
Source		Esselaar & Stork (2019c)		

Ofcom UK leads the way:

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 Internet rather than over a managed IPTV architecture.

BEREC fine tunes it for Europe:

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

- 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 operator⁷ but by third parties over the Internet. BEREC defines three subsets of OTTs, where the defining characteristics are based on whether OTT services or applications have the ability to connect to public telephone networks (Table 1). 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.

Fine Tuning the OTT definition further:

The BEREC 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. Ideally, an OTT definition is based on a taxonomy that separates out issues that need 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. Esselaar & Stork (2019c) propose a definition for four categories of OTTs: OTT-ECS, OTT-Com; OTT-Content and OTT-Other (Table 3) and we propose the following definition:

OTT 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).

⁷ 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.

Table 3: Fine-tuned definition of OTTs (Esselaar & Stork, 2019c)

	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 (e.g. 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
Potentially Responsible Ex Ante regulatory bodies (if regulation is pursued)	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 Public Switched Telephone Network (PSTN) and mobile networks 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).

Questions and Answers

Q: Why is a definition of OTTs necessary?

A: A definition must be practically useful. In the context of OTTs, a good definition is one that shows which regulations apply to OTTs and which do not. One can hardly regulate what one cannot define. The ITU's definition of OTTs fails this test because it is not clear which regulations would apply, and it leaves the actual definition to every member state. The definition adopted in this report shows clearly the type of regulations that apply for each subset and which regulations need to be revised in order to prevent regulatory over-reach.

3 INTERNET VALUE CHAIN PERSPECTIVE

The Internet value chain has five distinct segments, each with its own risks and opportunities:

Content rights, online services, enabling technologies, connectivity and user interface (Figure 3). MNOs are part of the connectivity segment of the Internet value chain. Each segment has its own investment requirements, operational risks, legal implications and revenue opportunities. While online services made up the bulk of the value in the value chain in 2015 (47%), social media and communication applications made up less than 3.4% of the total online services at USD 55 billion. The main value contributors are e-retailers.⁸ Considerable investment is required for an MNO to expand upstream or downstream of the Internet Value Chain. MTN, for example, launched its own social media application with built-in payment functionality called MoMo in March 2019. This is a strategy to generate revenues outside the traditional telecommunication sector, aimed at advertisement and financial services revenues.

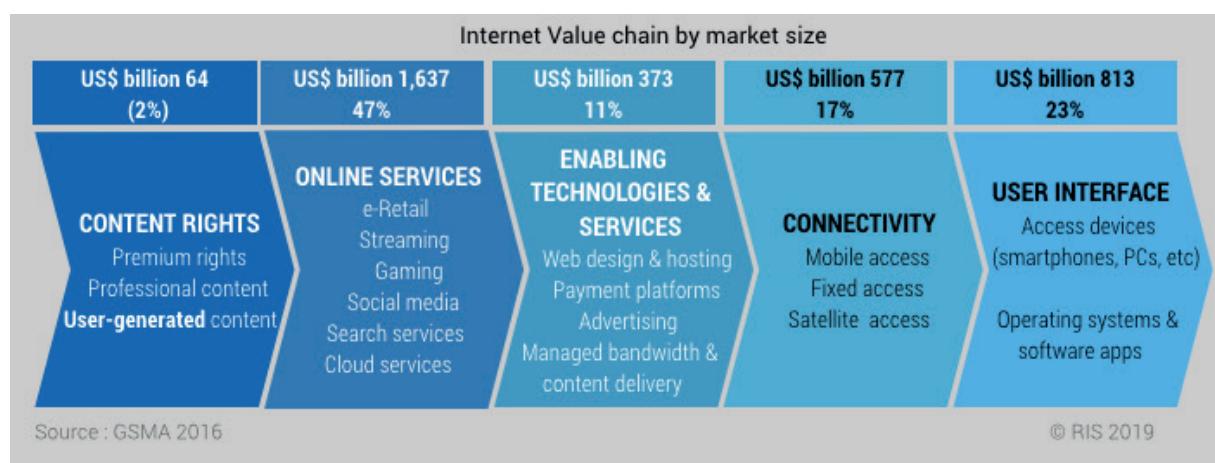


Figure 3: Market share of global Internet value chain in 2015 (Esselaar & Stork, 2019b)

Each segment of Internet Value chain is subject to own laws, rules and regulations, implemented by different bodies:

Table 4 provides a very general overview, and countries may differ to some extent in their implementation. For any Government, the Internet poses 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 (i.e. not licensed) in a country and therefore cannot be regulated by national regulators.

Only the connectivity segment of the value chain is subject to *ex ante* regulation by the telecommunications regulator:

Telecom regulators have no jurisdiction outside of the connectivity segment of the value chain. All other segments of the value chain are trans-national. The consequence is that telecom regulators can only intervene in instances where they see market failure in the connectivity segment. In other

⁸ 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.

segments of the value chain, collaboration between different institutions and across national boundaries is required.

Regulatory interventions should meet the three criteria test:

For regulators to intervene in a market, there needs to be some kind of market failure. Further, market forces alone should not be enough to address the market failure in the short to medium term. The ITU (2016) defines three criteria to determine whether *ex ante* regulation should be considered: (1) High barriers to market entry exist; (2) The market structure does not tend towards effective competition; and (3) Competition law alone would not be enough to address market failure. The market for mobile call and SMS termination fulfils these three criteria.

OTT-ECS are already sufficiently regulated:

In terms of OTTs, regulation would be limited to OTT-ECS, such as Skype Out. Skype Out terminates on a mobile operator's network and a termination rate is charged for a Skype Out call. Since call and SMS termination is a natural monopoly, termination rates are typically capped by the regulator.

Once OTT-Com becomes a functional substitute for voice and SMS, less, not more, regulation is required:

OTT-Com is potentially within the jurisdiction of telecom regulators insofar as OTT-Com is judged a substitute for traditional voice and SMS. If OTT-Com is judged a substitute for voice and SMS, this would mean that there is greater competition in the segment. The guiding principle for effective regulation is to only intervene when there is market failure. Since there is greater competition, less regulation would be required.

Table 4: Different institutions and laws shaping the Internet Value Chain

Internet Value Chain	Institutions	Laws
Content Rights	<ul style="list-style-type: none"> ◦ Broadcasting regulator ◦ Film and Publication Board ◦ Registration of copyright ◦ Courts ◦ Competition Commission 	<ul style="list-style-type: none"> ◦ Broadcasting Code ◦ Patent/copyright/trademark laws
Online services	<ul style="list-style-type: none"> ◦ Courts ◦ Competition Commission ◦ Consumer protection agencies ◦ Data protection agencies 	<ul style="list-style-type: none"> ◦ Consumer protection laws ◦ Data protection laws ◦ Hate speech laws ◦ Privacy laws ◦ Cyber security laws ◦ Patent/copyright/trademark laws ◦ Gambling legislation
Enabling technologies & services	<ul style="list-style-type: none"> ◦ Courts ◦ Competition Commission 	<ul style="list-style-type: none"> ◦ Privacy laws ◦ Cyber security laws ◦ Financial sector regulation & laws
Connectivity	<ul style="list-style-type: none"> ◦ Telecommunication regulator ◦ Communications, science & technology agencies ◦ Courts ◦ Competition Commission ◦ Local authorities & municipalities 	<ul style="list-style-type: none"> ◦ Communication laws ◦ Competition laws ◦ Local authority laws

Table 4: Different institutions and laws shaping the Internet Value Chain

Internet Value Chain	Institutions	Laws
User interface	<ul style="list-style-type: none"> Telecommunication regulator Consumer protection agencies 	<ul style="list-style-type: none"> Consumer protection laws Type approval from telecom regulation
Source	Esselaar & Stork, 2019c	

Issues not related to *ex ante* telecommunication regulation but to the Internet use require an update to legislative framework and new institutions. For example, in the USA, the Federal Trade Commission is responsible for enforcing data protection and data privacy legislation. In the EU, data protection is overseen by institutions within each member country, such as the Data Protection Commission in Ireland. Within the European Commission, the European Data Protection Supervisor is responsible for data protection.

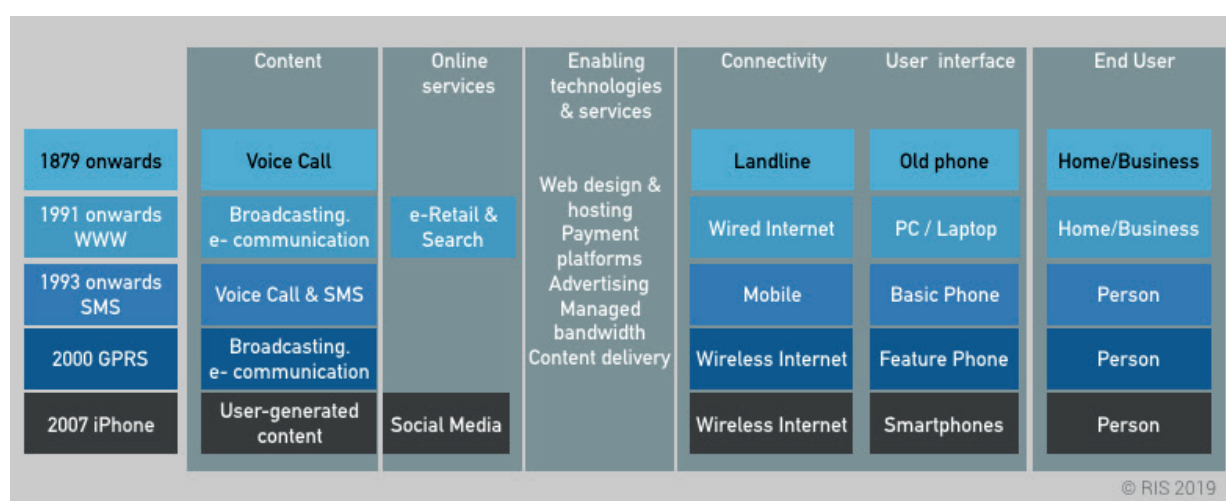


Figure 4: The ICT value chain

The Internet Value Chain is not new but is merely an expanded ICT value chain:

In the past, 'content' was one-to-one (phone calls) or one-to-many (broadcasting). Now, additional content is user-generated using tools like YouTube, Facebook and Twitter (many-to-many). The number of participants in the value chain has increased and technology has improved, changing what can be delivered. An additional segment through the arrival of wired Internet is the segment of enabling technologies and services. One could thus argue that the value chain has deepened or has been stretched. However, the fundamentals of the value chain remain. The value chain was always global. Physical networks are still required to deliver the new content. Operators still have to build and operate networks.

EBITDA margins along the Internet value chain shows that end-user access is still a very profitable business:

More important than the size of each segment in terms of revenues is the profitability of major players in each of the value chain segments. Table 5 displays the Earnings Before Interest Taxes Depreciation and Amortisation (EBITDA) margin for selected players for each of the value chain segments. On average, EBITDA margins for the connectivity segment are higher than the other

segments of the value chain. It would be difficult to argue that MNOs are facing more adverse conditions than other segments. The variance of EBITDA margins between segments also shows that each segment has its own value proposition, investment criteria and returns. Netflix is, for example, much more profitable than Disney.

Table 5: EBITDA margin along the value chain (from audited financial statements)

Segment	Company	2016	2017	2018
Content Rights	Netflix	60%	61%	59%
	Warner Media			18%
	Disney	30%	30%	29%
	Fox Corporation			22%
Online Services	Amazon	9%	9%	12%
	Alphabet	33%	30%	26%
	Facebook	53%	57%	52%
Enabling Technologies	Cisco	30%	30%	31%
	Akamai	41%	37%	40%
Connectivity	Airtel Group	35%	38%	37%
	Etisalat	50%	50%	49%
	Maroc Telecom Group	48%	49%	50%
	MTN Group	35%	33%	35%
	Ooredoo	41%	42%	41%
	Sonatel	49%	47%	45%
	Safaricom	42%	48%	48%
	Vodacom Group	38%	38%	38%
	Average Connectivity	42%	43%	43%
User Interface	Apple	33%	31%	31%
	Samsung	24%	31%	35%
Source		Esselaar & Stork, 2019b		

Questions and Answers

Q: Why is it useful to analyse OTTs from the perspective of the Internet value chain?

A: Calls for intervention to limit the use of OTTs are premised on the assumption that OTTs are part of the connectivity segment of the value chain. The Internet value chain shows that this premise is false. OTTs are part of a broader value chain, each segment with its own business models, risks and opportunities and legislation.

4 MOBILE OPERATOR PERSPECTIVE

MNOs blame OTTs for declining voice and SMS revenues across the sector:

Some mobile operators have argued that OTTs have cannibalised voice and SMS revenues and warned that the resulting decline of overall revenues leads to lower investment in network infrastructure, substandard quality of service, lower tax revenues and lower licensing revenues. We investigate this claim by using publicly available information from mobile operators across Africa to analyse trends in voice, SMS and data revenues. We analyse three factors impacting revenue trends (Figure 5): changes in usage patterns across voice, SMS and data, the impact of regulatory interventions and the choice of business model.

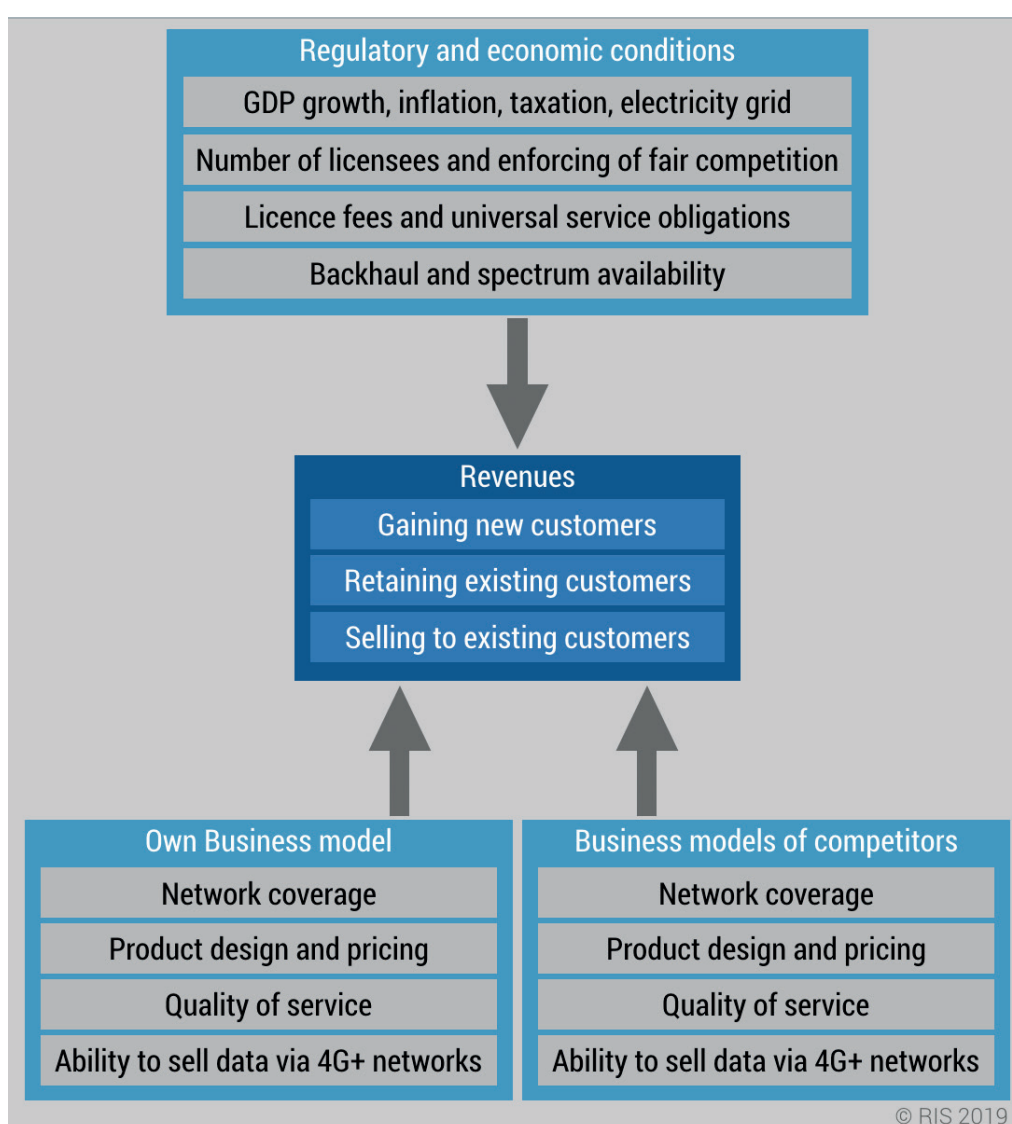


Figure 5: MNO business Model (Source: Esselaar & Stork, 2019b)

OTTs are now an integral part of the MNO business model:

The view that OTTs are causing a decline in operator revenues is based on a simplistic understanding of the source of telecom revenues. Generally, revenues depend on many factors, among them the number of subscribers, subscriber profiles, product design, retail prices, level of

competition in the sector and regulation. Assessing the claims by MNOs that OTTs harm their profits needs to take all three factors into account. These factors can be grouped into three categories.

- Economic factors: Demand for mobile services as a function of population, GDP, and exchange rates;
- Regulatory environment: Market structure shaped by the number of MNOs, fairness of competition and transparency and predictability of regulations;
- Operator strategies: Product design, response to other operators and own business model.

The digital business model is all about knowing the customer:

The actual battle is not that of cannibalisation of one product for another, i.e., replacing voice and SMS with data revenues, but one of maintaining information on subscriber leadership. For years, MNOs were in the lead, knowing where their customers were in space and time, whom they communicated with and when. While this information is still available to MNOs, social media and online shopping provides a more potent and detailed information source. The information that Amazon and Facebook have about a customer is likely to be more economically valuable than the information that an MNO has about the same customer. To enter this market is a business decision, not a regulatory decision.

The impact of OTTs on the financial performance of MNOs depends on their ability to sell data:

The number of OTT users and OTT traffic is steadily increasing. If OTTs cause a decline in revenues, then one should be able to see a systematic decline in revenues over time and also for all countries and most operators. The overall impact of OTTs on the financial performance of mobile operators depends on whether data revenue growth can make up for potentially declining voice and SMS revenues. Social media and user-generated content led to the explosion of mobile broadband adoption and usage and, consequently, to a massive upgrade in mobile network infrastructure across Africa. CISCO predicts that by 2022, 79% of the world's mobile data traffic will be video.⁹

Data is becoming the primary source of MNO revenues:

Data networks are where the majority of MNO investment of the last 2 decades has gone. The transition from a voice and SMS to mobile Internet access-business model is inevitable (Table 5). MNOs will eventually become *mobile Internet access 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 would no longer charge for voice and SMS, only for bandwidth and/or data consumption. Figure 6 shows this transition.

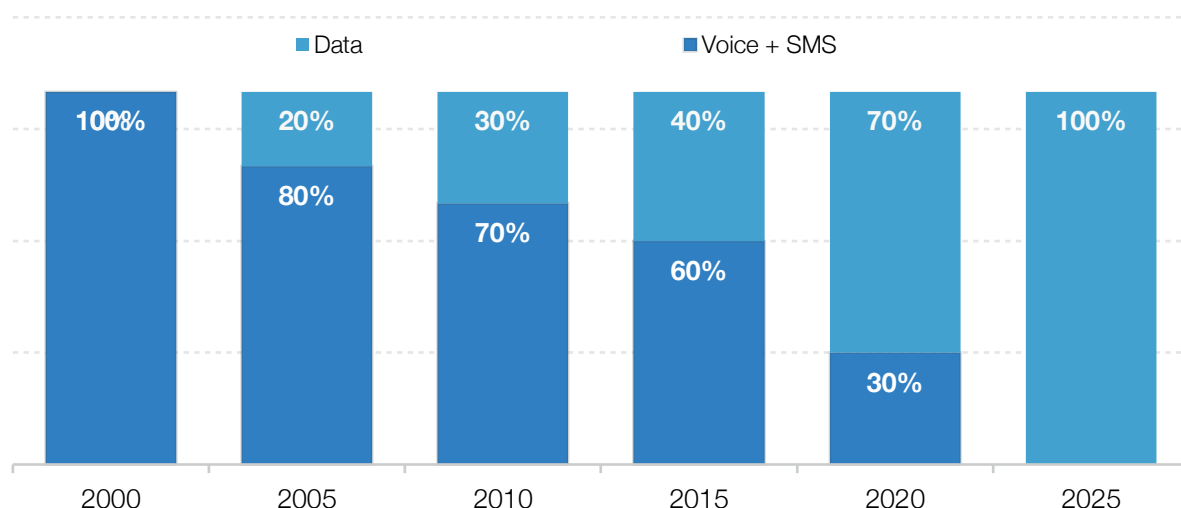


Figure 6: Trends towards “Access” only business models (Source: Esselaar & Stork, 2019b)

Speed of transition for MNOs depends on 3G+ coverage:

Apart from competitive pressure, the trend described in Figure 6 also depends on smartphone penetration and 3G+ network coverage. The migration to a mobile Internet access business model will take longer for countries that have little 3G, 4G and public/private WiFi coverage and low smartphone penetration (Table 6). 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.

Table 6: The evolving digital business model is inevitable

	Analogue	Digital
Business model	Service	Connectivity
Metric	Minutes and SMS	bandwidth or throughput
Cost sensitivity	Distance, duration and location mattered	Time, distance and location insensitive
Billing	Access and usage billing: Detailed billing systems for voice and SMS that can distinguish between off-net / on-net, peak / off-peak	Simple access billing
Traffic Monitoring	Detailed traffic monitoring as part of the billing system	Usage monitoring limited to data use
Postpaid subscribers	Detailed vetting to reduce risk or revenue loss and expenses that arise from call termination and subsidised handsets	Postpaid risk limited to revenue of one billing cycle No external expense risks Prepaid and postpaid do not need to be distinguished by pricing Postpaid may be extended without significant vetting
Network infrastructure	GSM 1G and 2G	2.5G, 3G, 4G, 5G
Source	Esselaar & Stork, 2019b	

Revenue and voice and SMS traffic are still on the increase:

The trends described in the previous sections are reflected in publicly available revenue and traffic data. Figure 7 shows the trend for voice and data traffic on Airtel's Africa network. While voice traffic has grown more slowly between 2012 and 2018, data traffic has seen exponential growth. What Airtel's financial figures also show is that the claim that MNOs are seeing lower voice traffic as a result of OTTs is not accurate, and voice revenues are still increasing. Low mobile broadband coverage and low smartphone penetration are the primary reasons why many MNOs in Africa still see increasing voice and SMS traffic.

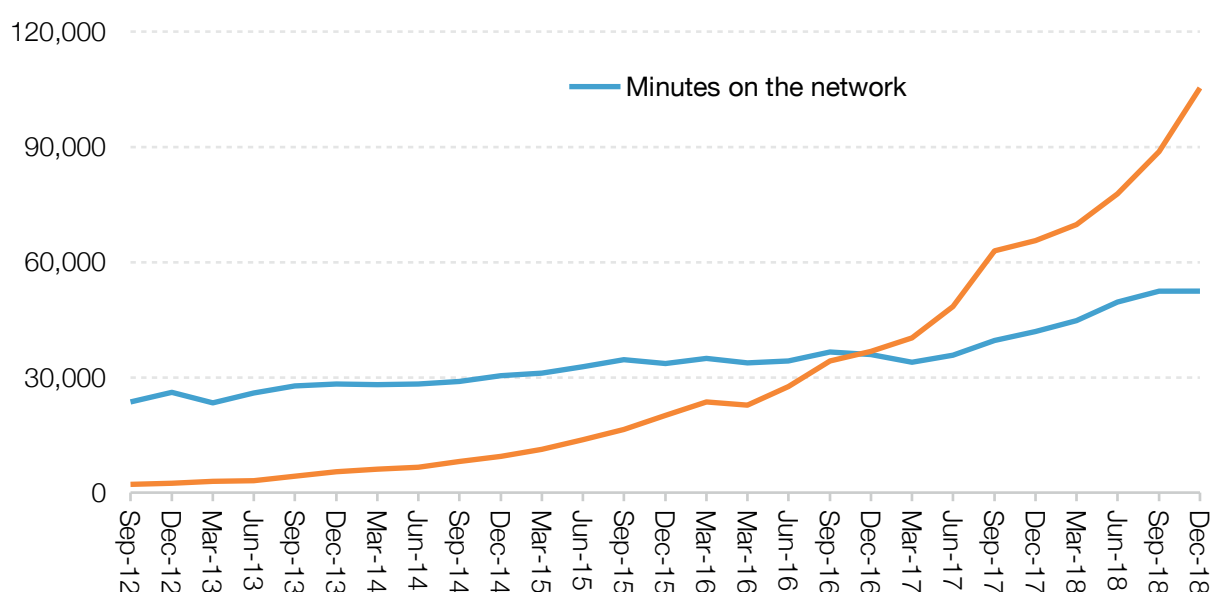


Figure 7: Minutes and MB on Airtel's Africa network (Source: Esselaar & Stork, 2019b)

A delayed transition presents opportunities for new entrants:

The delay in the transition to a mobile Internet business model means that there is an opportunity for new entrants to quickly gain market share by deploying a mobile Internet-access business model, like Reliance Jio in India. Jio launched its services in September 2016 and became the largest operator three years later with a market share of 31.7% in India.¹⁰

¹⁰ <https://economictimes.indiatimes.com/industry/telecom/telecom-news/jio-tops-market-with-31-7-revenue-share/articleshow/70867883.cms?from=mdr>
CTO Over-The-Top (OTT) Study Report

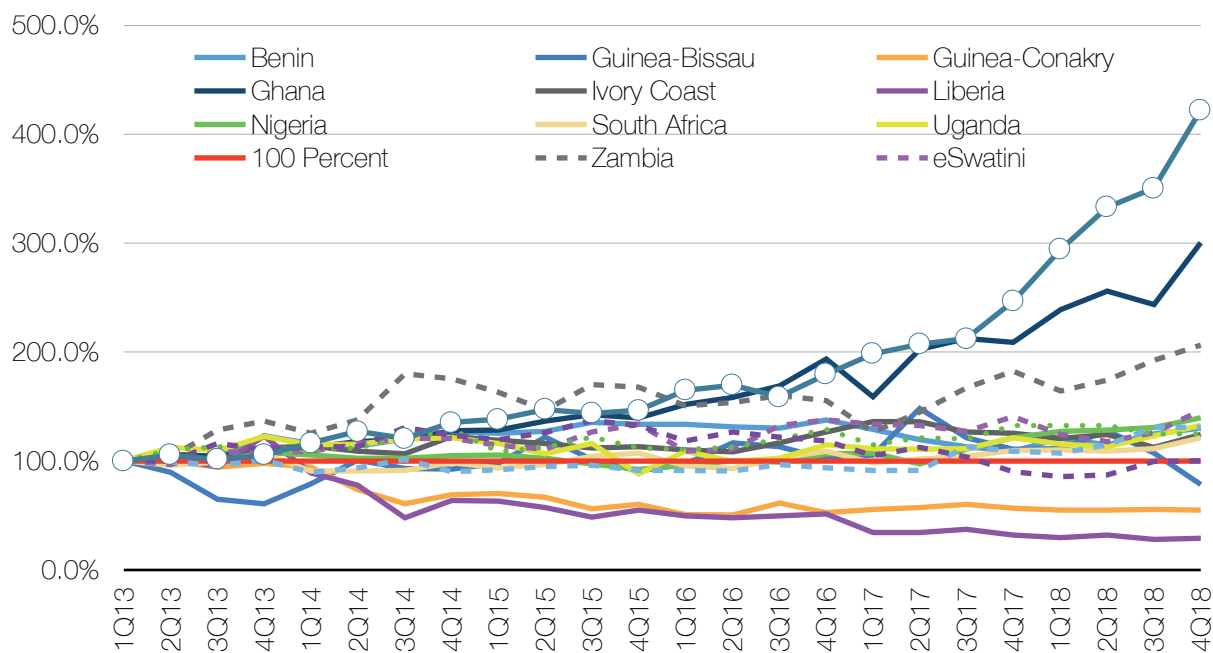


Figure 8: MTN Revenue in percent of Q1 2013 revenues (Source: Esselaar & Stork, 2019b)

MTN revenues reflect a company's ability to seize opportunities and mitigate risk:

Looking at the revenues of MTNs operations in Africa reveals that most of its operations have managed to increase revenues since 2013 (Figure 8). Only two MTN operations had declining revenues when expressed as a percentage of 2013 revenues: MTN Liberia and MTN Guinea. Both countries had declining revenues either due to macro-economic shocks (like the Ebola outbreak) or business strategies - Orange Guinea managed to increase revenues while MTN Guinea's revenues declined (Figure 9). MTN's revenue trends demonstrate two important points:

1. The overall revenue trends are positive despite growing numbers of OTT users and OTT traffic.
2. Revenues and profitability are mainly the results of an operator's ability to seize revenue opportunities and mitigate risks.

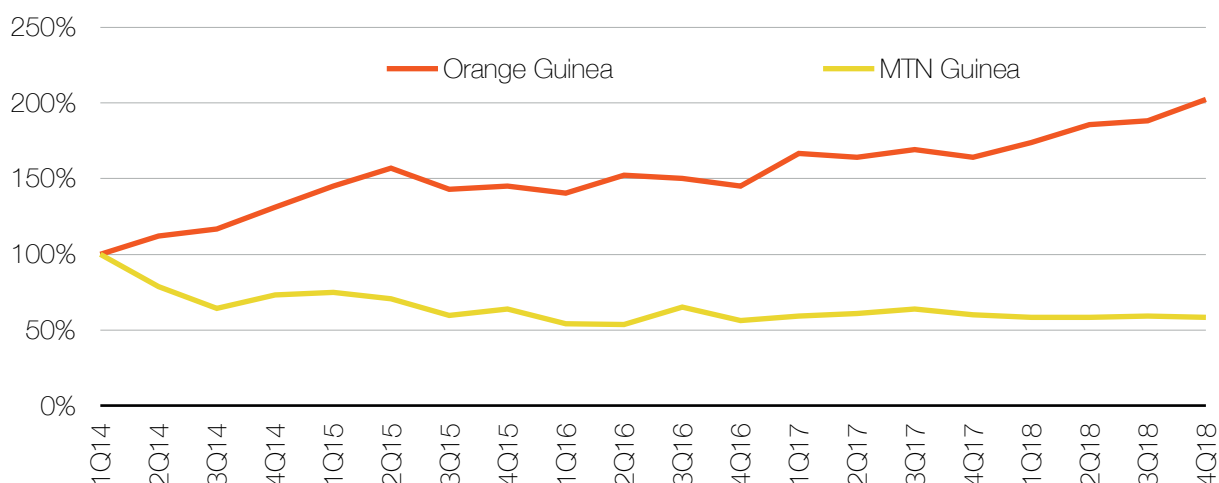


Figure 9: Revenue developments of MTN and Orange Guinea in percent of Q1 2014 revenues
(Source: Esselaar & Stork, 2019b)

Regulations can hinder the transition to a new business model:

MTN Nigeria has had several significant disputes with the regulator over the past few years and invested less in its data network as a result of these regulatory disputes:

- On 10 June 2016, as a result of not complying with SIM registration procedures, MTN Nigeria agreed to pay a fine of 330 billion Naira (USD 1.67 billion).
- MTN lost 8.8 million subscribers between December 2016 and June 2017 due to the SIM registration requirements imposed by the Nigerian Communications Commission (NCC).
- MTN has been in a dispute with the Central Bank of Nigeria over the “alleged improper repatriation by MTN Nigeria of USD 8.1 billion between 2007 and 2015”.¹¹
- In 2019, Nigeria’s Attorney General demanded USD 2 billion in underpaid taxes. This case was dropped by the Attorney General in January 2020.¹²

Airtel seized this opportunity to gain market share. MTN’s data revenues as a percentage of voice revenues declined by 1% between June and December 2018, whilst Airtel’s increased by 5% (Figure 10). The impact of regulatory intervention and resulting lack of investment in the data network is demonstrated even within MTN itself. In neighbouring Ghana, where MTN faced less regulatory challenges, data in relation to voice revenues is nearly three times that of MTN Nigeria. MTN’s experience in Ghana and Nigeria is illustrative of the importance of business model choices and the role of regulatory factors.

¹¹ <https://www.telegeography.com/products/commsupdate/articles/2019/01/03/mtn-resolves-nigeria-repatriation-dispute/>

¹² Nasdaq. 2020. Nigeria backs down in \$2 bln dispute with telecoms giant MTN. <https://www.nasdaq.com/articles/nigeria-backs-down-in-%242-bln-dispute-with-telecoms-giant-mtn-2020-01-10>

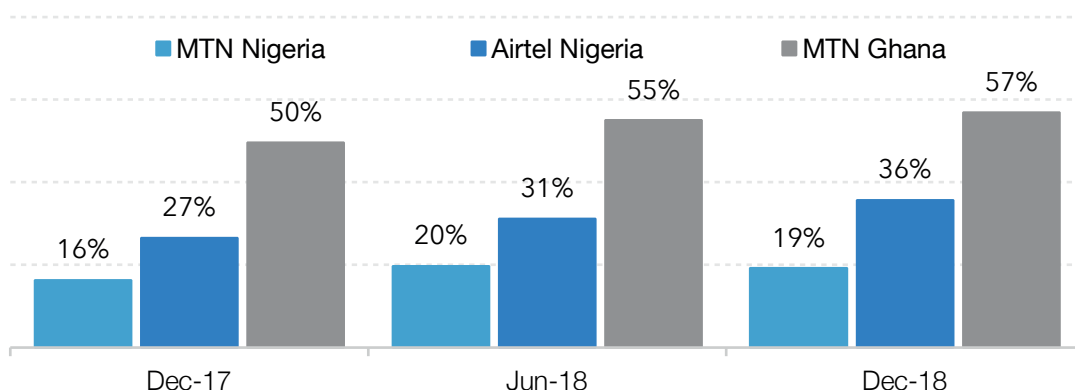


Figure 10: Data as % of voice revenues (Source: Esselaar & Stork, 2019b)

ICT sector EBITDA margins will converge towards other sectors:

EBITDA margins for the telecommunications sector will trend towards other sectors as mobile telecommunication markets become more competitive, and pricing and service delivery becomes more transparent. In a mobile Internet-access model, the product differentiation potential is less and product quality easier to test for consumers. EBITDA margins are still high for many of MTN's operations, such as Botswana, Congo Brazzaville, Nigeria and Eswatini (Table 7). Nigeria and Benin both saw a reduction of EBITDA margin as a result of regulatory intervention and competitive pressure. In Eswatini, the drop is the result of the market being opened up and a second operator competing with MTN. The EBITDA margins are fairly stable for Botswana, South Africa, and Zambia.

Table 7: MTN's EBITDA margins

	2014	2015	2016	2017	2018
Benin	41.6%	35.2%	25.9%	18.9%	24.3%
Botswana	51.6%	58.6%	59.2%	50.8%	52.8%
Cameroon	42.8%	36.2%	33.4%	24.3%	9.2%
Congo-Brazzaville	43.6%	43.5%	42.7%	33.5%	41.3%
Cyprus	28.0%	27.5%	30.0%	32.6%	32.9%
Eswatini		52.9%	53.9%	48.8%	42.9%
Ghana	37.4%	40.5%	40.7%	40.2%	37.5%
Guinea-Bissau	28.5%	32.5%	29.0%	32.9%	30.2%
Guinea	15.1%	10.1%	-16.4%	4.2%	7.6%
Ivory Coast	38.6%	34.2%	32.5%	31.8%	22.3%
Liberia	25.9%	22.9%	16.1%	-9.4%	-10.6%
Nigeria	58.6%	53.0%	46.4%	39.0%	43.6%
Rwanda	28.5%	30.6%	28.5%	9.2%	29.4%
South Africa	32.1%	33.4%	32.9%	34.4%	35.1%
South Sudan	0.4%	5.5%	-108.6%	-22.9%	13.2%
Sudan	33.8%	35.0%	32.1%	35.1%	34.7%
Uganda	39.2%	34.5%	29.6%	34.5%	36.5%
Zambia	40.3%	37.7%	32.3%	32.3%	31.0%
Source	Esselaar & Stork, 2019b				

MNOs have to rediscover their agility:

Relying on a decades-old business model will not be a successful strategy for the future. Our analysis demonstrates three important points about the impact of OTTs:

1. The general revenue trend for mobile operators is positive despite growing numbers of OTT users and OTT traffic.
2. Regulatory interventions may have unintended consequences including lower network investments. Policy-makers and regulators should be more concerned with stimulating network investment into 4G+ and less with attempting to protect outdated business models of operators.
3. Revenues and profitability are mainly the results of an operator's ability to seize revenue opportunities and mitigate risk. Operators may benefit from increased use of OTTs and roll out faster broadband networks to grow data revenues or they may try and stick to the analogue business model for as long as they can. Both strategies are business decisions and not the responsibility of the regulator.

Questions and Answers

Q: Is SMS and voice traffic declining in Africa?

A: Generally no, many African countries still do not have full 2G population coverage and new customers are being added every day. Many countries also do not have full 3G+ (e.g., Benin or Niger), and data is expensive, so the majority of Africans are still using voice and SMS.

Q: Are operators losing money to OTTs?

A: New technologies require changes in business models. Smartphones have placed the Internet in our pockets. The way we use the Internet has changed. Mobile operators that understand this trend see higher revenues, e.g. MTN Ghana (see Figure 8). Operators that try to protect the 1G/2G GSM business model will increasingly find it difficult to expand their revenues.

Q: Should regulators protect operators from OTTs?

A: No, it is not the role of the regulator to protect outdated business models. Instead, regulators should ensure that they do not stifle innovation. Many regulatory tools need to be updated and new tools developed to safeguard fair competition in the sector for the future.

5 TELECOM REGULATORY PERSPECTIVE

Evolving business models and technological progress also mean that regulatory tools and institutional arrangements have to change:

While the line ministry was the adequate supervisory body for land-line monopolies, sector-specific regulators were needed as soon as Internet Service Providers (ISPs) and mobile operators (MNOs) entered the market. The transition to an all-digital, all-IP world means that laws, policies and regulations need to evolve to maintain fair competition (Figure 11).



Figure 11: Changing regulatory approaches over time

Regulation needs to be guided by the minimal intervention and proportionality principles:

A consensus exists around two general principles for regulatory interventions (ITU, 2016). The principle of minimal intervention limits interventions to market conditions where sustainable competition does not evolve naturally. The principle of proportionality requires that a regulatory intervention does not cost more than the benefits generated by it.

The regulation of OTTs is a relatively new field and few regulators have issued formal regulations:

Most regulators are in the data-gathering phase and the most common activity is a request for proposals to assess the impact of OTTs. This has been the approach for regulators in Kenya, Tanzania, Zimbabwe, Guinea and Cote d'Ivoire.¹³ A number of Asian regulators have introduced taxes on digital services, mostly VAT and GST, like Malaysia and Singapore (see Table 8).

OTTs are also under the purview of regulators outside of the telecom sector:

Issues, such as cyber bullying, cyber threats, critical national infrastructure attacks, disinformation, fake news, election-meddling, terrorism, pornography, harmful content, hate speech, data privacy and data protection are being looked at closely. Some OTT players, such as Facebook, are already asking for regulation. Facebook, for example, identified four areas for regulation: privacy, data portability, election integrity, and harmful content.¹⁴

¹³ Countries not listed in the table have no OTT regulatory developments as of January 2019.

¹⁴ Zuckerberg, M. 30/03/2019. The Internet needs new rules. Let's start in these four areas. Washington Post. https://www.washingtonpost.com/opinions/mark-zuckerberg-the-internet-needs-new-rules-lets-start-in-these-four-areas/2019/03/29/9e6f0504-521a-11e9-a3f7-78b7525a8d5f_story.html

Table 8: OTT regulatory developments in Africa, Latin America and Asia

	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 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 was to encourage debate, especially in light of the fact that OTTs must be governed globally.
Ghana	5 May 2016	National Communications Authority (NCA) is reviewing the situation and will in due course take decisions for an enabling environment that will benefit all stakeholders.
Guinea	30 Sep 2017	Recommended 4 strategies to regulate OTTs.
	30 Sep 2017	Presentation on the OTT Strategic Report by Guinea to the African Council of Regulators.
Indonesia	1 Aug 2017	Draft regulations for international OTT providers. Foreign OTT providers would need to establish a permanent presence in Indonesia or formally partner with local network providers. It has subsequently been withdrawn.
	1 Apr 2018	Indonesia's Minister of Trade proposed digital taxes on e-books, digital music, and other e-commerce services. No tax has been implemented yet.
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 Liberia Telecommunications Authority (LTA) will also consider the demand and supply-side substitution effects posed by OTT services when looking at competition assessment
	25 Feb 2019	Government introduced a price floor for voice and data and a voice and data surcharge of US\$0.008 and US\$0.0065 per MB.
Malaysia	2020	Effective from 1 Jan 2020, all foreign digital suppliers with revenues exceeding USD120,000 must register with Malaysian authorities and remit a 6% sales tax. A consumer is considered Malaysian if they use a credit or debit card that is registered in Malaysia, if the business has an IP address registered in Malaysia and/or resides in Malaysia.
Morocco	4 Nov 2016	The National Telecommunications Regulatory Agency (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 report). On-net call increased as well.
Niger	2020	Government proposed a new internet tax of 0.05 CFA per MB for 2020. The tax was subsequently withdrawn.
Nigeria	4 Mar 2016	The Nigerian Communications Commission (NCC) has no plans to regulate OTTs and encourages operators to explore more efficient business models to take advantage of the move to data.
	3 Oct 2019	Proposed 9% communication service tax to be levied on electronic communication services, like voice calls, SMS, MMS, surfing data from both telecommunication services providers and Internet service providers, as well as pay-per-view TV stations. Tax has not been implemented.
	5 Aug 2019	Government may appoint banks as agents to deduct 5% VAT on all local online purchases with a bank card. VAT on foreign suppliers has not been implemented yet.
Senegal	18 Feb 2018	Meeting between the Association for Respiratory Technology and Physiology (ARTP) and Facebook. ARTP repeated the claim that mobile operators are losing revenues due to OTTs.

Table 8: OTT regulatory developments in Africa, Latin America and Asia

	Date	Description
	30 Apr 2017	Expression of Interest (EOI) for an analysis of the impact of OTTs on the Senegal ICT ecosystem. No information as to whether this was actually conducted or if findings were made public.
	30 Jun 2018	The last paragraph of Article 27 of the Code provides: "The regulatory authority may authorise or impose any traffic management measure that it considers useful for, inter alia, maintaining competition in the electronic communications sector and ensuring fair treatment of similar services." The imprecise wording has people worried that this might be used by operators to block OTTs.
Singapore	1 Jan 2020	All foreign digital businesses must pay GST of 7% as long as they have an annual turnover exceeding SGD\$1 million and local services to Singaporean customers of SGD\$100,000.
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 do not have an impact on whether there is effective competition in the voice market. Future market analysis should take OTTs into account.
Thailand	26 Aug 2019	The director-general of the Revenue Department said Thailand is expected to introduce VAT on electronic businesses, effective from 1 Jan 2020. No formal regulations have yet been passed.
Tanzania	27 Aug 2018	Consultancy services to establish OTT service tariffs. No information on whether study was conducted or if findings were made public.
Zambia	2019	Excise duty of 17.5 percent on airtime and is backdated to 1 January 2011. ISPs are thus required to back pay excise duties.
Zimbabwe	30 Jun 2016	Consultation document that discusses whether OTT services should be regulated, asking stakeholders to respond to 21 questions.
Sources	Based on Esselaar and Stork (2019c)	

5.1 Best Practice Regulatory Principles

Regulation of OTTs should abide by best practice regulatory principles:

These regulatory principles are also applicable to OTTs.

While regulations may change, regulatory principles remain constant:

Telecom regulations cannot be imposed on other segments of the Internet value chain that fall within the jurisdiction of other regulators. The impact on other segments means that regulations within the connectivity segment need to be reassessed and revised. The principles behind good regulatory practice are the same and should be applied to any regulatory interventions being considered (Table 9).

Table 9: Ofcom Regulatory Principles

Principle		Description	Application to OTTs
1	Annual plan	<i>Principle 1:</i> Stipulates signaling a clear intent to all stakeholders in a Regulator's Annual Plan.	In many cases across Africa, governments or tax authorities have just "sprung" OTT regulations (or mostly tax interventions) on unsuspecting subscribers without any warning, as was the cases in Benin, Zambia and Uganda.
2	Intervene if specific duty	<i>Principle 2:</i> Stipulates intervening only where there is a clear duty to do so, or when working towards a clear public policy goal.	Beyond raising more tax revenues, it is difficult to discern clear regulatory duties which instigated OTT interventions across Africa. A typical duty of regulators is "to (i.e., shall) further interests of citizens & consumers in communications matters".
3	Bias against Intervention	<i>Principle 3:</i> Stipulates a bias against intervention and that intervention needs to pass a high hurdle such as market intervention.	In Table 8 (cf. Section 4), it is noted Senegal's regulator may impose any traffic management it deems necessary for competition; any such intervention needs to first prove market failure or 3-criteria test market justification.
4	Accountability and Transparency	<i>Principle 4:</i> Advises that even when interventions are necessary, they must be proportionate, consistent (with previous interventions), accountable and transparent in both deliberation and outcome.	Section 4 notes regulatory fines in Nigeria to MTN of more than \$US 1 Billion in 2015 which led to MTN Nigeria (by its own admission) underinvesting in their own network in Nigeria. Such a quantum of fine was not proportionate, and this fine did not further the interest of Nigerian consumers and citizens. MNOs argue that regulation is not proportionate because less or minimal regulation is applied to OTTs and, consequently, OTTs derive an unfair commercial advantage. In best practice terms, regulation should be designed such that it is necessarily applied proportionately to parties that are in the same commercial position, and in the same part of the same market (i.e., same segment of the value chain). OTTs and MNOs are not in the same market; MNOs sell data access on a national level. OTTs sell mostly advertisements.
5	Least intrusive regulation possible	<i>Principle 5:</i> Stipulates that a good regulator seeks the least intrusive regulatory mechanism. This can mean that some market players get lighter regulatory treatment than others. It recognises the commercial advantages of larger players, in terms of scale and scope economies, and the ability of larger players to share overhead costs.	In the mobile money sphere, lighter regimes may be applied to some market players, but the price of that lighter regime entails restrictions on the services they can offer, i.e., they will/may not be given the same level of privileges as a bank. Banks have greater privileges, but they are subjected to tighter prudential regulation. Therefore, even if OTTs were to be regulated vis-à-vis MNOs, some regulations may be asymmetric.
6	Constant market research	<i>Principle 6:</i> Advocates constantly researching the market and other markets in order to understand the impacts of regulatory (or other) decisions.	A regulatory impact assessment (RIA) is an assessment carried out by a regulator. In fact, it is a duty within the jurisdictions of most Communications Acts to conduct impact assessments. In Africa, new taxes on OTTs have not been preceded by any such impact assessments. Singapore has published an impact assessment indicating what it believes will be the impact of including VAT on digital services from international sources.
7	Consult and assess impact of regulation	<i>Principle 7:</i> The last principle requires a good regulator to consult widely with all relevant stakeholders before decisions are implemented.	In Africa, regulators that have, at times, imposed new taxes on OTTs have not consulted with the public prior to implementation. In contrast, regulators in Asia have conducted public consultations (e.g., Malaysia and Singapore).
Source		http://www.ofcom.org.uk/about/what-is-ofcom/statutory-duties-and-regulatory-principles/ (last accessed October 2019)	

5.2 Why new Regulatory Tools?

OTTs and MNOs are in different segments of the value chain and the regulatory mandate therefore differs:

MNOs have more privileges in that they are licensed operators with interconnection rights, the ability to obtain telephone numbers and most importantly, allocations of spectrum. In return, they also have greater obligations: they have to pay licence and spectrum fees and are required to interconnect on request with other licensed operators. OTT providers typically are unlicensed players and free of the requirement to pay fees, but they typically have no right to interconnect, to obtain telephone numbers or access the spectrum.

***Ex ante* regulation may become ex post regulation in the telecom sector:**

Rich, interactive apps and great devices along with fantastic content are being lapped up by subscribers, driving more network demand, and also driving the need for enhanced networks. The traditional MNO business model is limited to the connectivity segment of the Internet value chain, whilst other players dominate other segments. OTTs are introducing competition into some parts of the connectivity segment. Once OTTs become substitutes for voice and SMS, the monopoly of operators based on their ownership of mobile numbering, is terminated (Esselaar & Stork, 2019c). As a result, fewer markets in the connectivity segment would continue to be subject to *ex ante* regulation in the medium term.

Sitting in different segments of the value chain does not mean OTTs should not be regulated:

The Cambridge English dictionary defines regulation as “an official rule or the act of controlling something”. There are clear calls from many stakeholder groups to “control” or regulate OTTs. However, policy-makers and regulators must remain mindful of *why* they regulate, and not just react to such loud calls. The top key purposes of regulation are to achieve those desirable and justified objectives for consumers and citizens that do not naturally arise from the market, and to regulate or intervene when there is ‘market failure’ – and only *where* the results bring (or would bring) net benefit. Therefore, if the calls from the many stakeholders to regulate OTTs do not point to any market failure nor to any evidence of unhappiness on the part of consumers and citizens in relation to their OTT services, they should be treated cautiously. Regulators must continue to follow best-practice regulatory theory and practice. Indeed, this report has shown, with evidence, that several claims are baseless, such as MNOs losing revenues or OTTs negatively affecting their businesses. Similarly, the outcomes of tax interventions in several countries, covered later in Section 5 of this report (Uganda, Benin, etc.), have clearly not been in the interest of consumers and citizens of these countries – these should serve as a clear lesson to other countries considering OTT interventions. Developed markets, like the UK or the EU, are most mindful of abiding by the key purposes of regulation when looking at OTTs.

Questions and Answers

Q: Why is it important to follow best-practice regulatory principles?

A: Any regulatory intervention can adversely affect consumers, citizens, operators and investors. Regulators need to be certain that the planned intervention produces clear desired outcomes which they must be upfront about. The best-practice principles are designed in a way that the regulatory process is transparent, accountable and predictable. The principles further enshrine continuous impact assessment and stakeholder feedback in the regulatory process.

6 TAX PERSPECTIVE

Because OTTs are outside of the jurisdiction of most countries, some governments have resorted to end-user taxation as a regulatory tool:

Uganda has implemented a “social media tax”, which charges the end-user a daily fee if they want to access Facebook, WhatsApp, FaceTime and other OTTs. The justification for this approach is that data usage produces externalities that are not captured in the original transaction, and therefore, the tax is imposed to reduce usage. Some MNOs want OTTs to pay for the infrastructure they use.¹⁵ In the following sections, end-user taxes are assessed according to best-practice principles of taxation.

6.1 Tax Best-Practice Principles

Five best-practice principles for an efficient tax system:

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 (see Table 10).¹⁶

Table 10: Best-practice principles for taxation

Principle	Description
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.
Consider externalities	Excise duties 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 & 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.
Source	Esselaar & Stork, 2018a, based on GSMA, 2016

¹⁵ For example, Digicel: <http://www.loopjamaica.com/content/obrien-calls-revenue-share-among-ott-operators-govts-and-telcos> (last accessed October 2019)

¹⁶ 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.

6.2 Case Study Uganda - Slowing down economic activity with end-user taxes

Uganda targets end-users with an OTT tax:

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.¹⁷ The excise duty on mobile money (MM) fees was also increased from 10% to 15%. The result is 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 Uganda Communications Commission (UCC) tweeted out the latest figures on the impact of the OTT taxes.¹⁸ 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. Uganda's social media tax suffers from myriad problems. First of all, it is difficult to implement because it can be bypassed using Wi-Fi or a VPN, though these options are not easily available to everyone due to income restrictions.

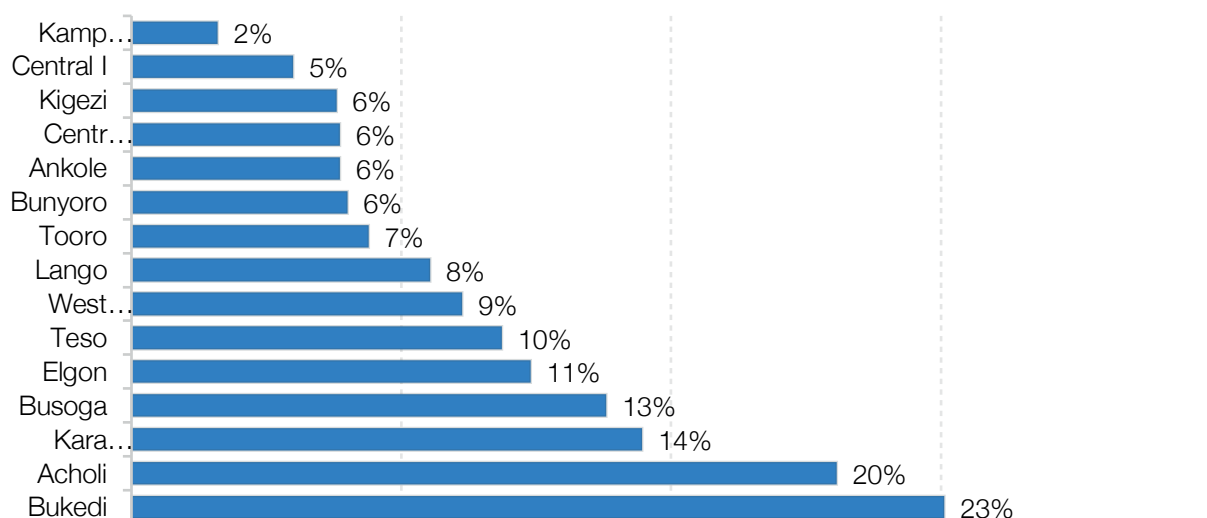


Figure 12: Social media tax of UGX6,000 per month as share of average individual income by sub-region shows that Ugandans are unevenly affected by the tax (Source: Esselaar & Stork, 2018a)

The Social media tax equals to 22.6% of average income in Bukedi:

A social media tax of UGX 200 per day multiplied by 30 days on average a month equals UGX 6,000 per month. While UGX 6000 per month may not be much in terms of an average income in Kampala (2.4%), it is 20% or more of the average income in Acholi or Bukedi, threatening to exclude the poor (even more) from using the Internet (Figure 12).

¹⁷ See: <https://researchichtsolutions.com/home/wp-content/uploads/2019/01/Unleash-not-squeeze-the-ICT-sector-in-Uganda.pdf>
¹⁸ <https://researchichtsolutions.com/home/ott-tax-causes-massive-decline-in-internet-subscriptions-in-uganda/>

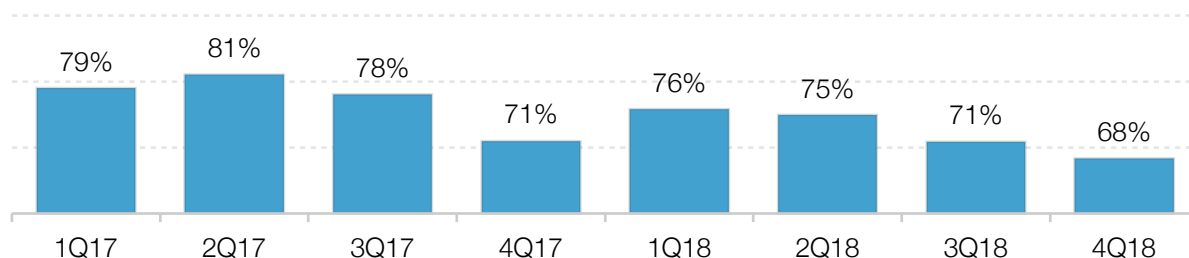


Figure 13: Social Media Tax as % of MTN Uganda's ARPUs (Source: Esselaar & Stork, 2018a)

The OTT tax, when paid monthly, makes up 70% of MTN's ARPU:

The tax of UGX 6,000 per month¹⁹ represents 71% of MTNs monthly average revenue per user (ARPU), so it is wildly unaffordable (Figure 13). It has the effect 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 (Table 11), 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. 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.²⁰

Table 11: Impact of OTT taxes in Uganda

2018	March	July	August	September	% change since	
					March	July
Estimated Internet users in millions	19.31	16.1	13.74	13.58	-29.7%	-15.7%
OTT tax revenues in UGX billions		5.6	4.1	3.97		-29.1%
OTT tax payers in millions		8.05	6.87	6.84		-15.0%
Source	Esselaar & Stork, 2019c					

6.3 Case Study Benin - Government listens to civil society

OTT Tax in Benin was withdrawn prior to implementation:

In September 2018, the Government of Benin introduced a new tax on 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.²¹ In defending the tax, the regulator ARCEP, stated that "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

¹⁹ 30 times the daily fee of UGX200

²⁰ <https://cipesa.org/2019/01/%EF%BB%BFsocial-media-tax-cuts-ugandan-internet-users-by-five-million-penetration-down-from-47-to-35/>

²¹ 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.

tax revenues".²² 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 and collusion between operators on pricing.²³

Table 12: Mobile internet prices compared to mobile internet subscribers

		2015	2016	2017	2018	% change to 2015)
MTN	Cost of 1GB prepaid per month in CFA	10,714	7,000	4,000	3000	-72%
	Mobile internet subscribers in 1,000s	1,055	1,361	2,751	3,458	228%
Moov	Cost of 1GB prepaid per month in CFA	6,000	6,000	5,000	3000	-50%
	Mobile internet subscribers in 1,000s	1,042	1,348	1,799	1,972	89%
Source	Esselaar & Stork, 2019a					

Available data shows that there is no rationale for the tax:

Even though the tax was withdrawn, the initial explanation for the imposition of the taxes was that MNOs lost revenue due to OTTs (Table 12). However, during the period 2016 to 2018, traffic on the mobile network and mobile Internet subscribers increased while prices declined (see Table 11). Also, national voice traffic increased (Figure 14).

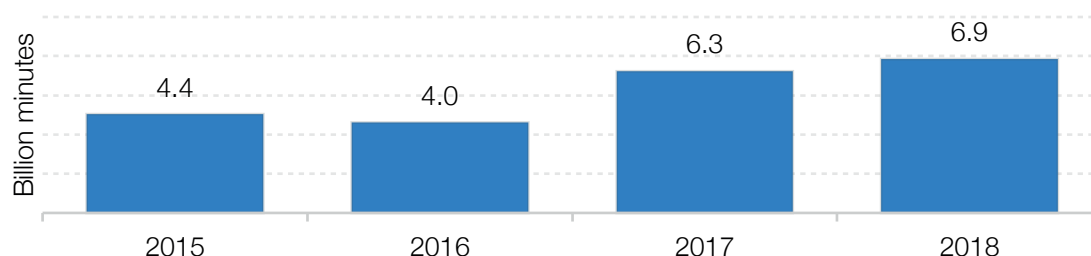


Figure 14: Benin National mobile minutes (Source: Esselaar & Stork, 2019a)

The taxes would have meant forgoing GDP growth:

The briefly introduced and withdrawn taxes by the Government of Benin would have resulted, based on a conservative estimate, in forgoing GDP growth of USD 260 million and forgoing taxes of USD 40 million.²⁴ 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 13).

²² 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.

²³ 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>

²⁴ For more details see: https://1e8q3q16vyc81g8l3h3md6q5f5e-wpengine.netdna-ssl.com/wp-content/uploads/2019/03/A4AI_Benin-Tax-Report_Screen_AW.pdf.

Table 13: MTN Benin's KPIs

MTN Benin	2017	2018	Year on Year
Data usage per active data user MB per month	1,075	1,825	70%
Data users in 1000s	2,751	4,036	47%
Active data users in 1000s	1,298	1,587	22%
Estimated data use in 1000 GBs	1,395	2,896	108%
Active SIM cards in 1000s	4,268	4,654	9%
Average minutes of use per month	42	68	62%
Estimated voice traffic minutes in millions	179	316	77%
Source	Esselaar & Stork, 2019a		

6.4 Case Study Zambia - Excise duties slow economic growth

The OTT tax was never enforced:

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”.²⁵ However, the tariff has not yet been implemented.

Table 14: Extension of airtime definition and thus excise duty charges to bandwidth and backhauling

	2006	2016
Airtime Definition	In this Part unless the context otherwise requires- “rendering a service” means providing a mobile cellular telephone service ; “service” means a mobile cellular telephone service liable to excise duty; “service provider” means a service provider licensed under section 139A; and “talk time” means the minutes of calls a subscriber makes from a mobile cellular telephone.	airtime means the minutes of voice calls, short message service (sms), multimedia service (mms), internet bandwidth or such other service as a subscriber may enjoy through a mobile cellular telephone or any other electronic communications service;
Section	139A	139A
Source	Customs and Excise Act	Customs and Excise Act
Date	4th February, 2006.	Updated 2016 April
Source	World Bank, 2019	

²⁵ 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/>.

The excise duty does not make economic sense:

The 2010 amendment to the excise duty of 17.5 percent means that bandwidth provisioning to end users is also included.²⁶ The Zambia Revenue Authority (ZRA) informed the Internet Service Providers Association of Zambia, at a meeting held on 18 July 2018, that the excise duty on the sale of airtime and bandwidth provisioning should have been payable from 1 January 2011. ISPs are thus required to back pay these duties. This will increase the wholesale price for backhauling and retail price for fibre-based end-user connectivity (leased line and metro ethernet). The excise duty thus not only increases retail prices for mobile voice, SMS and data directly, but also indirectly, through increasing input costs, leading to a cascading tax burden. The airtime excise duty makes up about 0.6 percent of total tax revenues. Dropping it would lower retail and wholesale prices, and as a result increase broadband adoption and lead to additional GDP growth and higher tax collection in the medium term.

6.5 Case Studies Latin America - Digital tax on import of services

Colombia - VAT on import of services to “level the playing field”:

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 (FSPs) 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 offshore beneficiary.²⁷ There is no discrimination and all companies pay the same VAT of 19%. If the FSP does not 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.²⁸ 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 do not comply with four out of five best practices. So, while VAT does not meet all the criteria for best practices, it is preferable to excise taxes.²⁹

The digital tax in Latin America targets the payment process:

Several other countries in Latin America have implemented digital taxes (Table 15), specifically on OTT-Content.³⁰ 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 proposed a municipal tax of 3% on all offshore OTT-Content providers, such as Netflix.³¹ This was subsequently withdrawn.³² The tax is charged on debit and credit card issuers that remit payments

26 The Customs and Excise (Amendment) Act No 47 of 2010 (the “Amendment Act”) amended the CEA and came into operation on 1 January 2011.

http://www.parliament.gov.zm/sites/default/files/documents/amendment_act/Customs%20and%20Excise%20%28Amendment%29%202010A.PDF.

27 GSMA, 2017, p. 42.

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

29 For more details see Esselaar and Stork (2019c)

30 For more details see Esselaar and Stork (2019c)

31 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/>

32 EY, 2015. City of Buenos Aires and Province of Buenos Aires update turnover tax withholding systems for nonresidents. <https://www.ey.com/gl/en/services/tax/international-tax/alert--city-of-buenos-aires-and-province-of-buenos-aires-update-turnover-tax-withholding-systems-for-nonresidents>

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' lead in June 2018³³ and also implemented a digital tax (OTT-Content) for non-resident digital service providers.³⁴ In Brazil, local states have the right to charge a state-level sales tax.³⁵ Sao Paulo initially implemented a tax of 2.9% on streaming services but withdrew the tax in March 2018.³⁶

Table 15: 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:	Esselaar & Stork 2019c	

6.6 Summary on Tax Perspective

The link between broadband penetration and GDP growth is well established:

The ITU (2013) lists a range of studies that measure the macro-economic effects of mobile broadband penetration. The effects vary for sets of countries and time periods and range from 0.8% to 1.5% of additional GDP growth for an increase of 10% in mobile broadband penetration. Governments should aim to grow broadband use to facilitate economic growth and job creation and thereby increase tax revenues.

Less ICT sector-specific taxes mean more tax revenue overall:

The first set of case studies (Uganda, Benin and Zambia) show the consequences of implementing taxes where no impact assessment has been conducted and little thought given to the consequences for the average user. The end result, when implemented, is lower tax revenue over the longer term as users adjust their behaviour and use less data. The case study of Colombia shows a new attempt to level the playing field between local and foreign digital players. This approach has the benefit of complying with three of the five taxation best practices. This approach also does not discriminate against the ICT sector but seeks to ensure that all services, both domestic and imported services, pay VAT. Table 16 is a summary of the case studies.

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

34 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>

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

36 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>

Table 16: International results on impact of 10% increase in broadband penetration on GDP growth

Authors	Countries	GDP growth
Czernich et al. 2009	OECD, 1996-2007	0.9-1.5%
Koutroumpis 2018	OECD, 2002-2016	0.82-1.40%
OECD 2011	EU countries, 1980-2009	1.1%
Qiang et al. 2009	Low income countries 1980-2006	1.4%
Scott 2012	Low income countries 1980-2011	1.35%
Source	Esselaar & Stork 2018a	

Governments have failed to conduct rigorous assessments of the impact of new taxes:

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 have been opaque and outside of any public consultation process (Table 17). 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 penalise the poor, lower connectivity, suppress usage and have a negative impact on economic growth. The case studies in the previous section illustrate the need to conduct detailed impact assessments, and any interventions in the ICT sector should be designed to support economic growth and social inclusion.

Table 17: Summary evaluation of best practices principles for taxation

		Broad-based	Consider externalities	Simple and enforceable	Incentives for competition & investment should be unaffected	Progressive not regressive
Uganda	OTT per day	No	No	No	No	No
	Mobile Money	No	No	No	No	No
	Excise duty on airtime	No	No	No	No	No
Benin	OTT tax	No	No	No	No	No
Zambia	Excise duty on airtime	No	No	No	No	No
	VoIP	No	No	No	No	No
Columbia	VAT	Yes	No	Yes	Yes	No
	Excise Tax	No	No	No	No	Yes

ICT sector is a growth engine not a cash cow:

There is a growing belief 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 15 explains the financial motivation. In these cases, taxation is used to raise revenue for government activities.

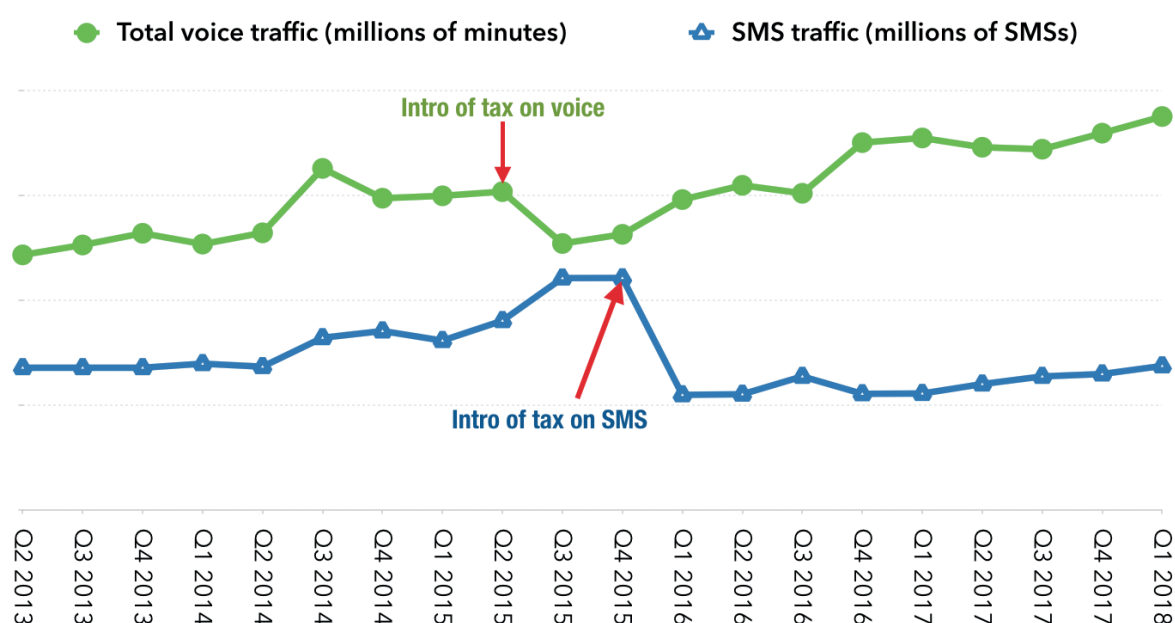


Figure 15: Impact of Taxes on Voices and SMS in Guinea (Source: Esselaar and Stork (2018a))

While ICT use may grow again after the introduction of taxes, it tends to grow off a lower base:

Figure 15 gives an example of a drop in SMS traffic after the introduction of an excise duty on SMS in Guinea in Q4 2015. While the SMS traffic started to grow again after the initial drop, it has not yet reached the volume prior to the introduction of the tax.

ICT taxes targeted at end users lower access and usage of the Internet and create associated negative economic consequences³⁸:

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, consequently, stimulate economic growth and raise tax revenues by removing ICT sector-specific taxes. Increasing ICT taxes will achieve the opposite.

The claim that OTTs do not pay taxes is false:

A related argument is that taxes need to be imposed on the end-user because OTT providers are avoiding taxes. 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, and ordinary websites that include clickable banners. Internet companies, like Uber and [bookings.com](https://www.booking.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.³⁹ 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](https://www.booking.com) or Uber) and OTT

37 Data from Regulatory Authority for Posts and Telecommunications, www.arpt.gov.gn.

38 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>

39 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.

companies pay VAT, PAYE and corporate income taxes primarily 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 of its source, whether airtime is used for voice, SMS or data.⁴⁰

MNOs are taxed excessively:

Table 18 shows that 45% of MNO costs in Uganda are taxes. Some of these taxes are specific to the telecom sector, such as the excise duty.

Table 18: % of Airtime Revenues going to the Ugandan State

	UGX	Tax	Comments
VAT 18%	180	180	18% VAT
Excise duty	120	120	12% excise duty
Staff cost	86	17	Assuming average PAYE of 20%
Commissions	276	28	10% withholding tax
EBITDA	338	101	30% corporate tax
Total	1,000	446	
Source	Esselaar & Stork, 2018a		

Some Governments believe it is easier to tax MNOs than to collaborate with other jurisdictions to reform the international tax regime: MNOs are easy targets on which to impose new taxes. They operate within national boundaries; they represent a single point of collection, and penalties are easy to apply. Like end-user taxes, taxes specific to MNOs increase the cost of data and have other knock-on effects, such as lowering the level of investment in new networks.

Questions and Answers

Q: Why are cost/benefit assessments necessary?

A: The primary purpose of taxes is to generate income for the Government and fund public services. Without a cost-benefit assessment, the direct and indirect costs of a tax may outweigh the revenue raised, i.e., the net effect may be lower overall revenue. It is therefore important to study all the effects of a new tax in detail.

Q: Is there a “right” way to impose new taxes?

A: Yes, taxes should comply with the 5 best-practice principles. Taxes that apply to all sectors of the economy are better than imposing an excise tax that is applicable only to the telecom sector.

⁴⁰ 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.

7 CONCLUSIONS

The ICT sector value chain has expanded and so has the requirement for regulatory tools and oversight:

There are more participants in the ICT sector value chain now than 25 years ago and content has been democratised. Evolving technologies have further changed how the ICT sector generates value for end-users. The linkages between segments of the wider ICT value chain mean that regulation cannot be limited to only one segment of the value chain. As more players enter the ICT value chain, boundaries between segments will blur and interventions in one market will have knock-on effects in other markets in the value chain. Just as segments of the value chain influence each other, so regulation in the connectivity segment must consider regulations from other institutions and jurisdictions.

Regulatory best-practice principles have not changed:

Rushing to regulate OTTs resulted in clear negative impacts on consumers, the ICT sector and economic growth in several countries. Regulatory interventions concerning OTTs should not deviate from the primary purpose of regulation and should follow best-practice principles (like Ofcom's). Prior impact assessments are needed. For example, a regulatory impact assessment (RIA) is the most important tool to estimate the impact on markets and to ensure regulatory principles of proportionate and minimal intervention are met. Regulating OTTs also requires a clear and precise definition of OTT applications and services. Regulators will have to collect evidence of the impact of OTTs in a market. If there is evidence of market failure, regulators will have to assess which regulatory tool is appropriate and proportionate.

New institutions and legislative frameworks will arise:

While competition issues arising from OTT use can be assessed with the current regulatory market definitions and tools, other emerging online (tech) regulations are required to address online consumer protection, data privacy and cybersecurity.

Cross-institutional collaboration is critical:

Several aspects of OTTs and the Internet Value Chain are controlled and regulated by multiple institutions and laws. Table 4 demonstrates the many institutions and laws that are in place in a country shaping the Internet value chain. For example, online services would typically be subject to consumer protection laws, hate-speech laws, privacy laws, cybersecurity laws, patent/copyright/trademark laws and gambling legislation laws. Furthermore, the courts, consumer protection agencies and competition commissions would adjudicate, rule and/or regulate according to these laws. Many of the issues our societies face today cannot be addressed by a single law and a single institution. Tax authorities will need to collaborate with ICT regulators on OTT taxes. ICT regulators must collaborate with central banks on OTT mobile money regulations. Gambling regulators need to collaborate with ICT regulators on online gambling controls in their country. Ministries of ICT need to collaborate with ICT regulators and other institutions, such as the courts, competition agencies and other ministries to agree on a common definition of OTT services.

Some countries are already putting in place formal collaboration mechanisms:

In 2017, the Federal Communications Commission (FCC, 2017) and the Federal Trade Commission (FTC) in the United States entered into a Memorandum of Understanding (MoU) explaining how the agencies will work together to police ISPs. The key recommendation here is to recognise that online services already have various institutions, laws and control/regulatory approaches in most jurisdictions.

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