

<p>OTTs are a risk and an opportunity</p> <p>Operators may benefit from increased use of OTTs by investing in broadband networks and growing data revenues or stick to an out-dated, voice-based business model. This is ultimately a business decision.</p>	<p>Mobile Internet access is the default business model</p> <p>African operator groups have all seen fast-growing data revenues. Investment into telecom infrastructure in the past 15 years has mostly been into faster and better broadband.</p>	<p>Mobile broadband network coverage is key to success</p> <p>Operators with extensive 3G+ coverage can grow their data revenues, while operators with mostly 2G network coverage are vulnerable to declining voice and SMS revenues.</p>	<p>Focus on stimulating network investments</p> <p>Policy-makers should be more concerned with stimulating network investment into 3G+ and less with attempting to protect out-dated business models of operators.</p>
---	---	--	---

EVOLVING BUSINESS MODELS ARE DRIVEN BY OTT APPLICATIONS

The mobile business model is inevitably evolving from voice and SMS to a mobile Internet access model. The first generation of mobile phones provided voice services, the second generation brought SMS to consumers, and ever since 2.5G it has been about better and faster data. Social media applications drive broadband adoption and data consumption. Policy-makers and regulators should be more concerned with stimulating network investment into 3G+ and less with attempting to protect out-dated business models of operators.

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: changes in usage patterns across voice, SMS and data, the impact of regulatory interventions and the choice of business model.

How do OTTs fit into the business model of MNOs?

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. These factors can be grouped into three categories:

- **Economic factors:** Demand for mobile services as a function of population, GDP, and exchange rates;

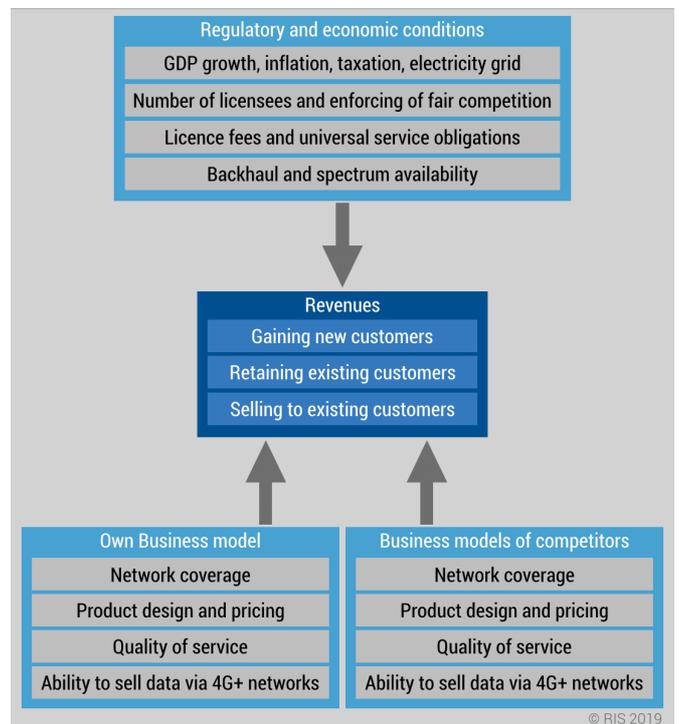


Figure 1: Factors impacting operator revenues

- **Regulatory environment:** Market structure shaped by the number of Mobile Network Operators (MNOs), fairness of competition and transparency and predictability of regulations;

- **Operator strategies:** Product design, response to other operators and own business model.

Assessing the claims by MNOs that OTTs harm their profits needs to take all three factors into account.

The Internet Value Chain

The Internet value chain has five distinct segments: Content rights, online services, enabling technologies, connectivity and user interface (Figure 2). 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 make up less than 3.4% of the total online services at USD 55 billion. The main value contributors are e-retailers.¹

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.

EBITDA margins along the Internet value chain

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 1 displays

Table 1: EBITDA margin along the value chain

Segment	Company	2016	2017	2018
Content Rights	Netflix	60%	61%	59%
	Disney	30%	30%	29%
Online Services	Amazon	9%	9%	12%
	Alphabet	33%	30%	26%
	Facebook	53%	57%	52%
Enabling Technologies	Cisco	30%	30%	31%
	Akamei	41%	37%	40%
Connectivity	Airtel Group	35%	38%	37%
	MTN Group	35%	33%	35%
	Sonatel	49%	47%	45%
	Safaricom	42%	48%	48%
	Vodacom Group	38%	38%	38%
	Maroc Telecom Group	48%	49%	50%
	Etisalat	50%	50%	49%
	Average Connectivity	43%	43%	43%
	User Interface	Apple	33%	31%
Samsung		24%	31%	35%

the Earnings Before Interest Taxes Depreciation and Amortization (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

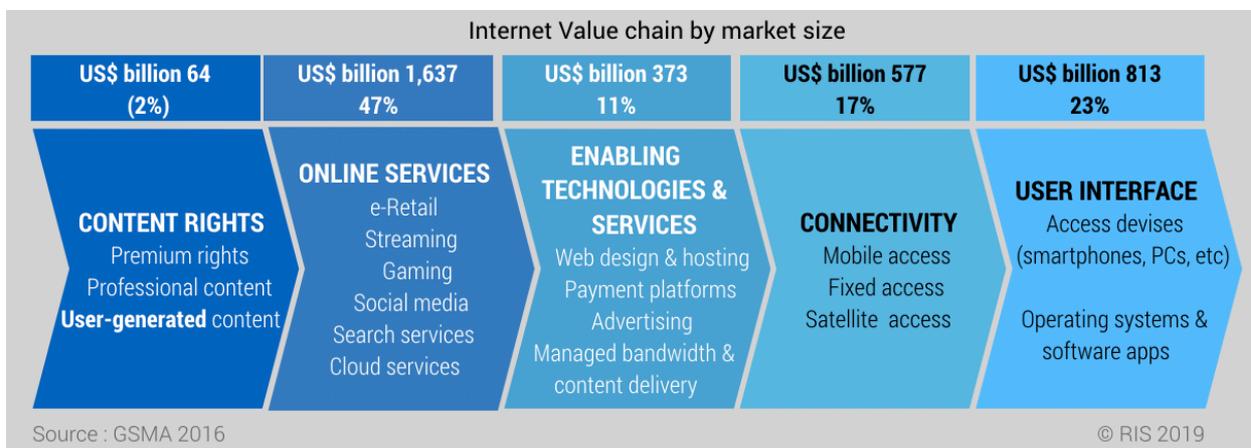


Figure 2: Market share of global Internet value chain in 2015

¹ 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.

Table 2: The 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
Post paid subscribers	Detailed vetting to reduce risk or revenue loss and expenses that arise from call termination and subsidised handsets	<ul style="list-style-type: none"> • 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

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.

It’s all about personal data

The actual battle is not that of self cannibalisation of one product for another, i.e., replacing voice and SMS with data revenues, but one of maintaining information leadership. For years, MNOs were in the lead, knowing where their customers are in space and time, whom they communicate 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 valuable than the information that an MNO has about the same customer. To enter this market is a business decision, not a regulatory function.

Evolving business models

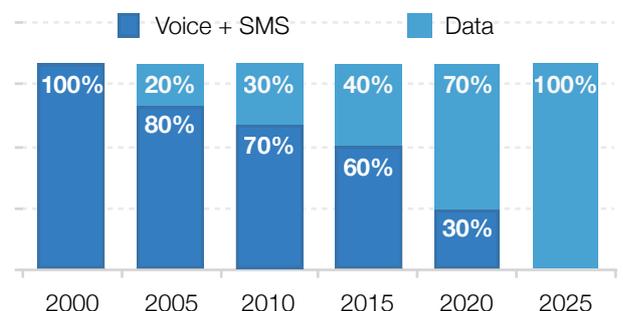
The number of OTT users and OTT traffic is steadily increasing. If OTTs cause a decline in revenues, then one should be able to see a systematic decline in

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 led to the explosion of mobile broadband adoption and usage and consequently to a massive upgrade in mobile network infrastructure across Africa.

Figure 3: Illustrative trends towards “Access” only business models



Data is becoming the primary source of MNO revenues and 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 2). MNOs will eventually become mobile Internet access providers, distinguishing their products by

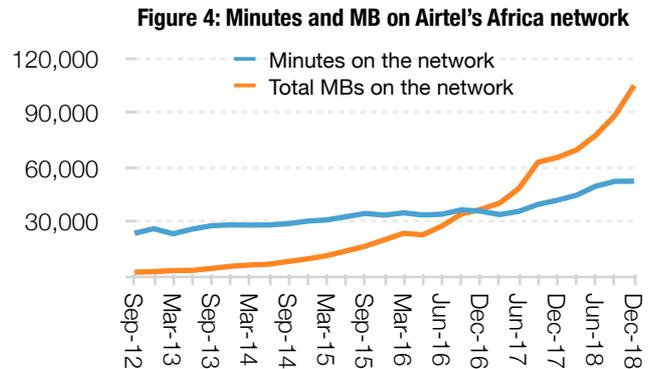
speed and quality of service, and competing with other forms of access, such as Public WiFi and connectivity in places of work, study and home. MNOs will no longer charge for voice and SMS, only for bandwidth and/or data consumption. Figure 3 shows this transition.

Apart from competitive pressure, the trend described in Figure 3 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 and 4G coverage and low smartphone penetration. Insufficient 3G+ network coverage is one of the main reasons why some mobile operators struggle to generate enough data revenues to compensate for declining voice and SMS revenues.

Voice traffic is still growing

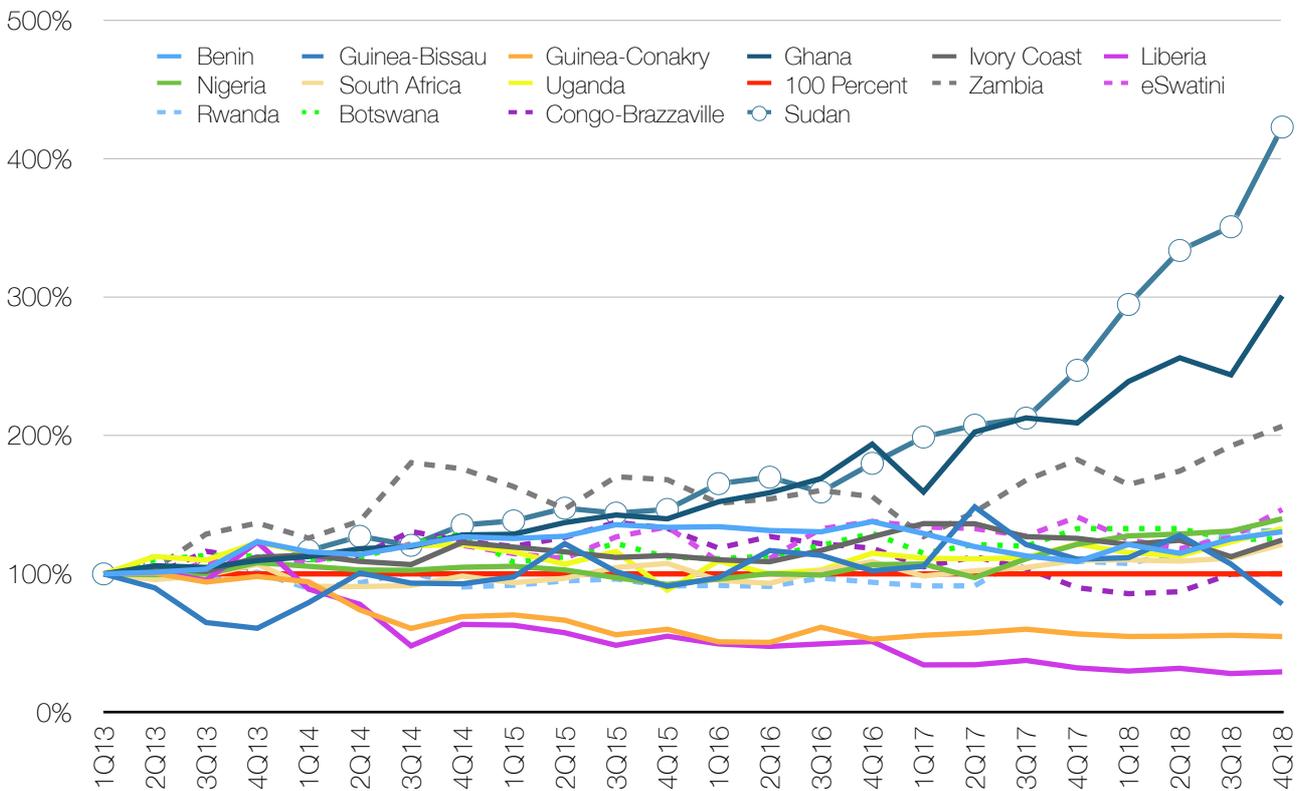
The trends described in the previous sections is reflected in publicly available revenue and traffic data. Figure 4 shows the trend for voice and data traffic on Airtel's Africa network. While voice traffic has grown more slowly between 2012 and 2018, data traffic has seen exponential growth.

What Airtel's financial figures also show is that the claim that MNOs are seeing lower voice traffic as a result of OTTs is wrong, and voice revenues are still increasing. Low mobile broadband coverage and low smartphone penetration are the primary reasons why many MNO's in Africa still see increasing voice and SMS traffic.



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 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.²

Figure 5: MTN Revenue in percent of Q1 2013 revenues

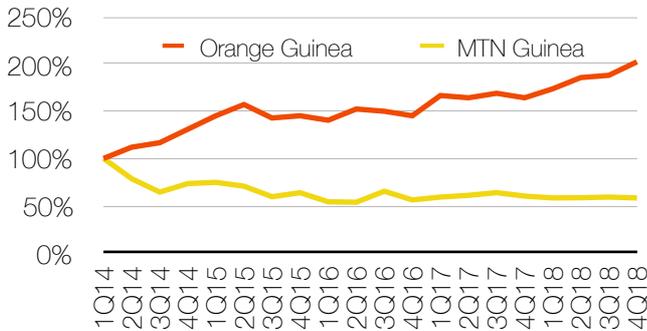


² <https://economictimes.indiatimes.com/industry/telecom/telecom-news/jio-tops-market-with-31-7-revenue-share/articleshow/70867883.cms?from=mdr>

MNO revenues reflect a companies 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 5).

Figure 6: Revenue developments of MTN and Orange Guinea in percent of Q1 2014 revenues



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 6).

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 operators ability to seize revenue opportunities and mitigate risk.

Unintended consequences of regulatory interventions

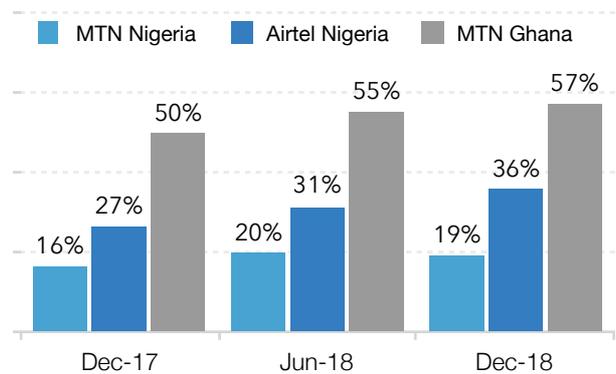
The gains and pitfalls from the changing business models are neatly illustrated by two case studies: MTN Nigeria compared to Airtel Nigeria and MTN Nigeria compared to MTN Ghana.

Over the past few years, MTN Nigeria has had several significant disputes with the regulator:

- On 10 June 2016, as a result of not complying with SIM registration procedures, MTN 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 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”.³

MTN Nigeria acknowledged in its 2019 Q1 results presentation that it invested less in its data network as a result of the regulatory disputes.⁴

Figure 7: Data as % of voice revenues



Airtel seized this opportunity to gain market share and rolled out 4G to over 130 cities in Nigeria⁵ while MTN seems to have 4G coverage in only 9 cities.⁶ The result is that MTN’s data revenues as a percentage of voice revenues declined by 1%, while Airtel’s increased by 5% (Figure 7).

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.

The initial gold rush is over

EBITDA margins for the telecommunications sector will trend towards other sectors as mobile telecommunication markets become more

³ <https://www.telegeography.com/products/commsupdate/articles/2019/01/03/mtn-resolves-nigeria-repatriation-dispute/>

⁴ <https://www.mtn.com/wp-content/uploads/2019/05/MTNN-Q1-2019-local-analyst-presentation.pdf>, page 15

⁵ <https://www.telegeography.com/products/commsupdate/articles/2019/08/06/airtel-offers-4g-home-broadband-service-in-130-cities/>

⁶ <https://allafrica.com/stories/201808230562.html>

Table 3: 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%
IvoryCoast	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%

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 eSwati (Table 3). Nigeria and Benin both saw a reduction of EBITDA margin as a result of regulatory intervention and competitive pressure. In eSwati, 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.

Conclusion

Our analysis demonstrates three important points about the impact of OTTs:

1. The general revenue trends are 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 out-dated 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 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.

Authors: Dr Christoph Stork & Steve Esselaar

RIS: We provide objective transparent and evidence-based ICT policy and regulatory advice. Our clients include regulators, government agencies, telecom operators, multi-national firms and multi-lateral agencies.

890 Ruckle Court, North Vancouver, V7H 2P6, Canada
M: +1 778 865 5695

E: steve@researchictolutions.com

U: www.researchictolutions.com