

Disentangling the broadband divide in Rwanda: supply-side vs demand-side

- **Rwanda is ranked ninth out of 38 African countries in terms of mobile broadband affordability**
- **It performs better than leading African markets, Kenya and South Africa, in terms of cost of 1GB data**
- **As with many predominantly prepaid mobile markets, bundled and dynamically priced products are better value for money than 1GB of data, the international standard for data measurement.**
- **Airtel's bundled products provide more value for money, more data, and a cheaper option than 1GB of data**
- **Despite a number of policy and regulatory initiatives aimed at improving broadband access and use, broadband demand remains relatively low, with the majority of Rwandans unable to access mobile broadband services**
- **As indicated by the low penetration rate and poor usage rates, Internet access remains unaffordable to the majority of Rwandans despite the relatively strong performance of mobile broadband products.**

Introduction

The Rwandan telecommunications sector has shown particularly strong growth in recent years, due to a vibrant economy and championing of Information and Communication Technology (ICT) at the highest level. ICT is a central engine to driving Rwanda's transformation to a knowledge-based economy. The SMART Rwanda plan 2015-2016 put broadband at the heart of the national socio-economic development agenda.

As a result, the country is rapidly catching up with other markets in Africa with increased mobile and internet penetration rates. Since the liberalisation of the sector in 2006, the country has seen an exponential growth of mobile phone subscriptions which jumped from 3.25% in 2006 to 70.48% in 2015 (ITU, 2016). It is nevertheless important to note that these subscription rates, while significant, are based on the number of active SIM cards and, as such, and not unique subscribers. This number reflects duplicate SIM cards held by individuals to optimise on-net and promotional prices on other networks.

The only way of establishing the real numbers of subscribers in a prepaid mobile market is through nationally representative demand-side surveys, which Research ICT Africa is currently undertaking in Rwanda. The high-level results will be available for RURA for the ITU to feed into the UN statistical system by October

2017. This survey is part of an eight-country African study and 16-country survey across the Global South.

Although these surveys will provide all the standard indicators, the surveys will focus on some of the “Beyond Access” barriers that appear to constrain uptake of services even when infrastructure is available to citizens. These include issues of affordability, but also the lack of skills to realise the benefits of the Internet

Mobile operators, Airtel, MTN and Tigo, have rolled out a national fibre-optic backbone network which allows Rwanda to connect to high speed international submarine fibre-optic cables. This has ultimately lead to higher bandwidth and easy connection with the rest of the world. As part of the connectivity campaign several public transport vehicles are equipped with LTE routers to allow passengers access to mobile broadband during transit.

The liberalisation of the mobile telecommunications market, which ended the monopoly of MTN in 2006, has ignited competitive strategies in Rwanda. Competition has increased due to the entry of two new players (Airtel and Millicom/Tigo) and brought about innovative products as well as reductions in tariffs (Budde Com, 2016).

The entry of Tigo in 2009 sparked a flood of subscriptions but, as happens when more users come online, the average revenue per user (ARPU) declined. Today, MTN and Tigo are the market leaders with MTN having 45% of market share and Tigo 37%. Airtel is the small player with 17% market share. The two dominant players have been engaging each other competitively with the introductions of LTE services for smartphone users. There is evidence that the effective competition – brought about by the entry of Tigo and Airtel – has led to competitive pricing in the market, allowing more users to consume cheaper mobile phone services.

Competition in the telecommunication industry is one of the main determinants of pricing and innovation. A competitive market is likely to offer low prices, granting the opportunity to connect to members of almost all income brackets and thereby push the country closer to achieving its universal access targets.

Low Mobile Broadband Penetration

Despite these supply-side interventions and competitive market outcomes, demand challenges mean the country is yet to benefit from these initiatives as mobile broadband take up remains low in Rwanda, at around 25% in 2015 (ITU, 2015). However, while according to the ITU reports mobile penetration is at 25%, GSMA reports unique mobile broadband subscriptions to be at 9% in 2014, and expects this to reach 24% in 2020. These disparities can only be qualified by survey data which tends to provide up-to-date and reliable statistics. Low internet uptake can be the result of many things. Affordability of services and devices in a country with relatively low GDP per capita is likely to be a major factor. While such factors are best established through demand-side analysis that will be possible after the RIA Household and Individual User Survey, Rwanda can be benchmarked against 47 other African countries using RIA’s Africa Mobile Pricing (RAMP) index.

Prices

RIA measures the cost of communication by mapping African mobile prepaid pricing trends with a Voice and SMS basket, the RIA 1GB data basket and the Bundled Value for Money Index. Both the Voice/SMS basket and the 1GB basket methodologies calculate the minimal price for consumers.

Methodology:

Voice/SMS basket (OECD basket): 30 voice calls for a total of 50 minutes and 100 SMSs per basket per month.

1 GB basket: monthly cost of 1GB data based on prepaid data top-ups or bundled top-ups. Both baskets are converted to USD for comparison across African markets.

A benchmarking exercise, using data from the RAMP Index shows that Rwanda is among the top 10 best performers on the price of 1GB of mobile data. In Q1 2017, Rwanda was ranked 6th out of 48 African countries, with the cheapest 1GB that a mobile consumer could purchase being USD4,06 (see Figure 1).

Compared with the best performer, Egypt (USD 3.13), prices in Rwanda were USD1.07 more expensive. Even though the cost of 1GB of data continued to decline over time, Rwanda was overtaken by Tanzania which offered the best price in Q2 2016. Rwanda was later overtaken by Nigeria and Tunisia, ending up in 9th position by Q4 2016 when the price of 1GB was USD3.72; nearly two US dollars higher than the 1st-ranked country, Egypt (USD1.74).

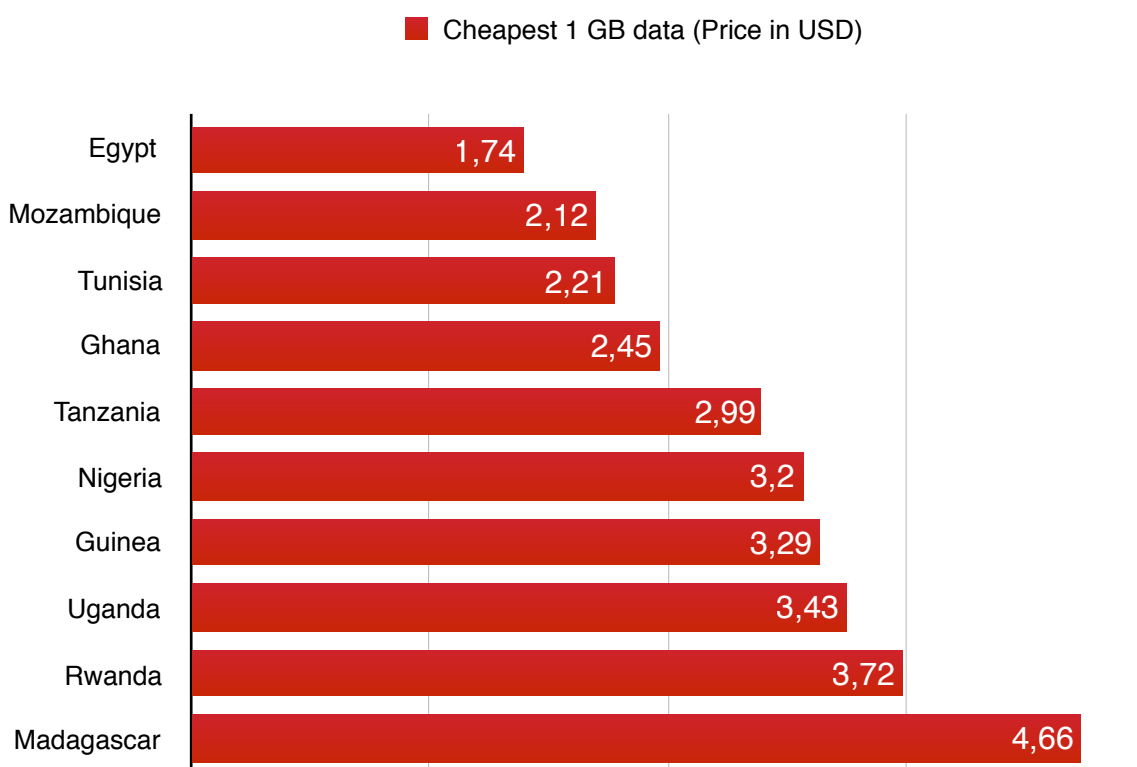


Figure 1: Cheapest 1 GB data in 10 African Countries (Price in USD)

A possible reason why a large portion of the population is still not connected to mobile broadband services is that, while 1GB data prices are declining, they remain unaffordable for many users. The amount that a mobile phone user pays to get 1GB of data in Rwanda is enough to buy 2.5GB of data in Egypt (which has much high GDP per capita at USD 12,000 compared to USD 723,00).

Even at these relatively low prices in Rwanda, the cost of data appears to constrain those at lower income levels from reaping the benefits of mobile broadband connectivity. Rwanda's public Wi-Fi initiative is a positive response to the seemingly intractable problem of getting the cost point to a level that enables Rwanda to achieve the critical mass of broadband users associated with economic growth and development.

The most improved performer in Q4 2016 is Madagascar, which is just one level behind Rwanda. In terms of the ranking, Madagascar has moved up 14 places from 24th in Q3 2016, with a 1GB data price of USD7,46 declined to USD4,66 in Q4 2016 (see Figure 1).

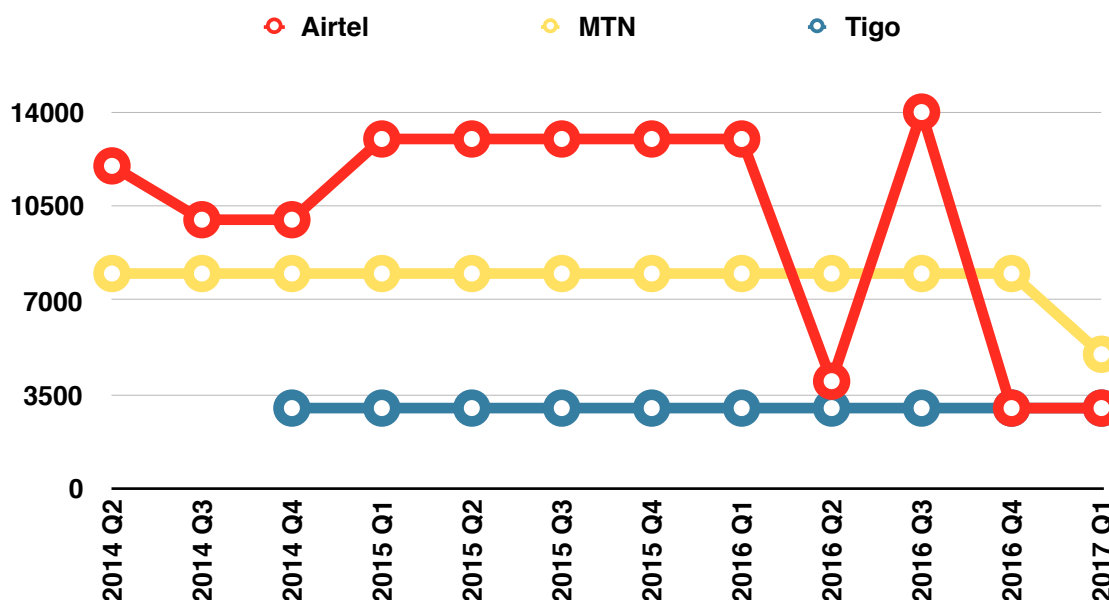


Figure 2: Price of 1 GB data in Rwanda (RWF)

A closer look at the market shows that Tigo, which entered the market in 2009, uses a competitive pricing strategy to gain market share. By consistently using a flat-rate strategy and sustaining its cheapest 1GB offer of RWF 3 000 since Q4 2014 to present, the operator has become the cheapest operator in the data market (see Figure 2).

This strategy has allowed Tigo to claw some of the market from MTN and Airtel, and to build a market share of about 35%. As of 2017 Q1, MTN, the dominant operator, which has been offering a flat rate of RWF 8000 reduced its price to RWF 5000. A move which is attributed to fierce competition from the other two rivals.

Pressure has been mounting on the smaller operator, Airtel, which has the most expensive 1GB data price in the market in Q4 2013. In Q3 2014, Airtel responded to lower prices set by the dominant operators by reducing its 1GB price from RWF

12 000 to RWF 10 000. This reduction has helped improve the market share of Airtel from 15% in Q1 2015 ,to around 18% in Q1 2016. In Q2 2016, Airtel further reduced its 1GB data to RWF 4 000, making it the second cheapest operator in the Rwandan market and improving its market share to 20%. Responding to a third quarter 17% decline in market share, Airtel reduced its prices to undercut MTN and matched Tigo's price.

Bundled Value for Money Index

The arrival of over the top (OTTs) services, which allow consumers to make voice-calls over WhatsApp, Facebook Messenger, Viber and others - at no additional cost above that of the data - have dramatically changed the telecommunications industry. These services directly compete with the traditional mobile voice calls.

To remain competitive and relevant in the market, a number of operators have embraced these services and provide innovative products by bundling data services with SMS and traditional voice calls.

To compare these diverse products RIA created the Bundled Value Money Index (VMI)¹ to capture the value of combined data, SMS and voice packages. Given the complexity and high number of products on the market, only bundles offering data, or application specific data, combined with voice and/or SMS are captured. This index provides a measure of utility derived from the purchase of the service.

Only two operators (Airtel and Tigo) provide bundled service in Rwanda. These operators use these services as a strategy to lure subscribers to their network. The two companies have adopted different strategies to target different subscribers.

Tigo, which is the second largest operator, has designed bundles to target low-income subscribers. It provides daily and weekly packages such as ISANGE (1-day validity) and weekly packages such as Cyizere. In comparison to Airtel's bundled products, Tigo's bundled products provide less data, voice and SMSs. For instance, Cyizere only provide subscribers with on-net minutes and no anytime minutes.

Airtel's Max pack provides more value for money. The Max pack 2500 provides subscribers with 40 anytime minutes, 7200 on-net minutes, 300 on-net SMS and 1500 MB of data. Using the RIA VMI index and the 1GB index, Airtel's Max pack 2500 is cheaper than the 1GB data offers for all operators and provides more data.

Using the VMI Index scores, Rwanda ranks 14 out of 34 African countries. Rwanda offers better value than its neighbours, Burundi, the DRC and Tanzania, but not Uganda, which has the highest number of players in the market and enjoys the competitive effects.

Driving Internet take up through evidence-based policy

RIA ranks Rwanda ninth out of 38 African countries in terms of the cheapest 1GB mobile data. Despite this, about 75% (2016 ITU data) still have no access to mobile broadband services. This is evidence that reductions in prices through improved

¹ Refer to RIA website for methodology: http://www.researchictafrica.net/fair_mobile.php

competition does not necessary translate into affordable prices. While the supply-side analysis provides information on price trends, it does not provide an understanding of issues relating to income disparities and affordability. To understand this, RIA is undertaking national representative household, individual and business surveys which aim at understanding the demand-side barriers to Internet take up

Authors

Onkokame Mothobi

Omothobi@researchictafrica.net

Broc Rademan

brademan@researchictafrica.net

Media enquires

Albert Nsengiyumva ansengiyumva1@gmail.com, +250 788350038

Alison Gillwald, agillwald@researchictafrica.net, + 27 21447 6332

409 The Studios, Old Castle Brewery

6 Beach Road, Woodstock, Cape Town

T: +27 214476332

E: admin@researchictafrica.net

W: www.researchictafrica.net

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