Expanding access to affordable and reliable ICT Infrastructure and services

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Linkages between affordable access and prices, quality of service, and network investment in Africa

- Accuracy of Internet penetration data/devices data
- Barriers to take up vs use
- Problems with assessing affordability of price of GB as percentage of GNI per capita
- Problems of assessing price without licence obligations/coverage/quality of service
- Awareness of cost drivers and urban rural differentials
- Need to support operator transition from voice to data with financial service revenues
- Embracing OTT in mobile ecosystem and achievement of national objectives
- Certain environment for network investment, regulation of dominance in markets without killing golden goose.
- Dangers of instrumental competition regulation in complex adaptive Internet environment.
- Alternative access strategies.
Supply vs demand–side indicators: What’s the story?

- Active SIMS vs Unique subscribers.
- Disaggregation by gender, income, education, location.
Nationally representative surveys of ICT access and use by households & individuals aged 15-65; in 16 developing countries; Data represents 30% of the global population; 28,900 face-to-face interviews; +/-3 margin of error.
Mobile phone ownership, Internet use tracks GNI per capita

Figure 1: Mobile phone and Internet penetration overlaid on GNI per capita

Source: RIA After Access Survey data, 2017
Gender gap in Internet use also track GNI

Figure 2: Gender disparity in Internet use in African and the Global South

Source: RIA After Access Survey data, 2017

Notes: Internet gender gap for African countries is measured based on 15 years+ while Global South countries only consider age 15-65
Internet divide greater between urban and rural areas

**Figure 3: Urban-Rural disparity in Internet use in African and the Global South**

*Source: RIA After Access Survey data, 2017*

Notes: Internet gender gap for African countries is measured based on 15 years+ while Global South countries only consider age 15-65
Major barriers to adoption in rest of Africa is lack of power

### Table 6: Barriers to Internet use

<table>
<thead>
<tr>
<th></th>
<th>No access devices</th>
<th>Don’t know what the Internet is</th>
<th>Don’t know how to use the Internet</th>
<th>No interest/not useful</th>
<th>Too expensive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>22%</td>
<td>43%</td>
<td>14%</td>
<td>9%</td>
<td>2%</td>
</tr>
<tr>
<td>Kenya</td>
<td>21%</td>
<td>27%</td>
<td>12%</td>
<td>26%</td>
<td>4%</td>
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<tr>
<td>Lesotho</td>
<td>13%</td>
<td>53%</td>
<td>13%</td>
<td>13%</td>
<td>1%</td>
</tr>
<tr>
<td>Mozambique</td>
<td>76%</td>
<td>14%</td>
<td>3%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>13%</td>
<td>40%</td>
<td>22%</td>
<td>10%</td>
<td>4%</td>
</tr>
<tr>
<td>Rwanda</td>
<td>42%</td>
<td>9%</td>
<td>3%</td>
<td>4%</td>
<td>33%</td>
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<tr>
<td>Senegal</td>
<td>16%</td>
<td>50%</td>
<td>13%</td>
<td>9%</td>
<td>1%</td>
</tr>
<tr>
<td>South Africa</td>
<td>36%</td>
<td>9%</td>
<td>16%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Tanzania</td>
<td>64%</td>
<td>1%</td>
<td>13%</td>
<td>15%</td>
<td>2%</td>
</tr>
<tr>
<td>Uganda</td>
<td>51%</td>
<td>23%</td>
<td>12%</td>
<td>4%</td>
<td></td>
</tr>
</tbody>
</table>
Financial inclusion

Transition from voice to data supported by other revenue streams such as mobile money

Figure 26: Account ownership in seven African countries

Source: RIA After Access Survey data, 2017


Smartphone penetration aligned with Internet penetration

Figure: Smart phone ownership in Africa

Source: RIA After Access Survey data, 2017
Financial inclusion

Figure 20: financial inclusion in African countries

Source: RIA After Access Survey data, 2017
Cost drivers

• **High rand-dollar exchange rate** - Which affects equipment import required for the constant upgrading of mobile network.

• **Increasing costs of key inputs** - power in particular has inflationary effects on data prices.

• **In the absence of high-demand spectrum being released to operators for 4G**: high bandwidth services are also not being deployed in the cost-effective manner which further exacerbate the high cost of data.

• **Regulatory issues**: failure of NRAs to undertake market review to determine dominance in wholesale markets, which is highly imperfect by nature, does not produce the intended competitive results – wholesale facilities and IP transit costs result in high telecom input costs for service providers and corporates.

• **High secondary taxes excise duties**: High taxes on profits prevent reinvestment in networks; social networking taxes reduce use, revenues, profits and company taxes.
International bandwidth and national transmission

- International bandwidth prices plummeted as result of undersea cable competition
- Considerable backbone and backhaul investment over the past decade, providing significant cross boarder coverage in the continent and especially in contiguous markets (competitive advantage)
- Supplemented by recent expansion of fibre networks in larger metropolitan areas and complementary investments in secondary intercity routes (high levels of redundancy in some markets but no new investments in five years in Nigeria other than spectrum auction with only one bid.
- Little support for operators in transition to data only environment.
SA’s Cheapest 1GB data Compared to Africa’s cheapest countries

Egypt: USD 1,13
Namibia: USD 1,25
Mozambique: USD 1,49
Tunisia: USD 2,08
Tanzania: USD 2,23
Guinea: USD 2,23
Sudan: USD 2,28
Rwanda: USD 2,37
Burundi: USD 2,40
Kenya: USD 2,46
Ghana: USD 2,68
Uganda: USD 2,75
Nigeria: USD 2,79
South Africa: USD 8,28

Source: RAMP Index, 2018
Measuring prices, affordability, against access

- Though this is not how data is used in pre-paid markets – very high value low cost products that make ‘effective’ price much lower
- But best value in >10GB products and post-paid products that are the best value but not affordable to majority of citizens – ‘poverty premium’
- Affordability measures of price as percentage of GNI per capita mask inequality – many countries have hit affordability barrier on devices and services in terms of use – SA 50%, Kenya, Nigeria, Ghana around 30% but Rwanda and Mozambique 10% and Uganda 15%
Prices vs quality of service

In a regulated data environment a number of other important factors that have to be considered when comparing price

- Licensee obligations – coverage, quality of service
- And progress towards policy objectives - policy outcomes
- QoS – increasingly important in broadband environment - QOS flip side of price.
- Penetration (access)
- Usage (intensity of use)
- Quality of service
- Even price sensitive users choosing to pay premium for quality services (or just to get signal in their area).
South Africa performs well in comparison to other African countries.
Download speeds in South Africa have been improving due to innovations and technological developments.
A development which can be associated with investments by telecommunication
Efficiency, innovations vs consumer welfare

- What is clear is that we need even greater regulatory agility and insight to manage tensions between the policy objectives of competitive efficiency, innovation and consumer welfare.

- Where no pricing pressure in competitive markets more effective regulation of wholesale access in the market in which operators are dominant could reduce the cost of broadband not only for individual users but as a critical input into other sectors of the economy.

- It is clear that even cost-based prices based on existing business models, licensing frameworks and spectrum valuing and use are not going to be affordable for large numbers of Africans that are currently offline.

- Interventions that would reduce prices, enhance quality, improved e-literacy and develop local content would all bring online those who are currently marginalised from services, women being in the majority.
Alternative access strategies

Even if there was effective regulation and prices were cost based largely numbers of people

- Review all national licensing, spectrum and USF models and strategies – develop alternatives based on realities of extreme inequality;
- create incentives for infrastructure-sharing and support complementary investments in broadband networks;
- enable public and private extension of free public Wi-Fi to towns and rural with the connection of all public buildings;
- more optimal co-existence of licensed and unlicensed spectrum that will optimise spectrum for diverse needs in the country;
- secondary use of spectrum should be made available which can be delivered at a fraction of the price of GSM technologies;
- ICASA must assign licensed spectrum required for the evolution of existing services at a competitively determined (efficient use) price to ensure the build-out of capital-intensive networks (with spectrum trading to correct value/use errors);
- nationally allocated spectrum not in use in should be made available through low cost or licence-exempt spectrum for communities, non-profit providers or micro-networks; and
- create incentives for infrastructure-sharing and support complementary investments in broadband networks.
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