The state of internet access and infrastructure in Africa

Chenai Chair   Research ICT Africa 28 November 2017
Broadband Ecosystem perspective

“access to, and the affordability of, the networks, services, applications and content – conceptualised as the broadband ecosystem – determines the degree of their inclusion in the ecosystem; or their exclusion from it”

Adapted from Gillwald (2012)
Research ICT Africa

Mission: influence ICT policy development in Africa from an evidence based perspective
Access: for who, for what, how & for where?
Determining the reality in order to influence policy.
Research ICT Africa’s approach to building the evidence

Supply side evidence – what is there:
• RIA African Mobile Pricing indices
• Telecoms Regulatory Environment
• Mapping policy trends

Demand side evidence - end users perspective:
• **Quantitative and qualitative research**
• Analysis - **intersectional approach** looking at age, sex, demographics and location
Research ICT Africa Mobile Pricing (RAMP)

1GB Basket
Cheapest prepaid broadband product in Africa (1GB Basket)

Value for Money
Highest Value for Money prepaid bundle product in Africa (Voice, Data, SMS)

OECD Basket
Cheapest mobile prepaid voice product in Africa (30 Calls / 100 SMS)
1GB basket-Q3 2017 comparative

BB 1GB 2017 (USD)
1GB basket measure (USD)
Core policy issue-affordable access

- Universal service models generally stuck in old paradigm of aggregated demand, PC, fixed line
- (generally not innovative) funding operators to extend networks to ‘uneconomic areas
- Uneconomic-poor, dispersed under utilised investment

- Reform strategies to increase service competition will lower prices and lead to better and faster access e.g. Allow for dynamic spectrum allocation technologies
Quality of Service

- Objective: develop standard methods to measure broadband performance in resource constrained environments

- QoS is multi-dimensional:
  1. Throughput - download and upload speed
  2. Latency - delay
  3. ISPs/Network peering/Trace-route
Alternative access models
The age of the Wi-Fi hunters

Wi-Fi providing low cost connectivity

- Zenzeleni Network co-op (Mankosi)
- 22% of their income on connectivity
- Free local voice calls
- Outbound calls = 50% cellular rate
- Data = 10% current market rate

- Philistown no 3G
- Albies wireless (WiFi)
- 58% cost of cellular

- WISPs (mostly WiFi)
- 173 full members
- 22 associate members
Demand side perspective on Wi-Fi

“But along the line there was light and the Wi-Fi was strong o. I was browsing, I was downloading stuff, my face was smiling but when they noticed that we were using the school Wi-Fi, they had to, what are you waiting for, oya [now] go to your class, go to your class.” Young teen female-rural Nigeria

Quote from youth and internet qualitative focus groups conducted in Nigeria, Rwanda and Tanzania
From wi-fi to dynamic spectrum access

- WiFi achieved success in a Licence-exempt shared band
  Using Rule based access

80 MHz

69% Smartphone Traffic (South Africa 44%)

31% Smartphone Traffic (South Africa 56%)

270 MHz

I’ll shut up And talk later
How connected is Africa?

Internet user penetration

0% to 100%

Data not available
Research ICT Africa Beyond Access Household, Individual and business surveys

- Nationally representative data in Rwanda, South Africa, Mozambique, Kenya, Nigeria, Lesotho, Rwanda and Ghana
- Collects ICT access and use indicators
- Data published under creative commons - accessible to all
Share of individuals who know what the internet is

<table>
<thead>
<tr>
<th>Country</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rwanda</td>
<td>25.9</td>
<td>16.7</td>
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<tr>
<td>Tanzania</td>
<td>51.8</td>
<td>39.1</td>
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<tr>
<td>Kenya</td>
<td>64.3</td>
<td>44.8</td>
</tr>
<tr>
<td>South Africa</td>
<td>71.7</td>
<td>66.6</td>
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</tbody>
</table>
% Internet use by population group

- Rwanda: 46.2% Male, 28.9% Female
- Tanzania: 32.5% Male, 28.8% Female
- Kenya: 31.1% Male, 21.0% Female
- South Africa: 74.1% Male, 68.4% Female
% Internet use by gender of internet users

<table>
<thead>
<tr>
<th>Country</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>53.92</td>
<td>46.27</td>
</tr>
<tr>
<td>Kenya</td>
<td>31.08</td>
<td>21.04</td>
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<tr>
<td>Tanzania</td>
<td>16.40</td>
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<tr>
<td>Rwanda</td>
<td>11.98</td>
<td>4.84</td>
</tr>
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</table>
Mobile internet use by gender %

- South Africa: Male 70.22%, Female 74.69%
- Kenya: Male 77.87%, Female 71.08%
- Tanzania: Male 69.32%, Female 73.29%
- Rwanda: Male 44.68%, Female 64.74%
Mobile phone ownership by type

- **Kenya**
  - Basic phone: 58
  - Feature phone: 14
  - Smartphone: 28

- **South Africa**
  - Basic phone: 36
  - Feature phone: 8
  - Smartphone: 22

- **Tanzania**
  - Basic phone: 67
  - Feature phone: 11
  - Smartphone: 22

- **Rwanda**
  - Basic phone: 66
  - Feature phone: 25
  - Smartphone: 9
Smart phone ownership by gender

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<tr>
<th>Country</th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
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<td>31.17</td>
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<tr>
<td>South Africa</td>
<td>60.29</td>
<td>51.73</td>
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<td>Tanzania</td>
<td>23.90</td>
<td>20.24</td>
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<tr>
<td>Rwanda</td>
<td>8.94</td>
<td>9.14</td>
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</table>

Kenya, South Africa, Tanzania, Rwanda
Primary reason for not owning a smartphone

<table>
<thead>
<tr>
<th>Country</th>
<th>Do not need one</th>
<th>Cannot afford one</th>
<th>Complicated to use</th>
<th>Do not know what a smartphone is</th>
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<tr>
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<td>20</td>
<td>42</td>
<td>14</td>
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<td>Rwanda</td>
<td>20</td>
<td>63</td>
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- Do not need one
- Cannot afford one
- Complicated to use
- Do not know what a smartphone is
Reason for not owning a mobile phone by gender: affordability

I cannot afford it/too expensive by gender

<table>
<thead>
<tr>
<th>Country</th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td>Kenya</td>
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<td>Rwanda</td>
<td>60.90</td>
<td>65.02</td>
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</table>
Internet awareness by gender

South Africa: Male 71.73%, Female 66.58%
Kenya: Male 64.25%, Female 44.85%
Tanzania: Male 51.73%, Female 39.13%
Rwanda: Male 25.92%, Female 16.74%
Discussion

1) What issues are most important for you in understanding access?

2) What do you think is missing that can help us deal with access issues in our respective countries?
After access: arising issues

Understanding internet use...
#afteraccess

- From digital divide to digital inequality (connectivity paradox)
- Shift from voice to data presents new challenge
- Supply side policy issues vs demand challenges
  - Dearth of rigorous, independent data
  - Quantitative data (sex disaggregated data)
  - Qualitative data (gender, power relations, intersectionality)
- From consumptive to productive policy frame
“From a development perspective, this means abandoning technologically deterministic policy approaches in favor of a rights-based approach to the Internet if critical resource management is to be transformative.”

Alison Gillwald, Research ICT Africa. ‘From digital divide to digital inequality-shifting the ICT4D discourse’ #ACIST2017
Access from a rights perspective

Affirming that in order to fully benefit from its development potential, the Internet must be accessible, available and affordable for all persons in Africa;

2. Internet Access and Affordability

Access to the Internet should be available and affordable to all persons in Africa without discrimination on any ground such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.

Access to the Internet plays a vital role in the full realisation of human development, and facilitates the exercise and enjoyment of a number of human rights and freedoms, including the right to freedom of expression and information, the right to education, the right to assembly and association, the right to full participation in social, cultural and political life and the right to social and economic development.
### What do you use the Internet for?

<table>
<thead>
<tr>
<th></th>
<th>Educational</th>
<th>Social-networking</th>
<th>Work related</th>
<th>Shopping</th>
<th>Gov services</th>
<th>Job search</th>
<th>Online banking</th>
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<td>14.99</td>
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<td>43.97</td>
<td>73.20</td>
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<td>Political views</td>
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<td>18,71</td>
<td>5,17</td>
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</table>
“Sometimes even when you want, you just cannot cope with the “bad” information and pictures found there. People open Facebook then they close because of such information …This makes women to just opt out even when they want”- Rural female respondent, South Africa.

“The information going to the Internet should be controlled. The youth should be well informed…If this inappropriate content can be removed…”- Rural respondent, Kenya

“We just know that there is Facebook, and we are aware to say there are hackers, but how do I protect whatever that I post on Facebook?” (Female Rural Respondent)
<table>
<thead>
<tr>
<th>Country</th>
<th>No limitation</th>
<th>Lack of time</th>
<th>Data cost</th>
<th>Lack of content in my language</th>
<th>Speed of Internet</th>
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<td>3,68</td>
<td>28,36</td>
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</tr>
<tr>
<td>Country</td>
<td>Privacy concern</td>
<td>Worried about virus/malware</td>
<td>Not allowed to use it</td>
<td>Find it difficult use</td>
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<td>0,85</td>
<td>0,57</td>
<td>4,14</td>
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</tr>
</tbody>
</table>
Gender specific barriers

“For instance a woman in the village even if she wanted to use a cyber she will not do that. Imagine being in the cyber at 7pm and you are expected to be at home cooking, taking care of cows etc. Even if you have a child abroad and you want to communicate with them, it becomes very difficult...”

- Peri-urban female internet user, Kenya

“He’ll check the time that I’ll switch off my mobile data, or he’ll be checking on me. So, if it’s not chatting with him, it’s a problem, he’ll start asking me that who are you chatting with? he will see you being there for a long time you know... such.” (Urban female participant) Zambia
“it is not easy for a girl to leave home and purposely go to a cyber café to access internet this is because girls have responsibilities like household chores well...[some] girls are also not interested in internet and some choose to stay home and those who have some interest don’t put in effort to convince their parents about the importance of using internet.”-Young adult urban female Rwanda

Gender specific cont...

“But, when you request your parent to use the phone, may not believe you in one way or the other. **So, it becomes a challenge of being untrusted**”-Urban Male teen, Nigeria
Thank you
Contact cchair@researchictafrica.net
T: @cchair @RIAnetwork
Sign up for our mailing list here for updates on the status of surveys.