Measurement of the digital economy

Presentation by
Research ICT Africa
Senior Researcher:
Dr. Onkokame Mothobi
Digital technologies have been identified as crucial ingredients to achieving some of the sustainable development goals. They play a critical role in accelerating access to knowledge, economic growth and job creation, equality and create new opportunities for innovation.

They are also critical to facilitating international trade by accelerating communication and facilitation of payments providing access to communication.

President Uhuru Kenyatta- “Digital technologies are critical in enabling Africa to achieve its objective of promoting intra-Africa trade”

While digital advancement is commonly linked with growth and economic integration, the process is not automatic, technological advancement are not a guarantee of greater trade and economic integration.

Understanding who factors that limit participation on the digital economy is crucial to policy makers. Hence the need for unbiased and up to date statistics.
We do not have the official data to know our progress

<table>
<thead>
<tr>
<th>Country</th>
<th>ADI</th>
<th>3i</th>
<th>IDI</th>
<th>NRI</th>
<th>MCI score</th>
<th>1GB Prepaid data USD</th>
<th>Active SIM cards per 100</th>
<th>Internet subscribers per 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>26</td>
<td>60</td>
<td>116</td>
<td>102</td>
<td>52.7</td>
<td>2.24</td>
<td>128</td>
<td>35</td>
</tr>
<tr>
<td>Kenya</td>
<td>30</td>
<td>57</td>
<td>138</td>
<td>86</td>
<td>51</td>
<td>2.94</td>
<td>82</td>
<td>26</td>
</tr>
<tr>
<td>Lesotho</td>
<td></td>
<td></td>
<td>133</td>
<td>115</td>
<td>44</td>
<td>5.07</td>
<td>107</td>
<td>27</td>
</tr>
<tr>
<td>Mozambique</td>
<td>45</td>
<td>80</td>
<td>150</td>
<td>123</td>
<td>31</td>
<td>2.01</td>
<td>40</td>
<td>18</td>
</tr>
<tr>
<td>Nigeria</td>
<td>13</td>
<td>56</td>
<td>143</td>
<td>119</td>
<td>45.9</td>
<td>2.80</td>
<td>83</td>
<td>26</td>
</tr>
<tr>
<td>Rwanda</td>
<td>21</td>
<td>76</td>
<td>153</td>
<td>80</td>
<td>40</td>
<td>2.39</td>
<td>75</td>
<td>20</td>
</tr>
<tr>
<td>Senegal</td>
<td>47</td>
<td>69</td>
<td>142</td>
<td>107</td>
<td>37.3</td>
<td>6.35</td>
<td>99</td>
<td>26</td>
</tr>
<tr>
<td>South Africa</td>
<td>22</td>
<td>39</td>
<td>92</td>
<td>65</td>
<td>59.9</td>
<td>7.84</td>
<td>162</td>
<td>54</td>
</tr>
<tr>
<td>Tanzania</td>
<td>39</td>
<td>67</td>
<td>165</td>
<td>126</td>
<td>39.4</td>
<td>2.25</td>
<td>72</td>
<td>13</td>
</tr>
<tr>
<td>Uganda</td>
<td>32</td>
<td>75</td>
<td>152</td>
<td>121</td>
<td>36.5</td>
<td>2.77</td>
<td>55</td>
<td>22</td>
</tr>
</tbody>
</table>

Sources: A4AI, 2017; EIU, 2018; ITU, 2017; WEF, 2016; GSMA, 2016; RAMP Index (Q3 2017); ITU, 2016a
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

- Internet penetration aligned with GNI per capita
- Majority of African countries are still below the 20% Internet penetration required to benefit from network effects
- Rwanda performs better in many indicators such as ADI has the lowest Internet penetration followed by Tanzania and Uganda

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

- As markets become saturated, greater parity in ownership
- Smaller gap than Internet
- But other cultural, demographic, urbanisation, factors at play

**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

- Less developed countries have higher urban-rural divides
- Lack of electricity and coverage still a problem in rural areas.
- Urban dwellers are more likely to benefit from the digital economy than those in urban 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
Gender gap in Internet use also track GNI

Table 4: Aggregate Internet use and Mobile phone ownership

<table>
<thead>
<tr>
<th></th>
<th>Surveyed countries</th>
<th>Male</th>
<th>Female</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internet</strong></td>
<td>28%</td>
<td>33%</td>
<td>23%</td>
<td>44%</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Mobile phone</strong></td>
<td>66%</td>
<td>72%</td>
<td>61%</td>
<td>79%</td>
<td>58%</td>
</tr>
</tbody>
</table>

- The recent figures by ITU indicate that 24% of African’s use the Internet and 9% of African households have a computer.
- The After Access survey shows that only 3% of households have a computer while 5% have access to the Internet.
- Aggregate Internet penetration among surveyed countries stands at 28% and 66% own a mobile phone.
Smartphone penetration aligned with Internet penetration

- Smartphones are the major drivers of Internet in Africa.
- Countries that have high GNI per capita have high smartphone penetration.
- Rwanda has the least smartphone penetration and Internet use.

Figure 14: Smartphone penetration in Africa

Source: RIA After Access Survey data, 2017
Major barrier to adoption in rest of Africa is lack of power

<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>
</tr>
<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>
</tr>
<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></td>
<td>9%</td>
<td>16%</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>
Low Internet use limiting Africa’s beneficiation from the digital economy

- The low levels of Internet use due to unaffordability of devices and services and digital illiteracy continue to hamper Africa’s potential in the digital economy
- Few Africans involved in the digital economy
- Government have not yet taken advantage of the digital economy
- Lack of skills among the public sector employee derailing Africa’s potential
Mobile money increasing financial inclusion in Africa

- Mobile money platforms which started in Kenya had a positive effect on financial inclusion.

- Giving the poor, who were left out by the formal financial banks, a platform to send/receive money, make payments and book flights.

- The mobile money however remains common in Kenya and other East African countries.

- Regulatory policies affecting growth of mobile money in other countries such as Nigeria.

Figure 19: Mobile money service and bank account ownership in Africa

Source: RIA After Access Survey data, 2017
Figure 20: financial inclusion in African countries

Source: RIA After Access Survey data, 2017
Digital work in Africa

Types of digital platforms

- **Online Shopping (goods)**
  - **Description:** A virtual marketplace that enables consumers to directly access and purchase products displayed by vendors over the internet. This is limited to goods and grocery items.
  - **Well-known example:** Jumia

- **Online Shopping (restaurants)**
  - **Description:** A virtual marketplace that enables consumers to directly access and purchase food items or meals displayed by restaurant or fast-food vendors over the internet.
  - **Well-known example:** Uber Eats

- **Other**
  - **Description:** Does not fit into any of the other categories
  - **Well-known example:** Expedia

- **Rental**
  - **Description:** Facilitates the exchange of spare capacity and demand, allowing consumers access to a product or capital asset for an agreed period
  - **Well-known example:** Airbnb

- **Freelancing**
  - **Description:** Connects employers and freelance workers
  - **Well-known example:** Upwork

- **E-hailing**
  - **Description:** Connects passengers and local drivers of cars, taxis or any other form of transportation using virtual devices such as a computer or mobile device
  - **Well-known example:** Uber

- **Logistics/courier**
  - **Description:** Connects customers to service providers for the delivery or distribution of a parcel or consignment from one location to another
  - **Well-known example:** Delivery Bros
African digital platforms and the future of financial services

- Research ICT Africa in collaboration with Cenfri i2i mapped the supply side data collected by i2i with the demand side data collected by RIA.
- The study indicates that there are 283 unique digital platforms in seven African countries.
- Creating jobs for only 2% of the economically active residents of these countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>65</td>
</tr>
<tr>
<td>Kenya</td>
<td>36</td>
</tr>
<tr>
<td>Nigeria</td>
<td>89</td>
</tr>
<tr>
<td>Rwanda</td>
<td>29</td>
</tr>
<tr>
<td>South Africa</td>
<td>94</td>
</tr>
<tr>
<td>Tanzania</td>
<td>40</td>
</tr>
<tr>
<td>Zambia</td>
<td>35</td>
</tr>
<tr>
<td>Uganda</td>
<td>101,000</td>
</tr>
<tr>
<td>South Africa</td>
<td>1,297,000</td>
</tr>
<tr>
<td>Kenya</td>
<td>286,000</td>
</tr>
<tr>
<td>Nigeria</td>
<td>2,916,000</td>
</tr>
<tr>
<td>Rwanda</td>
<td>24,000</td>
</tr>
<tr>
<td>South Africa</td>
<td>1,297,000</td>
</tr>
<tr>
<td>Tanzania</td>
<td>24,000</td>
</tr>
<tr>
<td>Uganda</td>
<td>101,000</td>
</tr>
</tbody>
</table>

*No demand-side data on platform workers available for Zambia.*

Authors: Renée Hunter, Chernay Johnson and Matthew Dunn (i2i), Onkokame Mothobi (Research ICT Africa)
Design: Lisa Bruwer

# Types of digital work in Africa

## Table 10: Online work activities

<table>
<thead>
<tr>
<th>Country</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving for a ride hailing app, Uber, Taxify</td>
<td>5%</td>
</tr>
<tr>
<td>Shopping for delivering household items</td>
<td>10%</td>
</tr>
<tr>
<td>Performing tasks online, completing surveys or doing data entry</td>
<td>25%</td>
</tr>
<tr>
<td>Cleaning someone or doing laundry</td>
<td>22%</td>
</tr>
<tr>
<td>Other</td>
<td>15%</td>
</tr>
</tbody>
</table>
# Micro-workers among Internet users

<table>
<thead>
<tr>
<th>Country</th>
<th>Microwork (%)</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>Gender gap (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>1.99</td>
<td>1.93</td>
<td>2.08</td>
<td>-7</td>
</tr>
<tr>
<td>Kenya</td>
<td>3.36</td>
<td>2.99</td>
<td>3.79</td>
<td>-26</td>
</tr>
<tr>
<td>Mozambique</td>
<td>7.90</td>
<td>10.81</td>
<td>3.34</td>
<td>69</td>
</tr>
<tr>
<td>Nigeria</td>
<td>7.63</td>
<td>6.26</td>
<td>10.21</td>
<td>-63</td>
</tr>
<tr>
<td>Rwanda</td>
<td>3.74</td>
<td>4.25</td>
<td>2.64</td>
<td>37</td>
</tr>
<tr>
<td>South Africa</td>
<td>6.48</td>
<td>7.45</td>
<td>5.56</td>
<td>25</td>
</tr>
<tr>
<td>Tanzania</td>
<td>0.56</td>
<td>0.22</td>
<td>1.00</td>
<td>-355</td>
</tr>
<tr>
<td>Uganda</td>
<td>3.04</td>
<td>3.27</td>
<td>2.74</td>
<td>16</td>
</tr>
<tr>
<td>Senegal</td>
<td>0.54</td>
<td>0.91</td>
<td>0</td>
<td>100%</td>
</tr>
</tbody>
</table>
Income dependency on digital work

- Majority of platforms workers depend on income generated from online work.

Figure 25: Importance of income earned from online services
Insight: Platform workers evenly split across gender, but with significantly different characteristics.

The income that I generate through the platform is...
- Essential for meeting basic needs: 45%
- Important budget component: 15%
- Nice to have, can live without: 17%

54% Male
- Most common platform used: Freelance
  - 72%
  - 14%
  - 37%
- Most common level of education: Tertiary (Bachelor's)

46% Female
- Most common platform used: Online shopping
  - 81%
  - 20%
  - 67%
- Most common level of education: Secondary

The non-platform worker
- Most common level of education: Secondary
  - 41%
  - 19%
  - 29%
- % with access to account
- % with access to mobile money
- % owning a smartphone

In partnership with RESEARCH ICT AFRICA

After Access
While there is a huge potential for digital impact in Africa, the foundations for digital economy need to be put in place.

The 2017 Research ICT Africa After Access Survey shows that Internet penetration in Africa is very low (28%) for the continent to fully benefit from the digital economy.

Other than focusing on developing and rolling infrastructure, the findings of 2017 RIA After Access Survey show that it is critical for policy makers to develop policies which aim at improving micro-economic factors such as affordability, digital skills, awareness and education.

In Africa, where majority of people use multiple SIM cards and devices it is impossible to get unbiased estimates from supply side indicators.

Supply-side indicators such as the ADI, NRI and MCI which base on supply side measurement are more likely to be misleading and therefore policy makers should invest in demand-side indicators to get the up to date and unbiased estimates on Africa’s readiness to participate in the digital economy.
Research made possible through the support of

IDRC CRDI

Visit [https://afteraccess.net](https://afteraccess.net) or [www.researchictafrica.net](http://www.researchictafrica.net) for more information