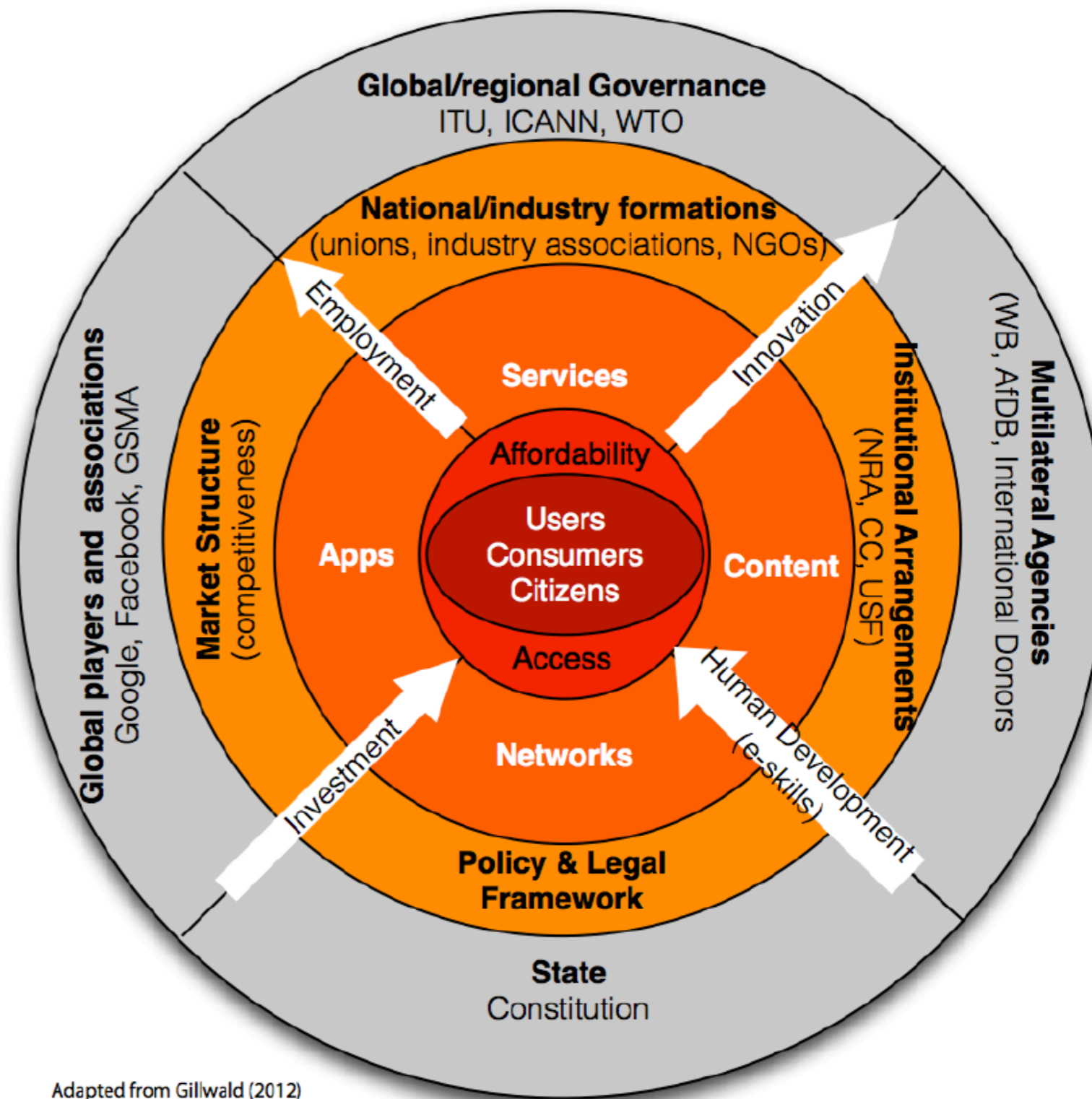# The state of internet access and infrastructure in Africa

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"
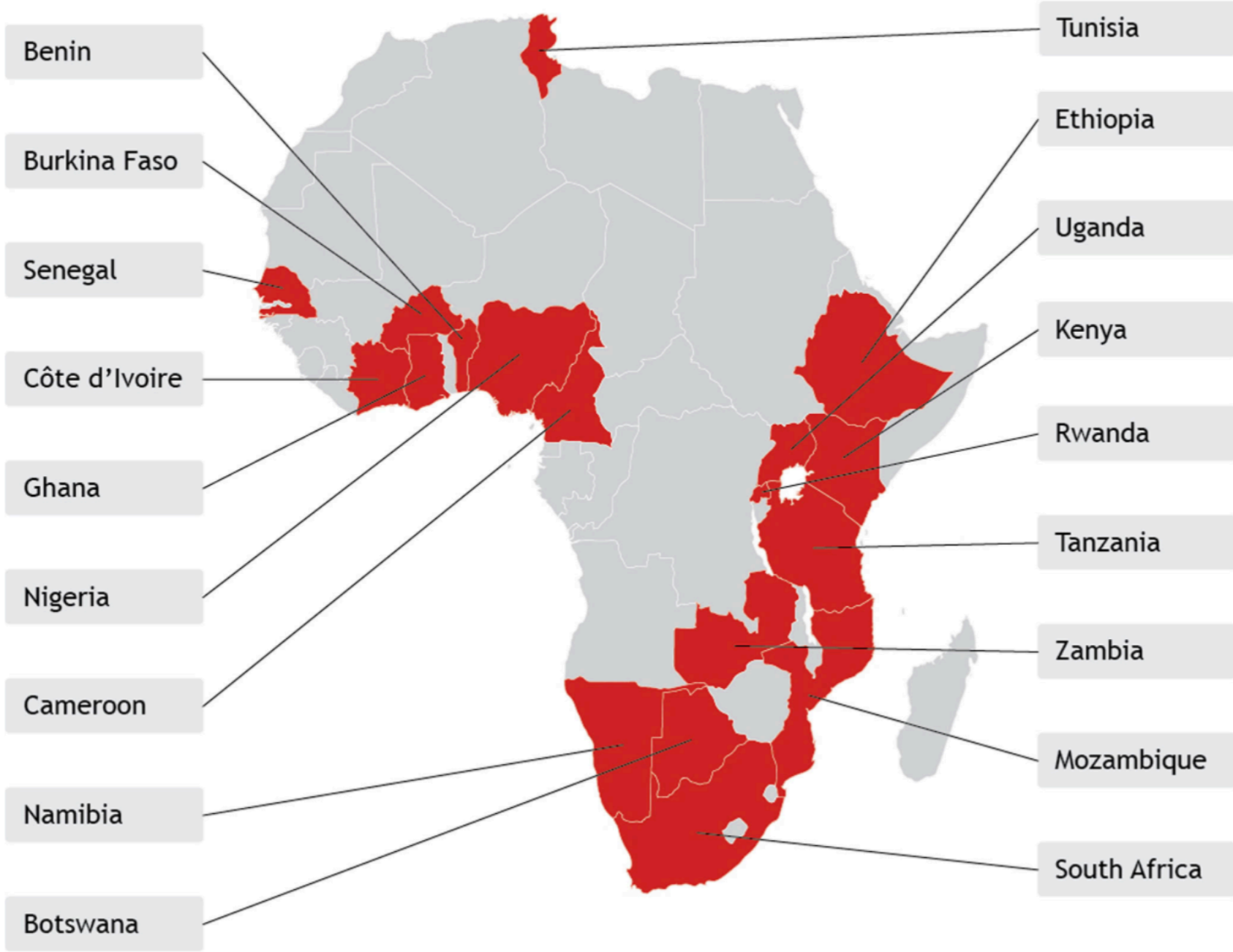

Adapted from Gillwald (2012)

Research ICT Africa

Mission: influence ICT policy development in Africa from an evidence based perspective

Benin

Burkina Faso

Senegal

Côte d'Ivoire

Ghana

Nigeria

Cameroon

Namibia

Botswana

Tunisia

Ethiopia

Uganda

Kenya

Rwanda

Tanzania

Zambia

Mozambique

South Africa

Access: for who, for what, how & for where?

2017 This Is What Happens In An Internet Minute

FTTH

Wi-Fi Hotspot Wi-Fi Hotspot

4

Determining the reality in order to influence policy

HOW ORDINARY PEOPLE GOT CONNECTED

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

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Research ICT Africa Mobile Pricing (RAMP)

1GB Basket

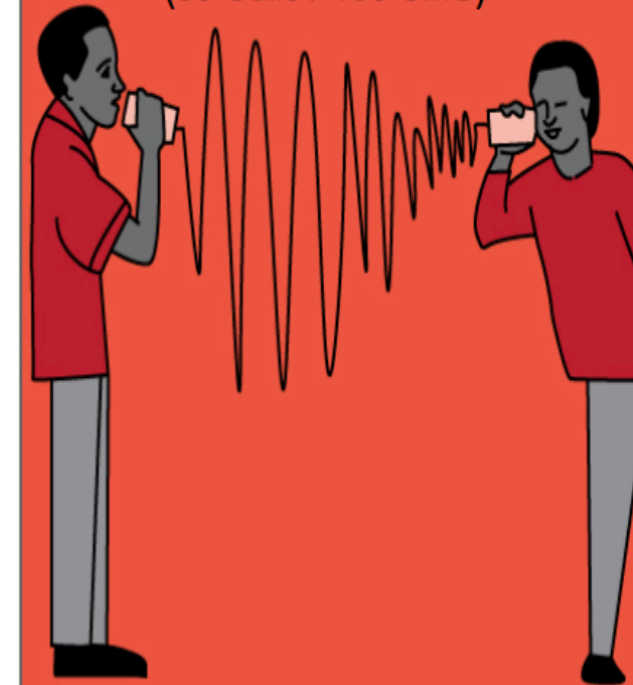Cheapest prepaid broadband product in Africa
(1GB Basket)

65%

Value for Money

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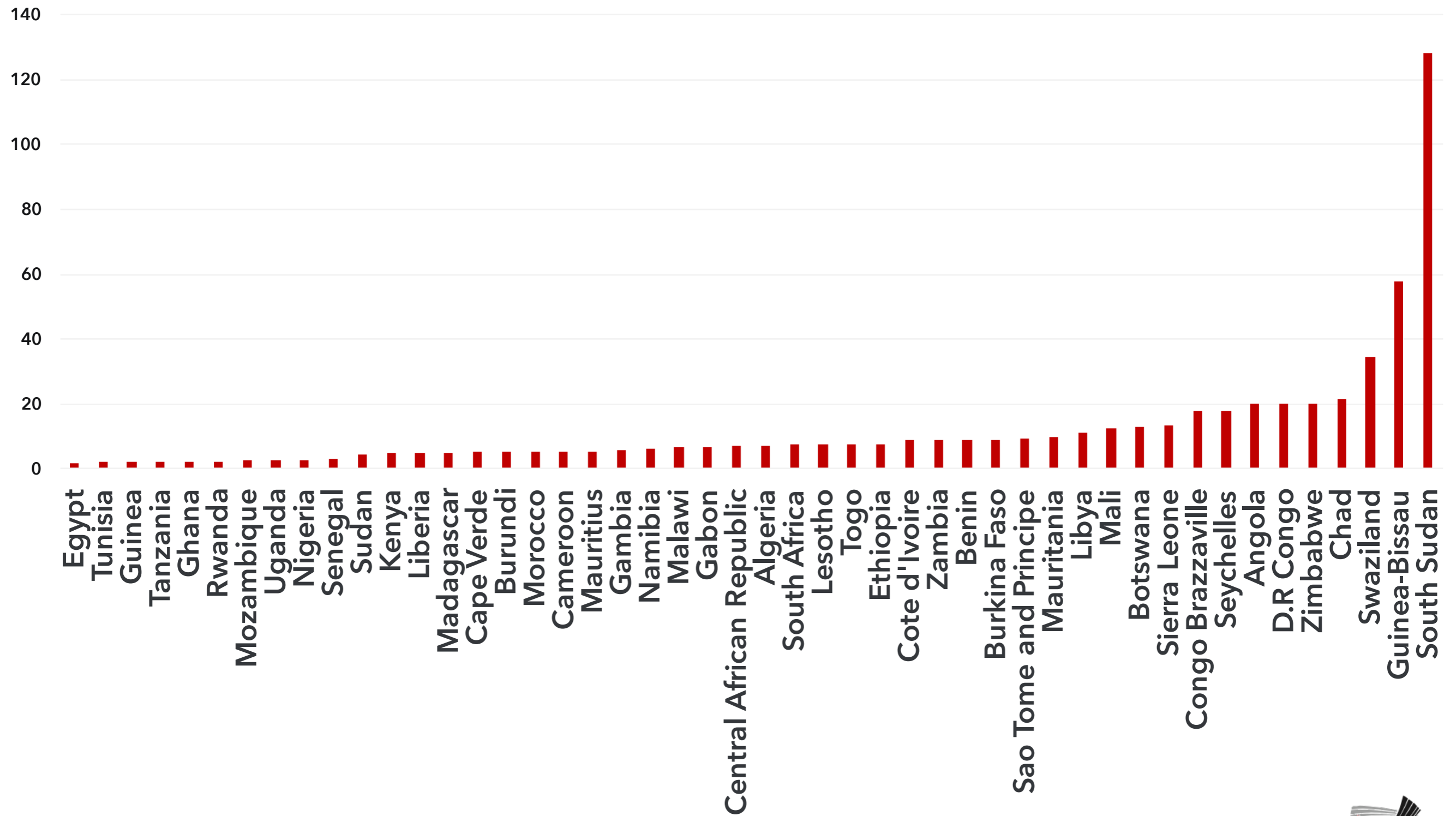(Voice, Data, SMS)

OECD Basket

Cheapest mobile prepaid voice product in Africa
(30 Calls / 100 SMS)

1GB basket-Q3 2017 comparative

BB 1GB 2017 (USD)

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1GB basket measure (USD)

Legend:
- BB_1GB_2017_Q1_USD
- BB_1GB_2017_Q2_USD
- BB_1GB_2017_Q3_USD

Countries (x-axis): Egypt, Uganda, Kenya, Namibia, South Africa, Lesotho, Zambia, Zimbabwe

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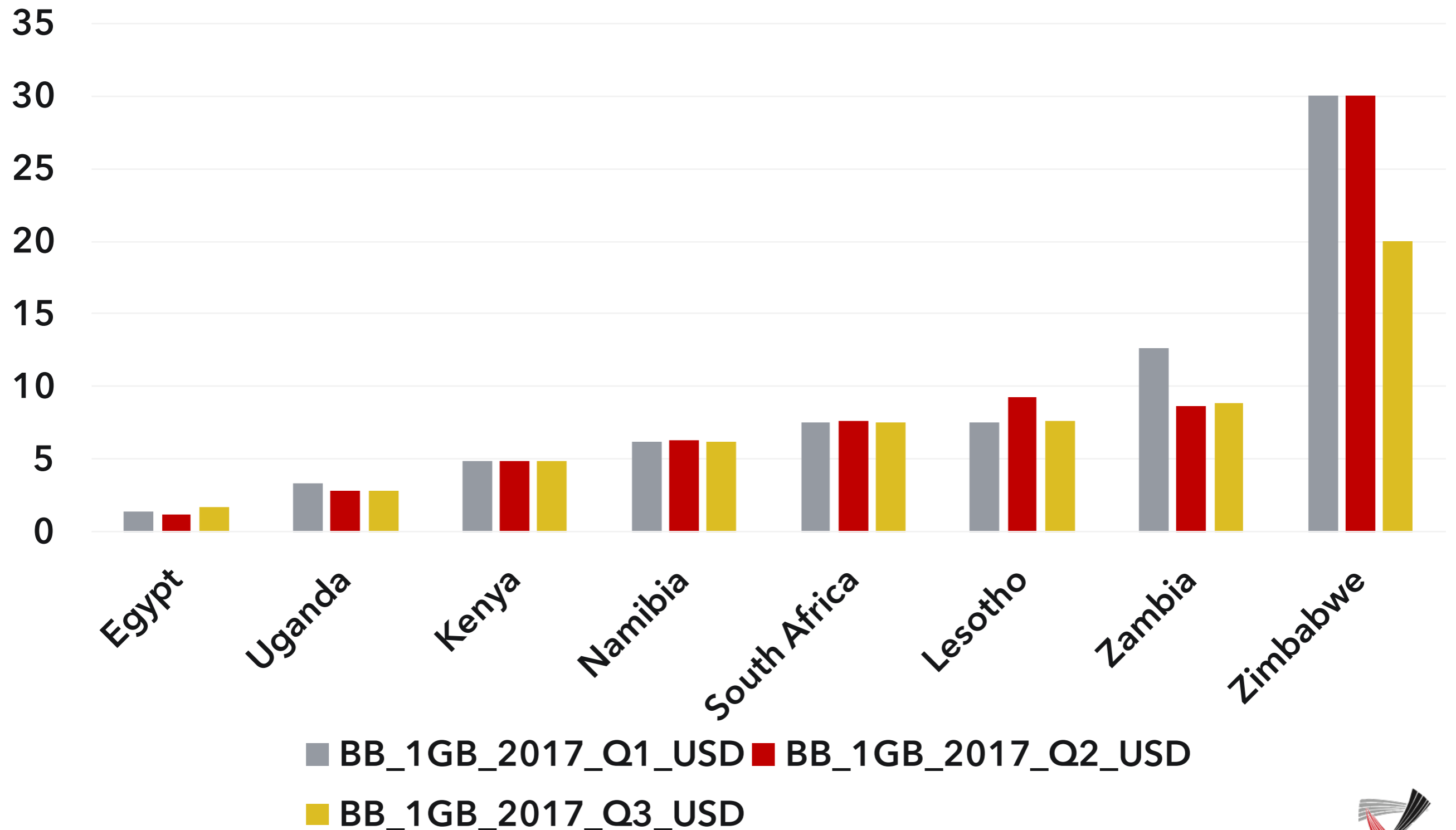
Core policy issue-affordable access

▶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
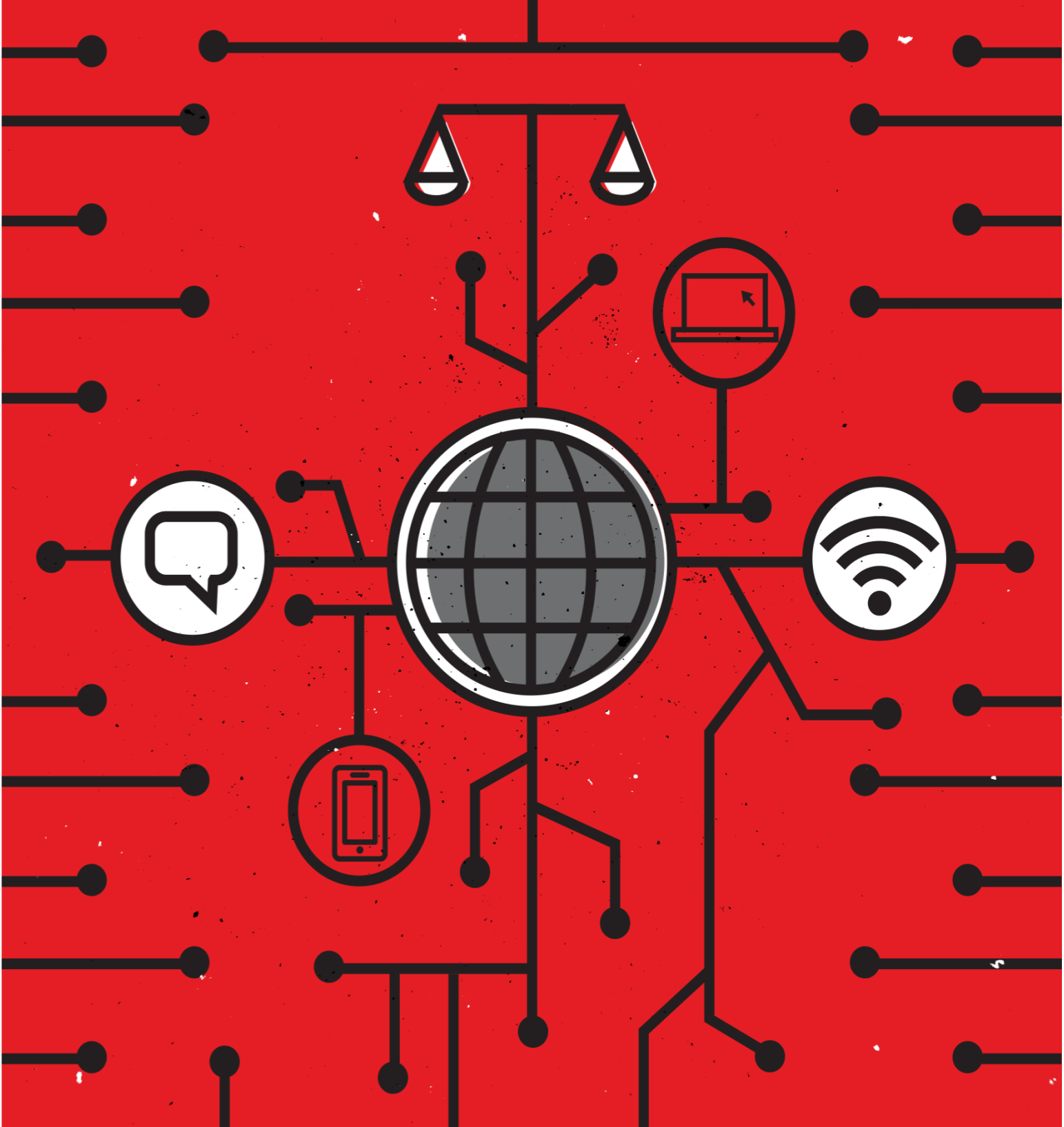
Quality of Service

‣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
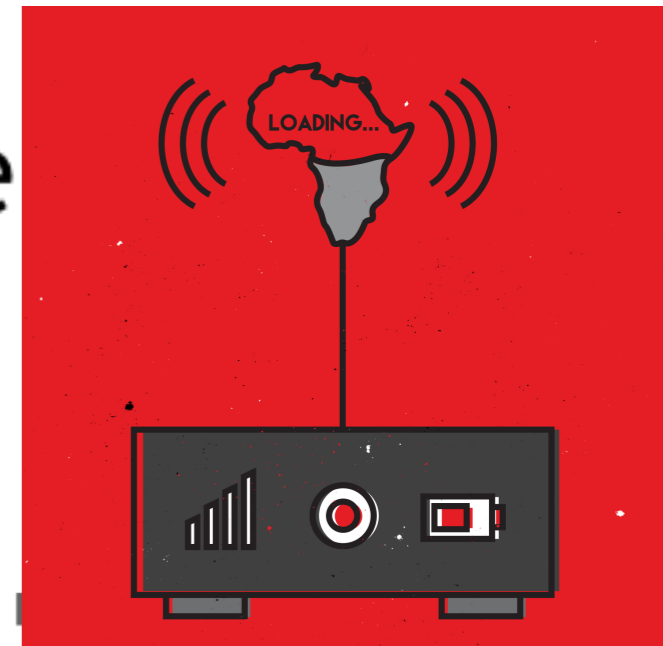
Alternative access models

The age of the Wi-Fi hunters

Wi-Fi providing low cost connectivity

free TshWi-Fi
calls·chat·movies·tv

500MB free per day

karoospace.co.za

- 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

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

WAPA
WIRELESS ACCESS
PROVIDERS' ASSOCIATION

- WISPs (mostly WiFi)
- 173 full members
- 22 associate members

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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
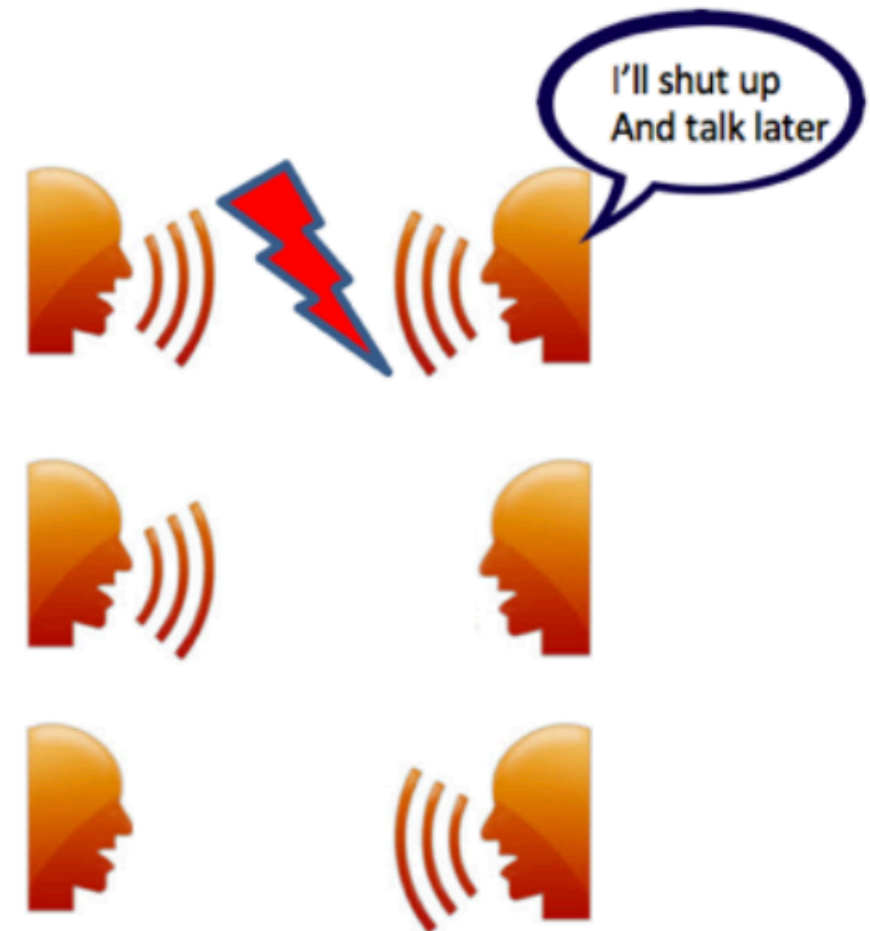
Wi-Fi

80 MHz

69% Smartphone Traffic
(South Africa 44%)

270 MHz

31% Smartphone Traffic
(South Africa 56%)

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

I'll shut up
And talk later

How connected is Africa?
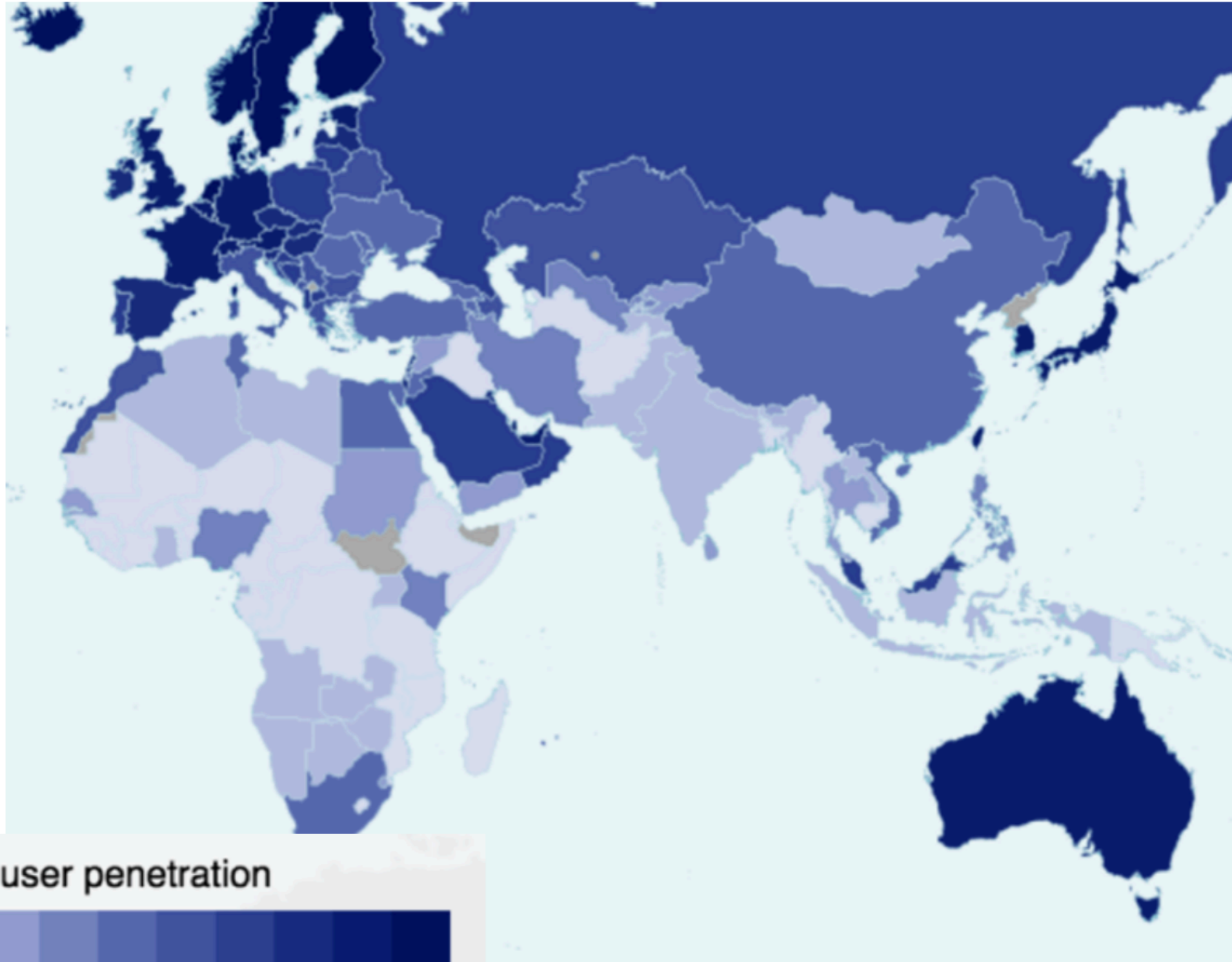
Internet user penetration

0%   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

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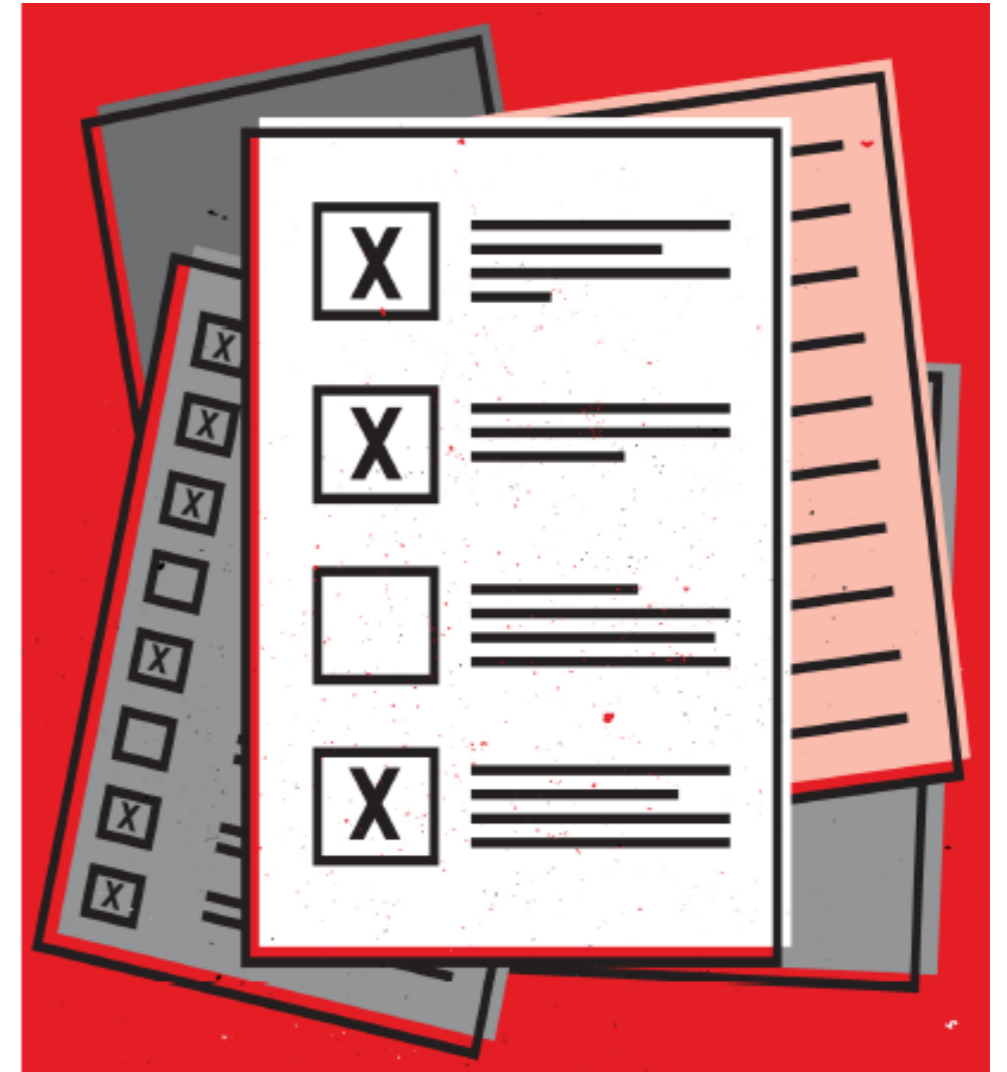
Internet awareness
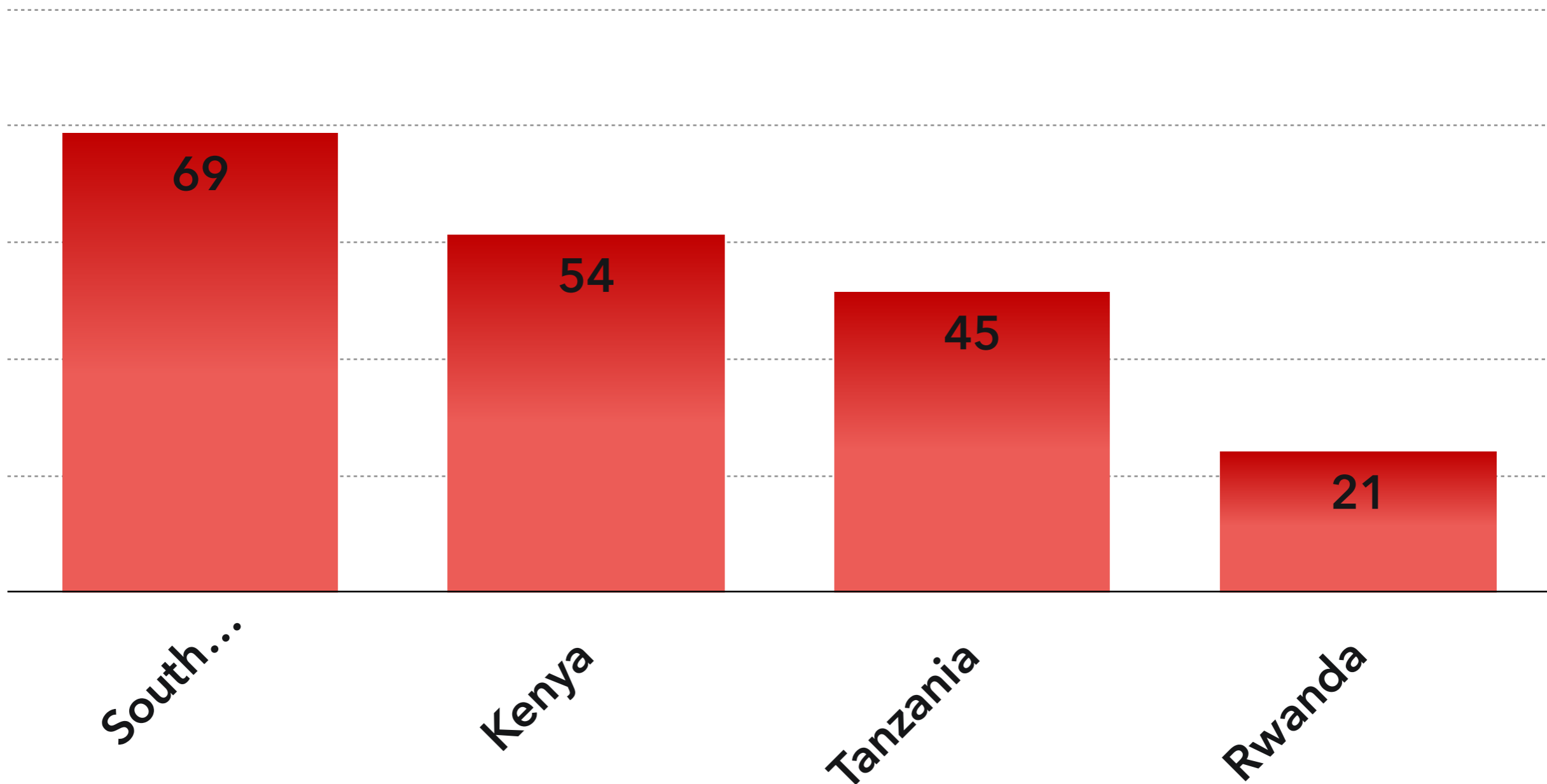
Share of individuals who know what the internet is

Country	Male	Female
Rwanda	25.9	16.7
Tanzania	51.8	39.1
Kenya	64.3	44.8
South Africa	71.7	66.6
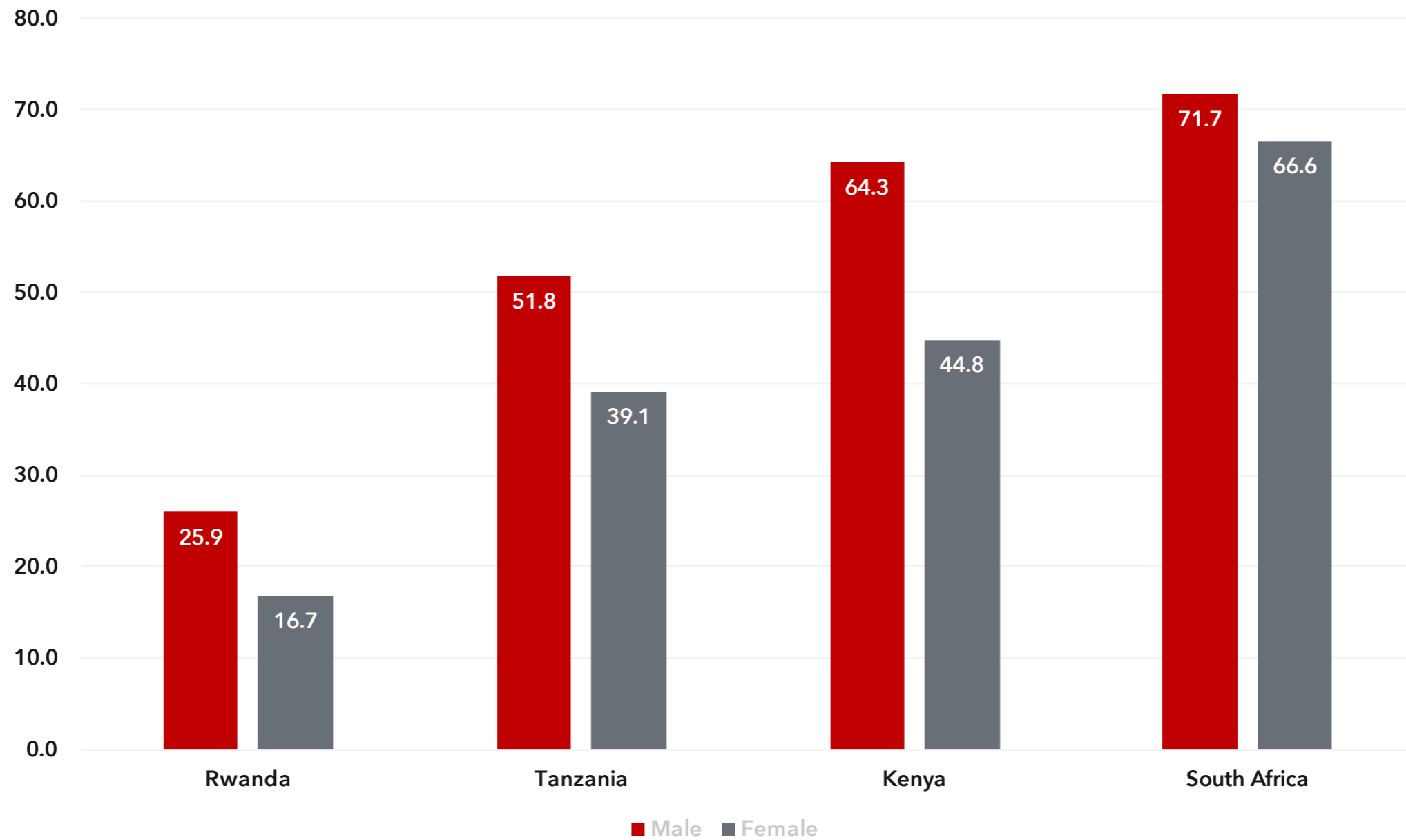
■ Male ■ Female

% Internet use by population group

Male: Rwanda 46.2, Tanzania 32.5, Kenya 31.1, South Africa 74.1
Female: Rwanda 28.9, Tanzania 28.8, Kenya 21.0, South Africa 68.4
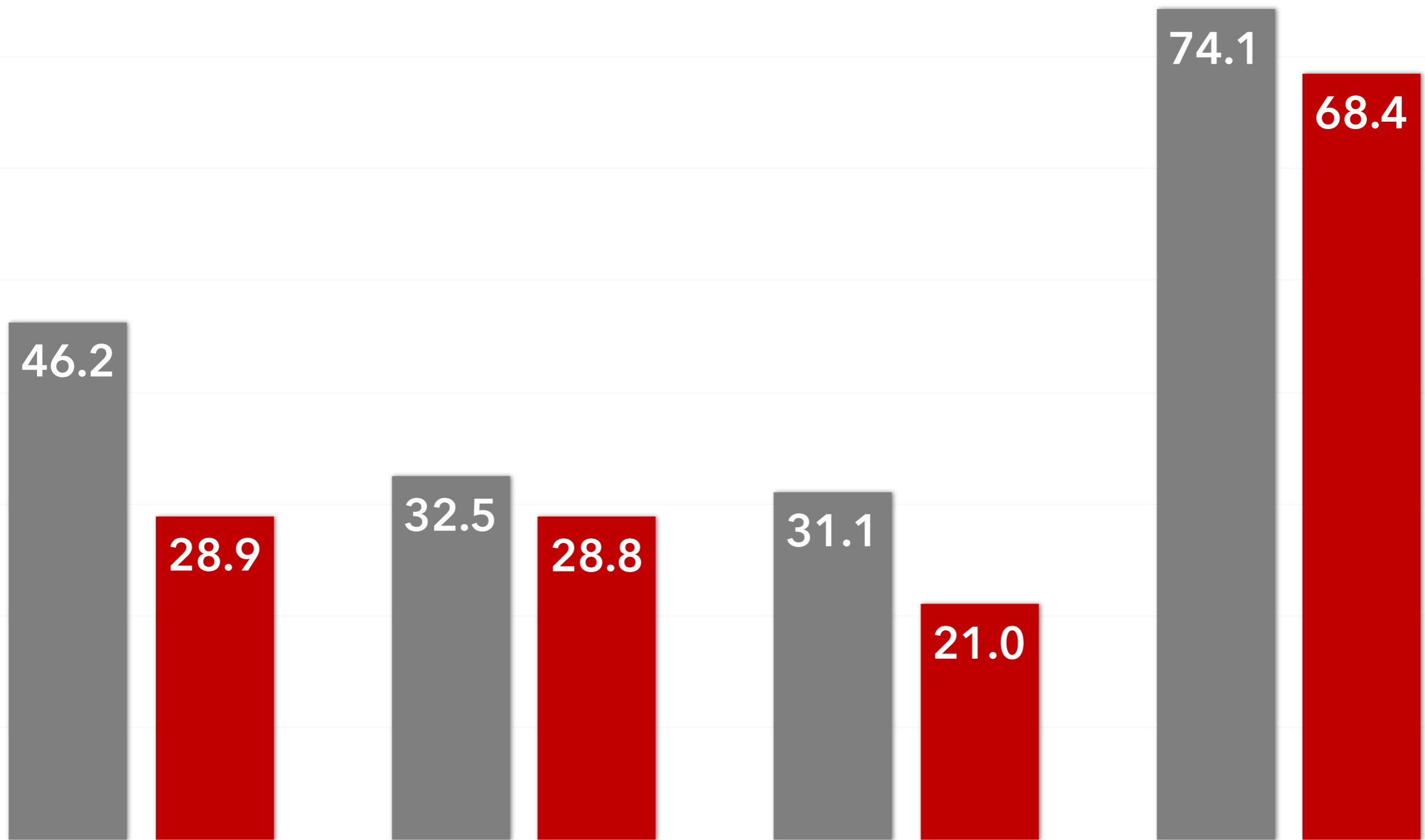
Rwanda   Tanzania   Kenya   South Africa

■ Male   ■ Female

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% Internet use by gender of internet users

Chart: % Internet use by gender of internet users

Country	Male	Female
South Africa	53.92	46.27
Kenya	31.08	21.04
Tanzania	16.40	11.01
Rwanda	11.98	4.84

■ Male   ■ Female

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Mobile internet use by gender %

	South Africa	Kenya	Tanzania	Rwanda
Male	70.22	77.87	69.32	44.68
Female	74.69	71.08	73.29	64.74

■ Male   ■ Female
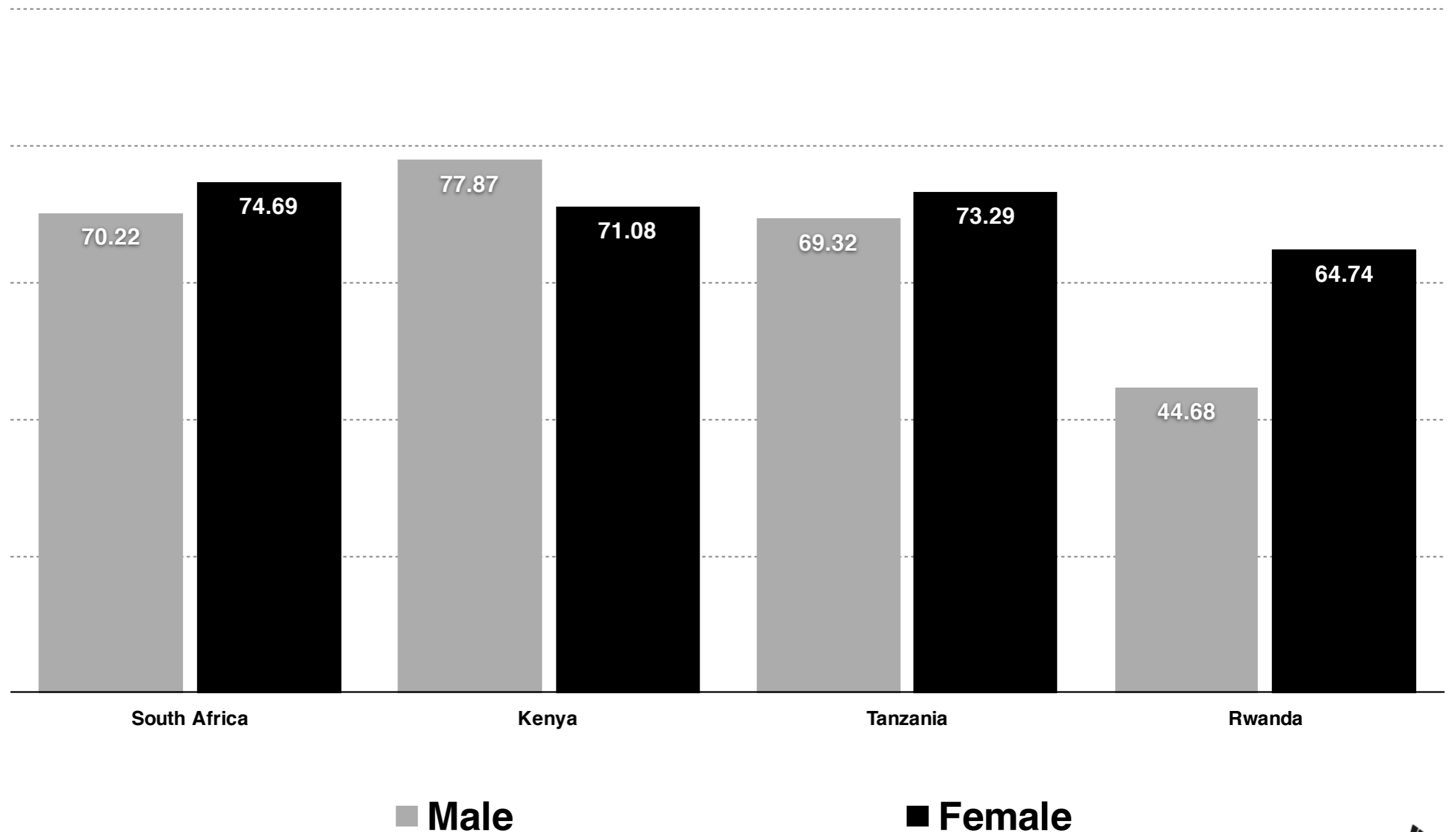
Mobile phone ownership by type
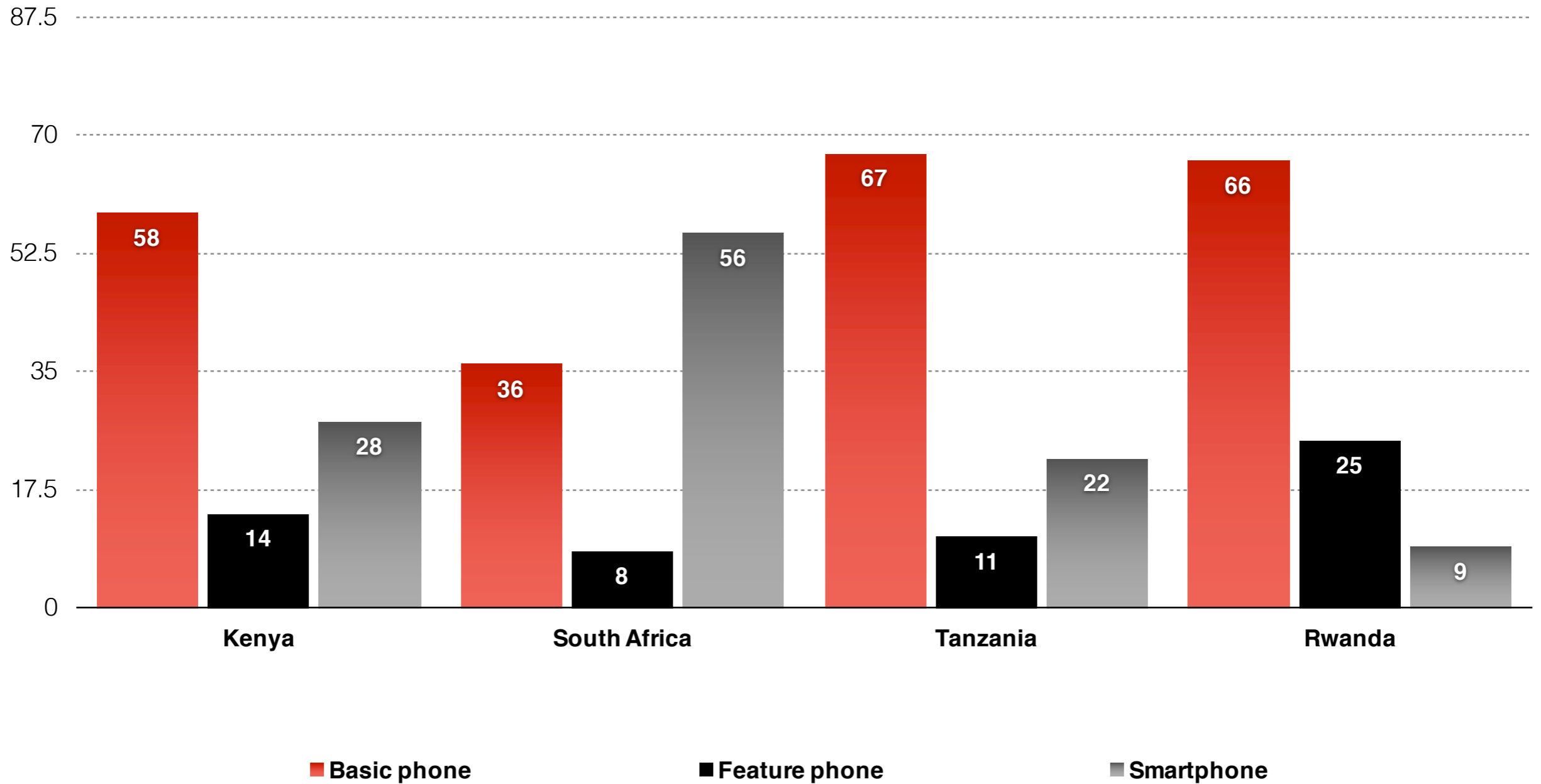
Smart phone ownership by gender

Male ■   Female ■

	Kenya	South Africa	Tanzania	Rwanda
Male	31.17	60.29	23.90	8.94
Female	24.25	51.73	20.24	9.14

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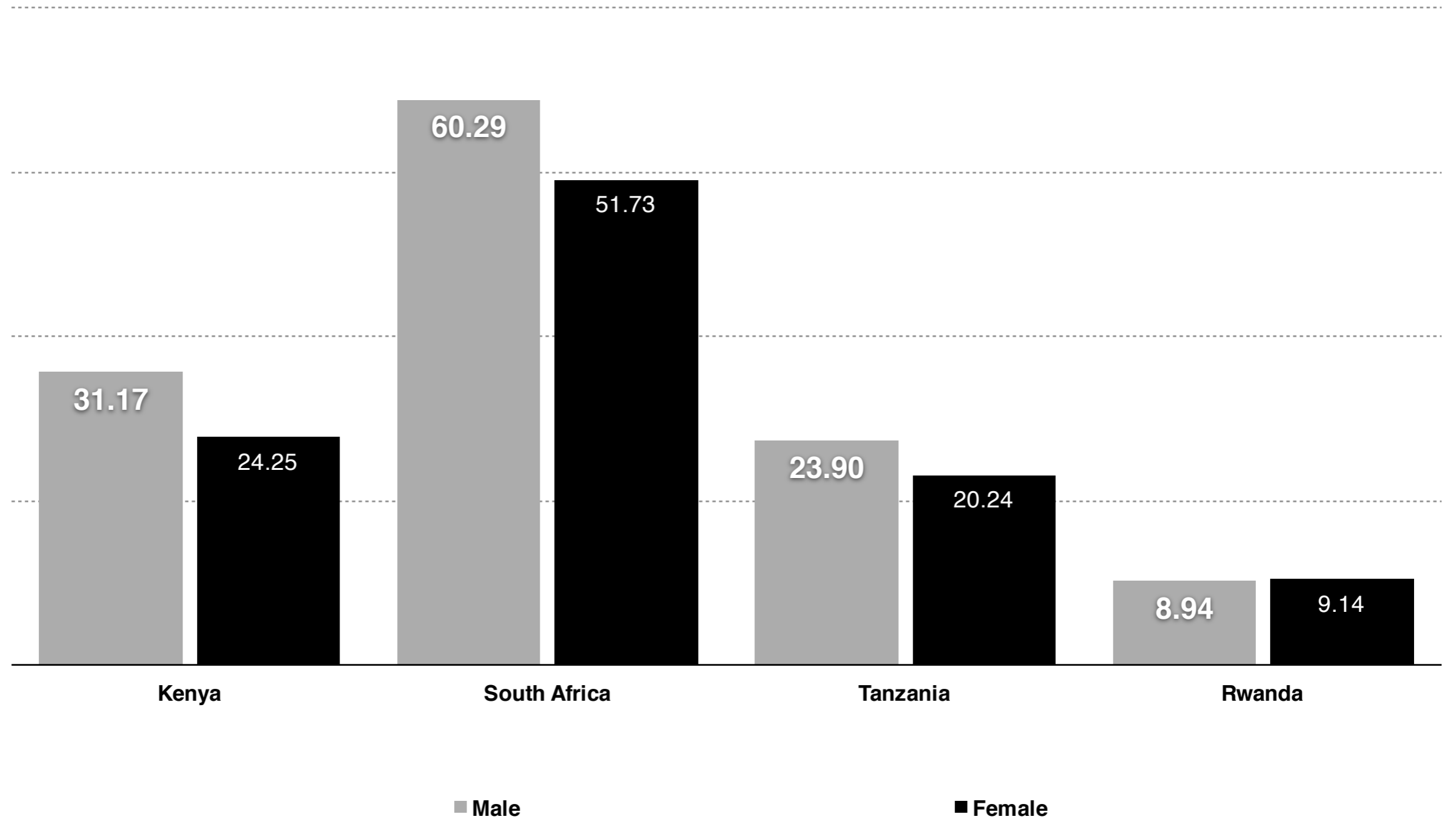
Primary reason for not owning a smartphone

Percentages

Kenya: Do not need one 20, Cannot afford one 42, Complicated to use 14, Do not know what a smartphone is 4

South Africa: Do not need one 31, Cannot afford one 46, Complicated to use 14, Do not know what a smartphone is 7

Tanzania: Do not need one 25, Cannot afford one 60, Complicated to use 9

Rwanda: Do not need one 20, Cannot afford one 63, Complicated to use 11, 2

Legend:
- 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

Percentages

	Kenya	South Africa	Tanzania	Rwanda
Male	42.57	44.33	59.68	60.90
Female	42.03	47.52	61.18	65.02

■ Male ■ Female
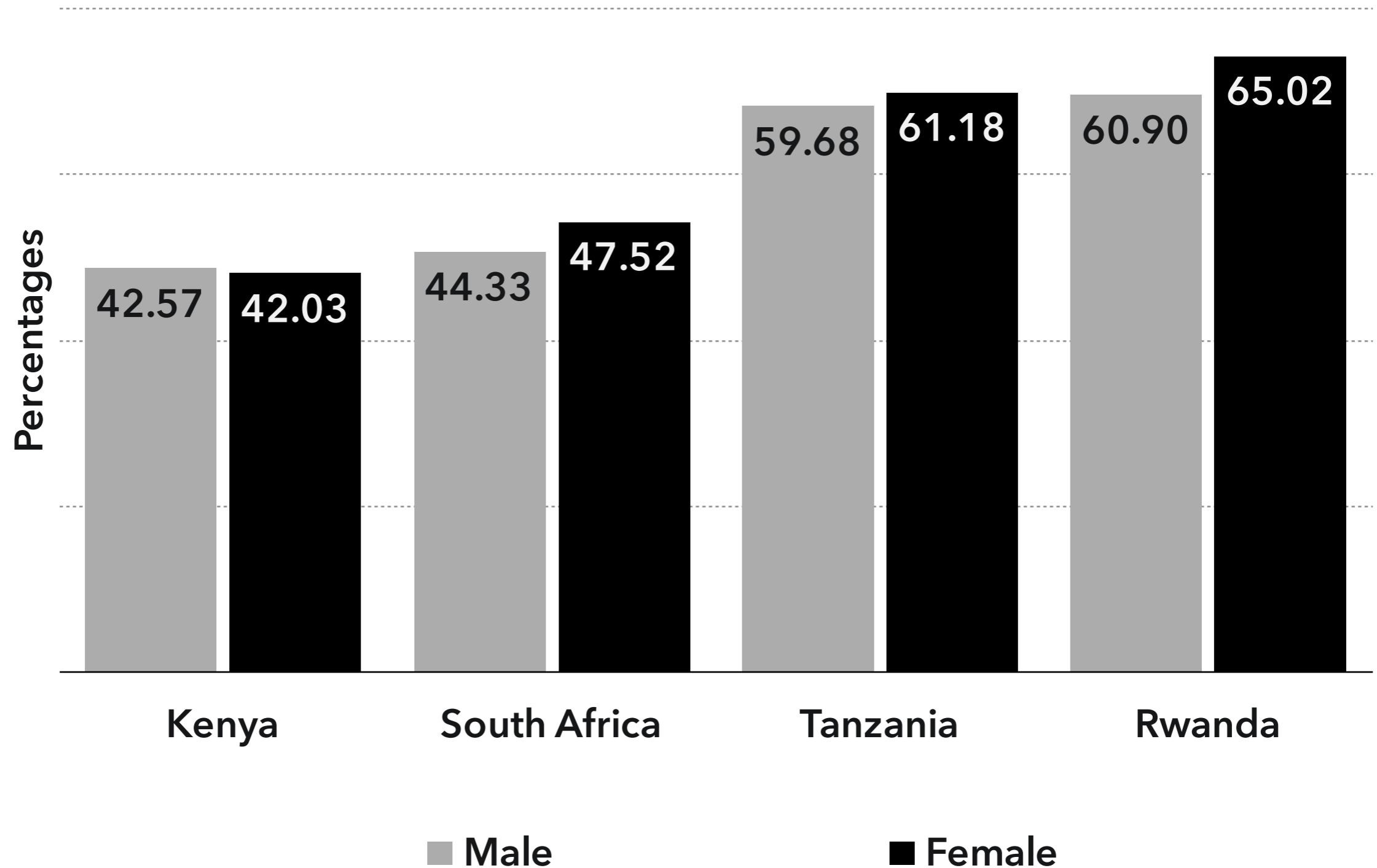
Internet awareness by gender
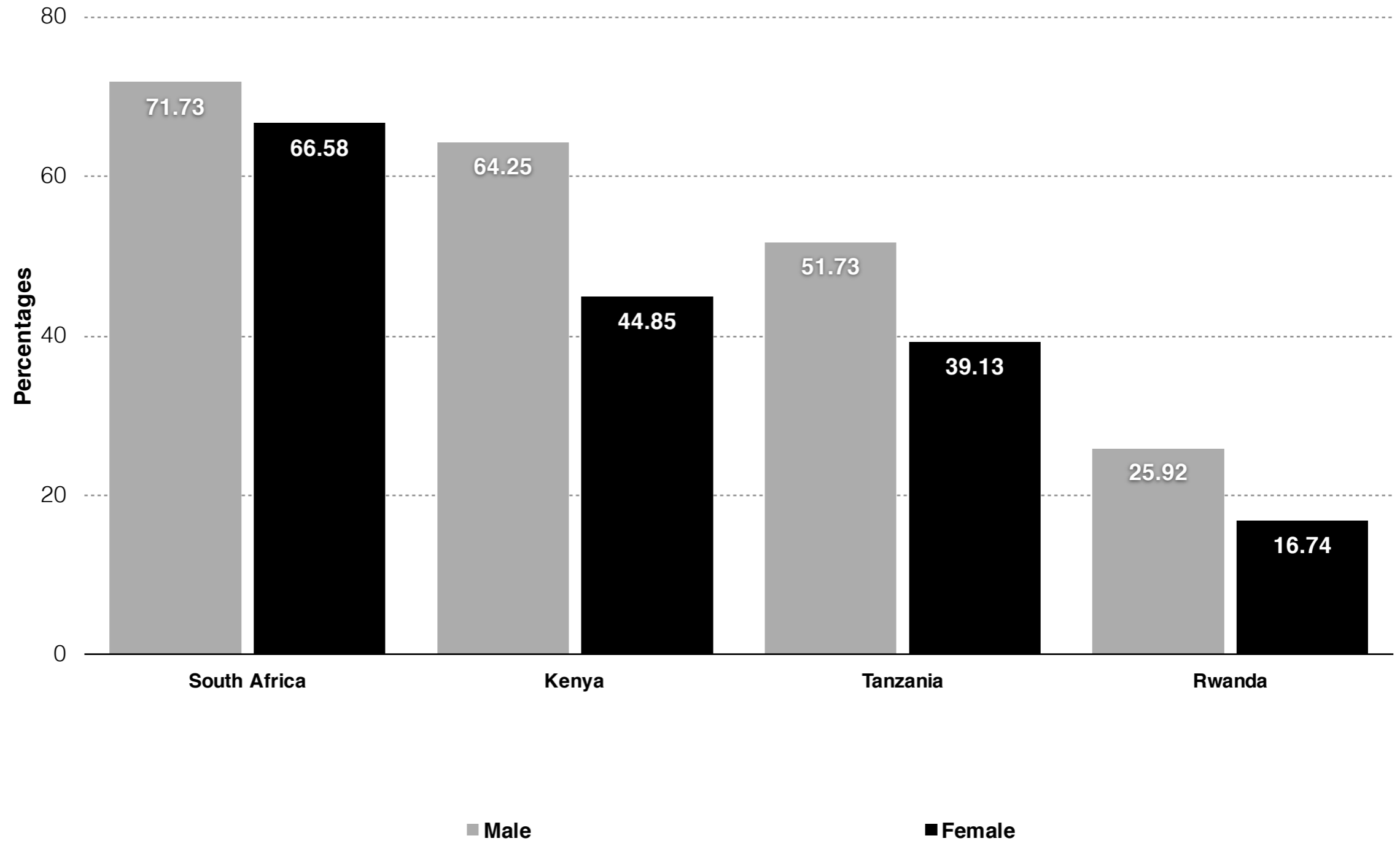
Discussion

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…

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#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

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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 ?

	Educational	Social-networking	Work related	Shopping	Gov services	Job search	Online banking
Rwanda	43,33	**74,62**	47,12	10,68	**53,22**	49,38	14,99
South Africa	43,97	**73,20**	26,93	10,36	7,51	26,08	16,78
Tanzania	43,81	**90,45**	23,83	6,51	9,82	11,65	3,71

Information on social media platform

	Real name	Gender	Age	Marital status	Contact
Kenya	80,06	89,99	66,85	71,60	62,33
Rwanda	90,40	89,86	78,79	82,91	**53,44**
South Africa	73,27	62,65	56,05	46,32	36,45
Tanzania	84,22	**88,35**	55,62	63,92	44,61

Information on social media platform

	Religion	Political views	Sexual orientation	None of these
Kenya	78,38	69,06	40,83	22,14
Rwanda	84,55	64,81	23,78	28,35
South Africa	53,01	28,11	11,10	11,15
Tanzania	79,10	44,48	18,71	5,17

Qualitative study findings of trust, safety and security

"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)

Challenges to internet use %				
	No limitation	Lack of time	Data cost	Lack of content in my language	Speed of Internet
Kenya	16,95	20,16	45,24	1,96	11,63
Rwanda	21,58	54,23	55,95	13,55	19,08
South Africa		10	47,15	3,32	24,22
Tanzania		25,62	40,64	3,68	28,36

Challenges to internet use %			
	Privacy concern	**worried about virus/malware**	**Not allowed to use it**	**Find it difficult use**
Kenya	0,51	0,74	0,07	0,95
Rwanda	7,78	**9,97**	2,95	5,99
South Africa	3,18	3,77	2,88	2,23
Tanzania	0,89	0,85	**0,57**	4,14

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 may be 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.

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