

Access and beyond Access: The State of Internet Access and Infrastructure in Africa

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The Presentation will focus

- **Infrastructure development in Africa.**
- **Internet use, based on the After Access survey .**
- **Social media tax**
- **Internet shutdowns**

Internet and Economic growth

- **The ICT sector has proven to a strong drivers of economic growth**
- **Well functioning sector is crucial for facilitation of trade and commerce**
- **UN 2030 Agenda acknowledges ICT as crucial to the achievement of SDGs**
- **By improving efficiency in delivery of quality services in the areas of health care, education, finance, commerce, education governance and agriculture**

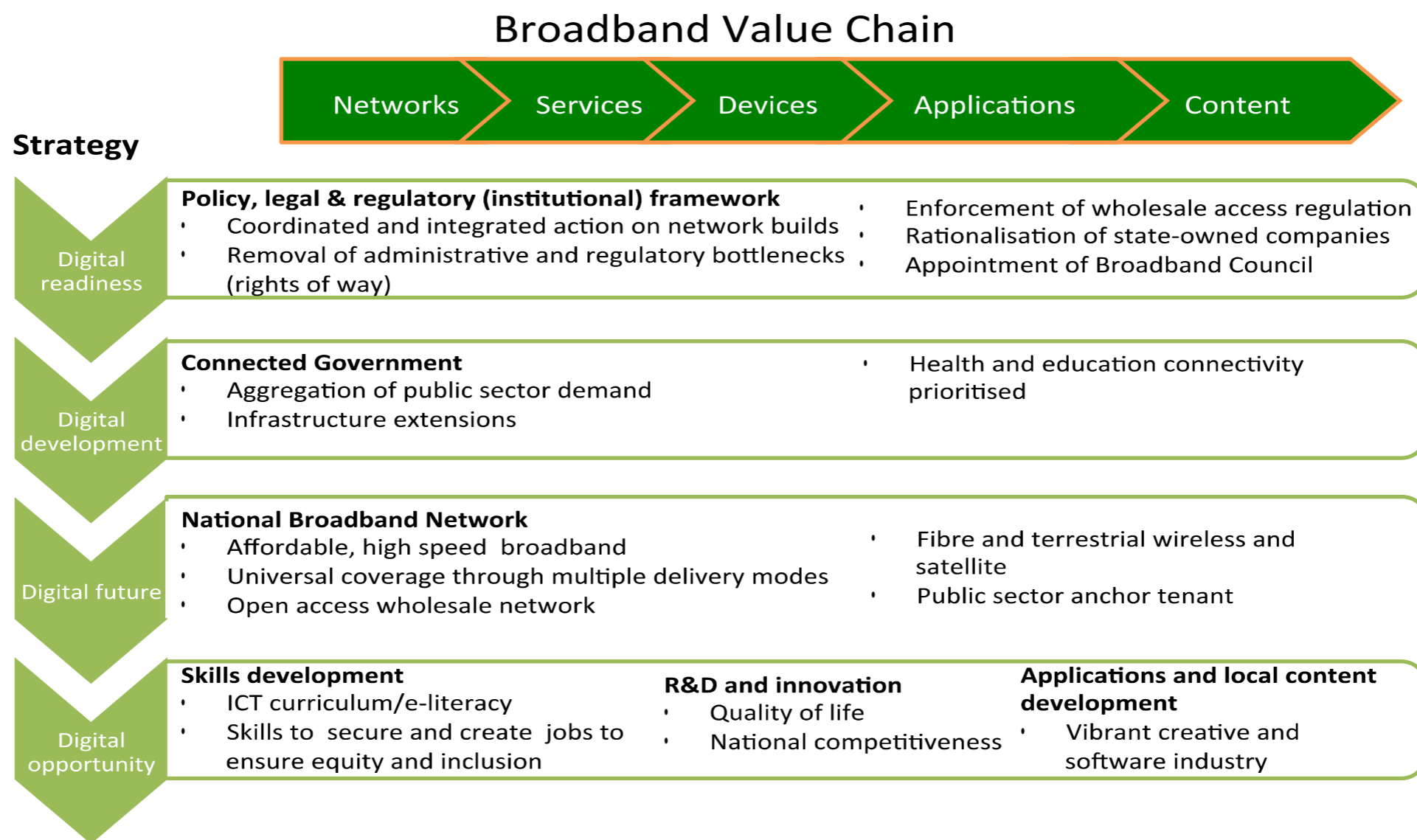
Internet evolution in Africa

- **The ICT sector and especially the Internet saw a growth in the past decades due to landing of sub-marine cables in Africa**
- **The landing of 6 sub-marine cables which includes: SEACOM, SAT-3, WACS, SAFE, TEAMS have increased Africa's bandwidth capacity to about 520Gbps**
- **Increasing availability of International bandwidth in African countries**
- **These has led to the laying down of infrastructure including the fiber to home**

Summary of infrastructure

Submarine Cables	Domestic Backbone	Access Network (Metro and Last Mile Providers)
<p>South Africa has six submarine cables that connect the country to the rest of the world, with more than 10 terabytes of capacity.</p>	<p>Openserve has deployed 157 400 km of fibre nationally, having passed 2.6 million premises:</p> <ul style="list-style-type: none"> • 356 684 homes passed • 2.2 million fibre to the cabinet passed. 	<p>It is estimated that South Africa's metropolitan network is close to 27 000 km of fibre across the main metro areas.</p>
<p>West African Cable System (WACS), Africa Coast to Europe (ACE), SAT-3, SAFE, SEACOM and Eastern Africa Submarine System (EASSy)</p>	<p>Liquid Telecom has access to 70 000 km of cross-border, metro and access fibre network spanning 15 countries across Africa.</p> <p>In South Africa, it is estimated that Liquid Telecom owns close to 12 000km of fibre.</p>	<p>Mobile operators (Telkom, Neotel, Vodacom, MTN, Cell C) and Dark Fibre Africa have been identified as having deployed fibre in the metropolitan areas.</p>
<p>Submarine landing stations are located in Mtunzini in KwaZulu-Natal, and in Melkbosstrand and Yzerfontein close to Cape Town.</p>	<p>Broadband Infracore has invested in fibre networks comprising 14 960 km in South Africa.</p> <p>Dark Fibre Africa owns 10 000 km of fibre in addition to Vumatel's 8 000 km of fibre.</p> <p>It is estimated that South Africa has over 60 000 km of unduplicated fibre and over 80 000 km of duplicated fibre; this is a result of backhaul investment made by the mobile operators (MTN, Vodacom, Cell C and Telkom).</p>	<p>It is estimated that South Africa has close to 20 500 km of fibre in the last mile. Access to connectivity in the last mile is possible via the following technologies:</p> <ul style="list-style-type: none"> • DSL: Telkom • 2G, 3G, 4G and LTE: Vodacom, MTN, CellC, Telkom <p>Fibre: Telkom, Vumatel, Fibrehoods, Frofoot and Octotel.</p>

Broadband value chain



Democratisation, Economic Growth, Development, Job Creation

Internet evolution in Africa

- **In 2018, Rwanda become one of the first African countries to have 95% 4G/LTE coverage**
- **South Africa's two mobile operators, MTN and Vodacom announced in 2018, that they have reached more than 90% 4G/LTE coverage**
- **A number of African countries today want to leapfrog in to 5G but majority of these countries are still battling with low Internet penetration on rural areas**

Internet evolution in Africa

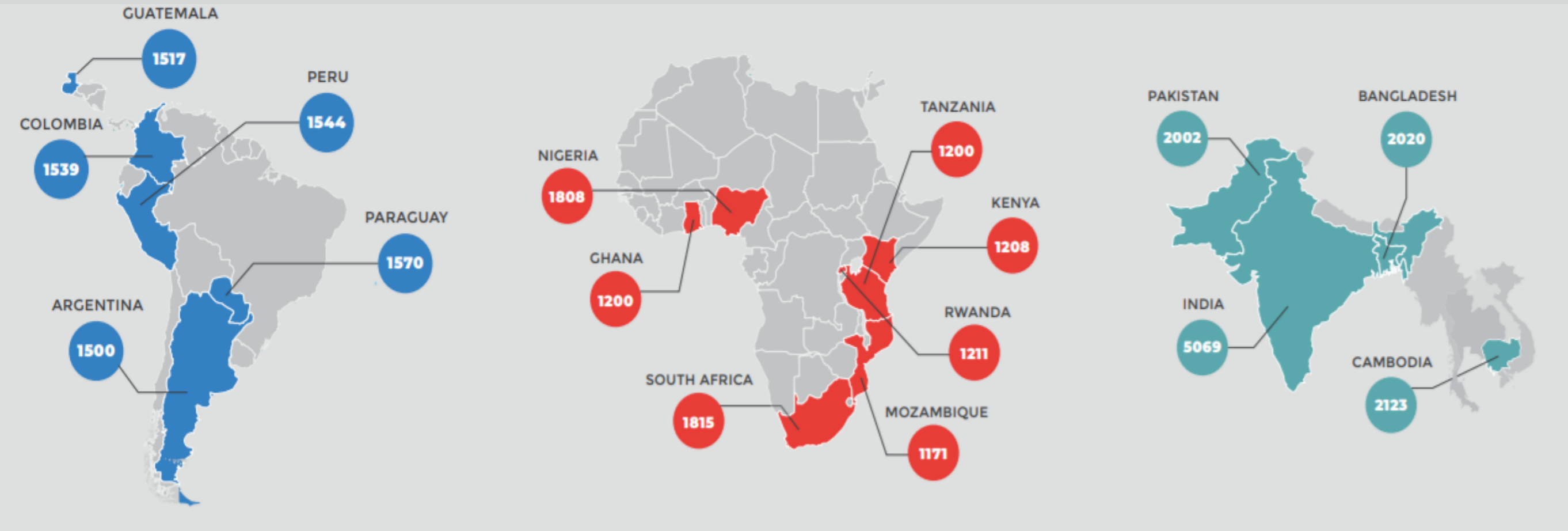
- **For instance, despite Rwanda having achieved 95% 4G/LTE majority do not have Internet. Only 10% use the Internet**
- **In South Africa, the release of high demand spectrum has been dragging for more than 6 years,- high cost of Internet**
- **Some countries –Uganda, Tanzania and Zambia have introduced regressive policies- social media tax**

ICT indicators

COUNTRY	RANKINGS					ICT INDICATORS		
	IDI (ex 176)	NRI (ex 139)	ADI (ex 58)	MCI (ex 163)	3i (ex 139)	1 GB prepaid data USD	Active SIM cards per 100	Internet subscribers per 100
South Africa	92	65	22	90	39	8.28	147	54
Nigeria	143	119	13	125	45	5.00	83	26
Kenya	138	86	30	116	51	2.94	82	26
Ghana	116	102	26	113	49	2.24	128	35
Namibia	118	99	31	128	N/A	5.9	99	31
Rwanda	153	80	21	134	63	2.39	75	20
Tanzania	165	126	39	136	57	2.25	72	13
Uganda	152	121	32	145	64	2.77	55	22
Sources	ITU, 2017	WEF, 2016	A4AI, 2017	GSMA, 2017	EIU, 2017	RAMP Index (Q4 2017)	ITU, 2016	ITU, 2016

Source: Adapted from Esselaar, Gillwald and Stork, 2017

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

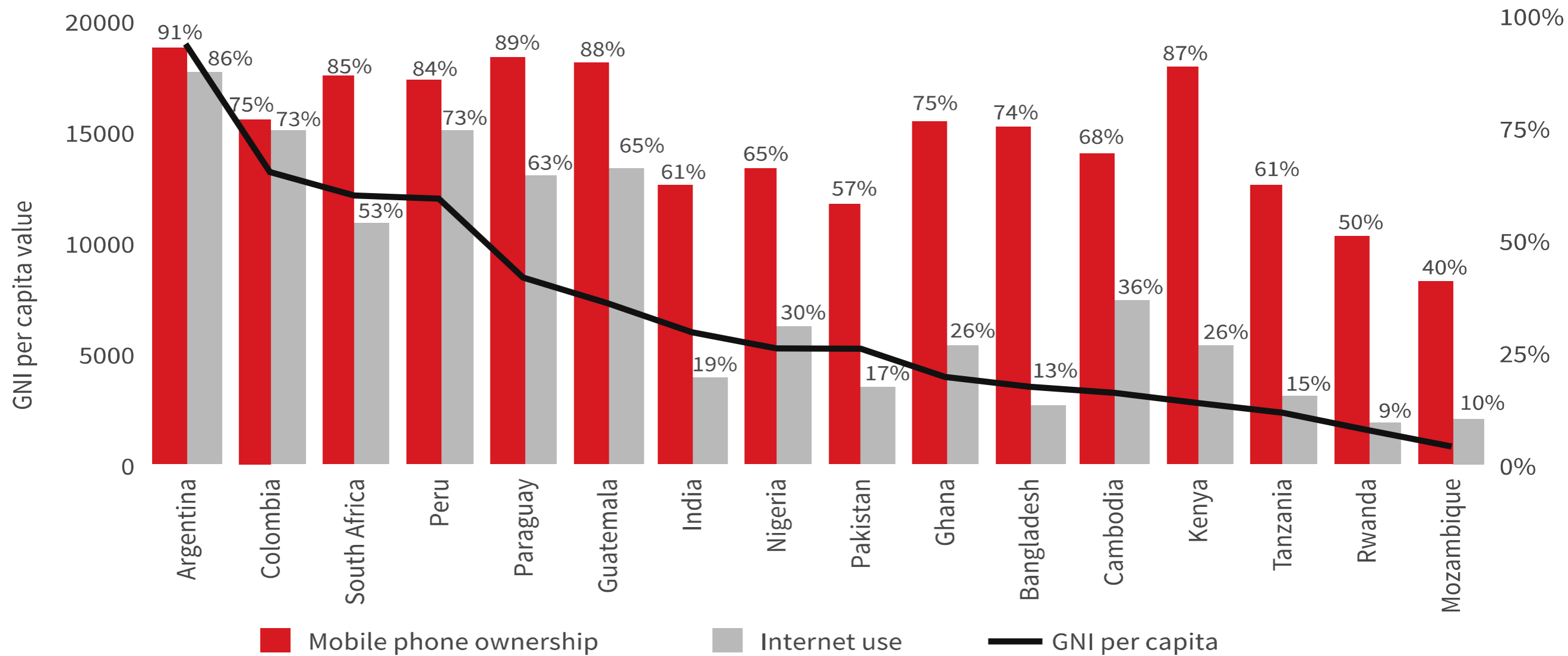


Figure 1: Mobile phone ownership, Internet use and GNI per capita

Sources: RIA After Access Survey, 2017; World Bank, 2018

Gender gap in Internet use also tracks GNI broadly but anomalies

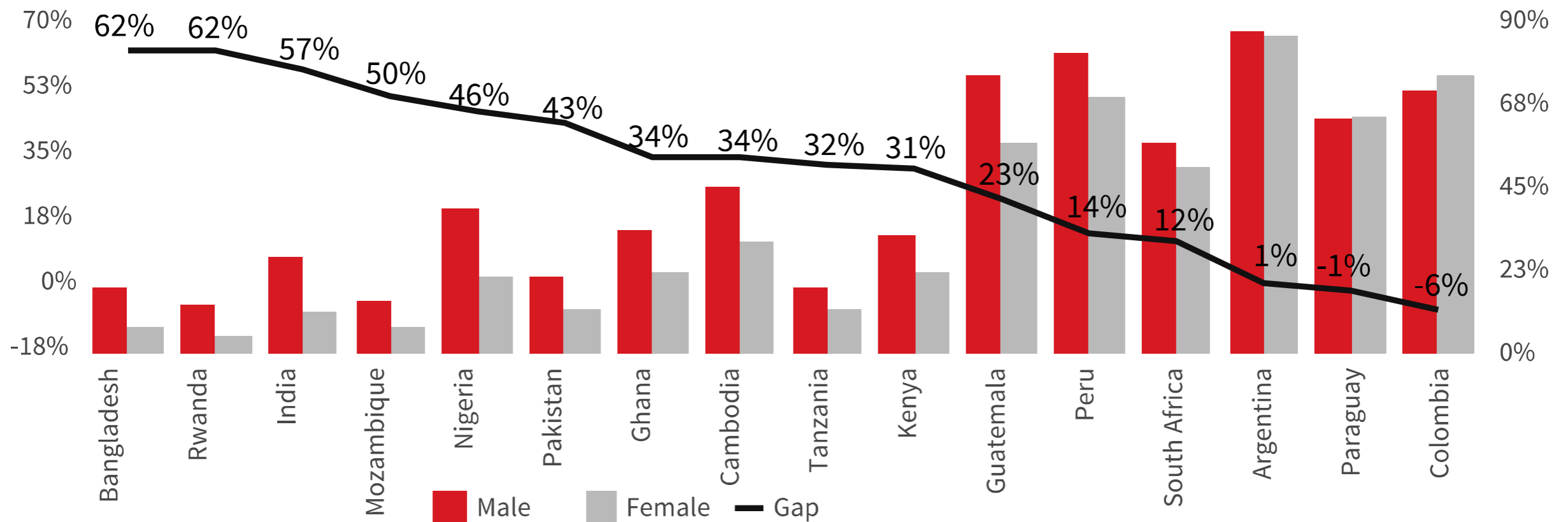


Figure 2: Gender gap in Internet use

Source: RIA After Access Survey, 2017

Internet divide greater between urban and rural areas

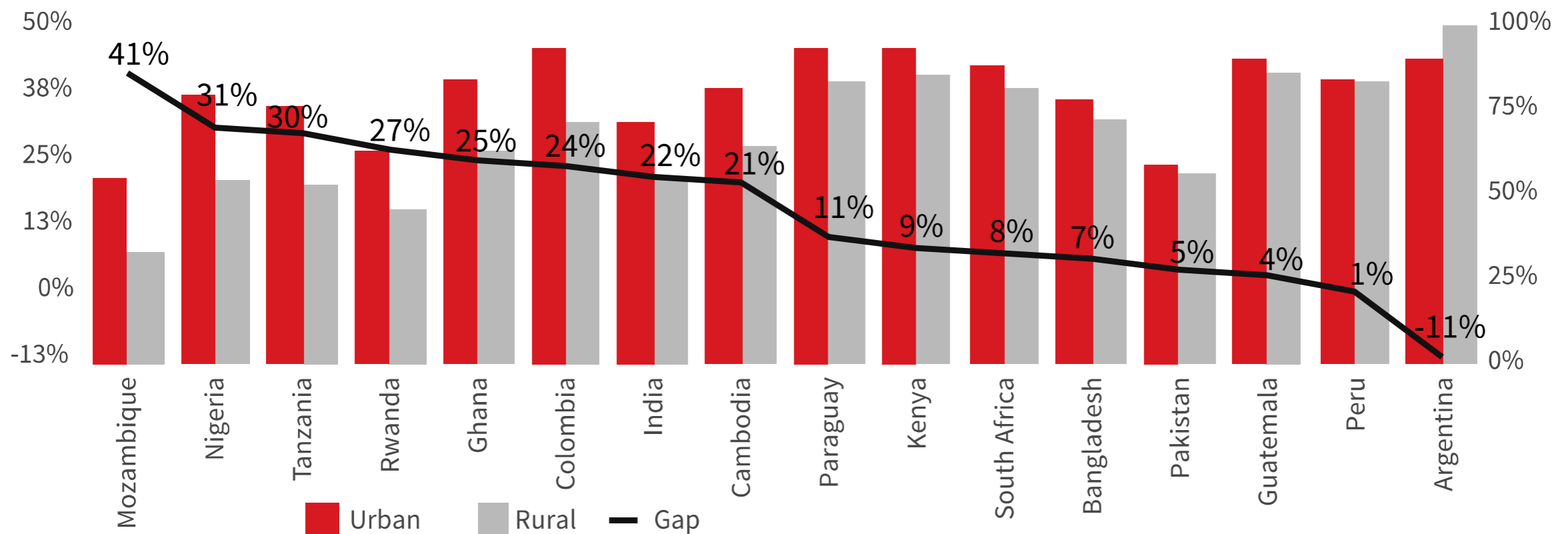


Figure 3: Urban-rural divide in Internet use

Source: After Access Survey, 2017



Access to internet about poverty, education, income

Table 16: Ownership and use of ICTs by income




INCOME (ZAR)	MOBILE PHONE	SMARTPHONE	INTERNET
0 – 1 583	82%	45%	51%
1 584 – 7 167	81%	38%	37%
7 168 – 7 167	95%	74%	74%
7 168 – 1 6418	100%	93%	98%
16 419 – 33 333	100%	100%	100%
33 334 – 57 333	100%	100%	100%
57 334 – 123 417	100%	100%	100%
>123417	100%	100%	100%

Source: RIA After Access Survey data, 2017




Infrastructure, coverage and intensity of use, SA benchmarked against Ghana, Kenya and Nigeria

INFRASTRUCTURE	COUNTRY-LEVEL INDICATOR	TRAFFIC LIGHT	COMPARISON AVERAGE	SOURCE
International bandwidth per user (kbps)	15 298		147 630	ITU, 2016
Percentage of population covered by 3G/4G signal	70.66		100%	3i, 2018

Access, Ghana, Kenya and Nigeria

ACCESS	COUNTRY-LEVEL INDICATOR	TRAFFIC LIGHT	COMPARISON AVERAGE	SOURCE
Mobile phone ownership	85%		76%	After Access, 2017
Individual using the Internet	53%		28%	After Access, 2017
Fixed-lines per 100 inhabitants	8%		1%	After Access, 2017

Use, Ghana, Kenya and Nigeria

ACCESS	COUNTRY-LEVEL INDICATOR	TRAFFIC LIGHT	COMPARISON AVERAGE	SOURCE
Mobile phone ownership	85%		85%	After Access, 2017
Individual using the Internet	53%		73%	After Access, 2017
Land-lines per 100 inhabitants	8%		26%	After Access, 2017

Usage, Ghana, Kenya and Nigeria

USAGE	COMPARISON AVERAGE	TRAFFIC LIGHT	COUNTRY-LEVEL INDICATOR	SOURCE
Average revenue per user in USD (blended ARPU) per month	4.10	●	6.87	GSMA, 2017
Highest minutes of use (MOU) per connection	109 (Nigeria)	●	131	GSMA, 2017
Data traffic per	39 280.08 (TB)	●	81 649.96 (TB) (smartphones)	GSMA, 2017
Social media users per 100 inhabitants	28%	●	45%	RIA After Access Survey, 2017

Usage, SA benchmarked against Argentina, Colombia, Guatemala, Paraguay and Peru

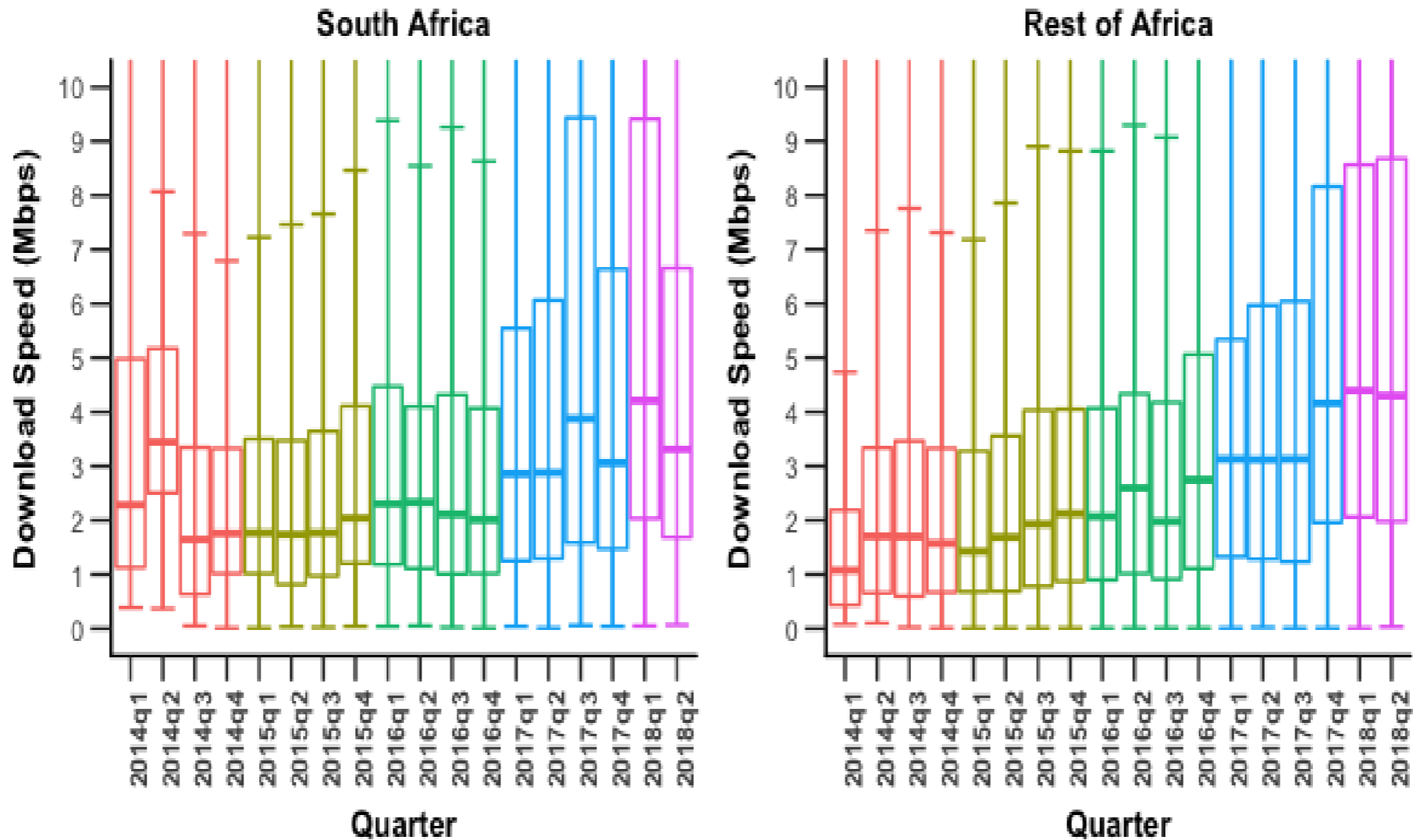
USAGE	COMPARISON AVERAGE	TRAFFIC LIGHT	COUNTRY-LEVEL INDICATOR	SOURCE
Average revenue per user in USD (blended ARPU) per month	7.85	●	6.87	GSMA, 2017
Highest minutes of use (MoU) per connection	221 (Colombia and Peru)	●	131	GSMA, 2017
Data traffic	195 345.12(TB) (Peru-Smartphone)	●	81 649.96 (TB) (smartphones)	GSMA, 2017
Social media users per 100 inhabitants	75%	●	45%	RIA After Access Survey, 2017

Affordability, SA benchmarked against Ghana, Kenya and Nigeria

AFFORDABILITY	COMPARISON AVERAGE	TRAFFIC LIGHT	COUNTRY-LEVEL INDICATOR	SOURCE
Mobile prepaid voice basket (USD)	2.13	●	3.86	RIA, 2017
Dominant operator: mobile prepaid voice basket (USD)	2.66	●	6.46	RIA, 2017
Mobile prepaid 1 GB basket (USD)	3.04	●	7.27	RIA, 2017
Dominant operator: mobile prepaid 1 GB basket (USD)	4.06	●	10.84	RIA, 2017

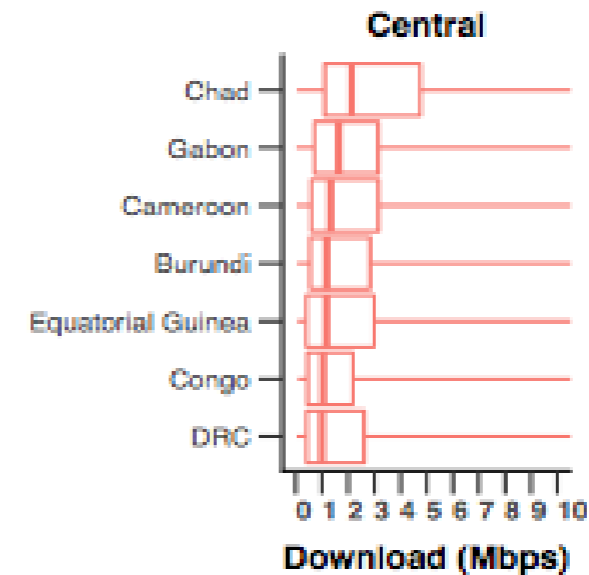
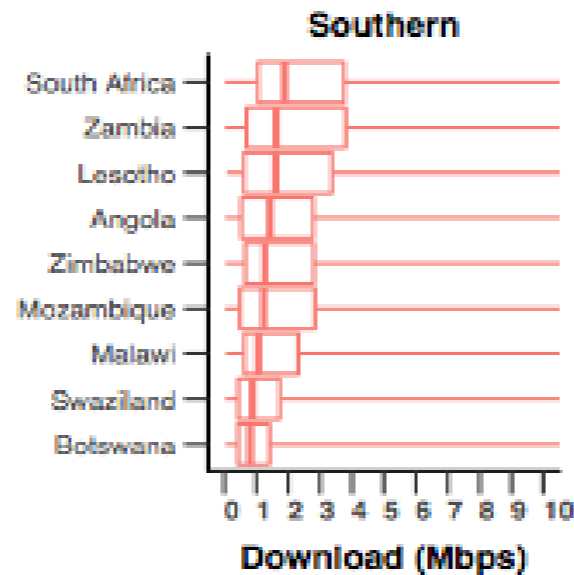
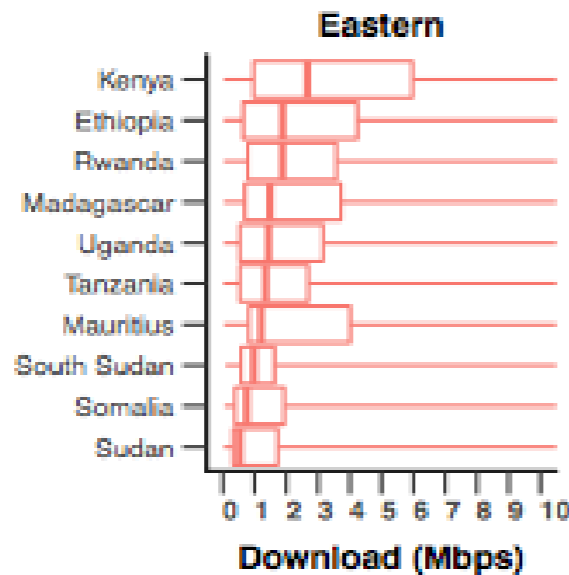
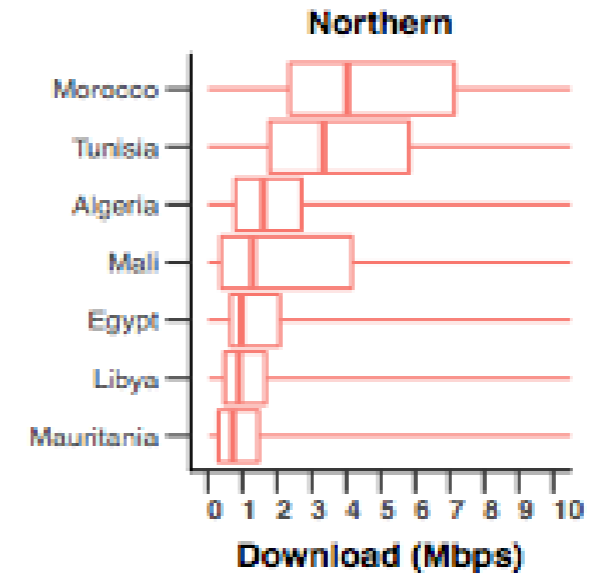
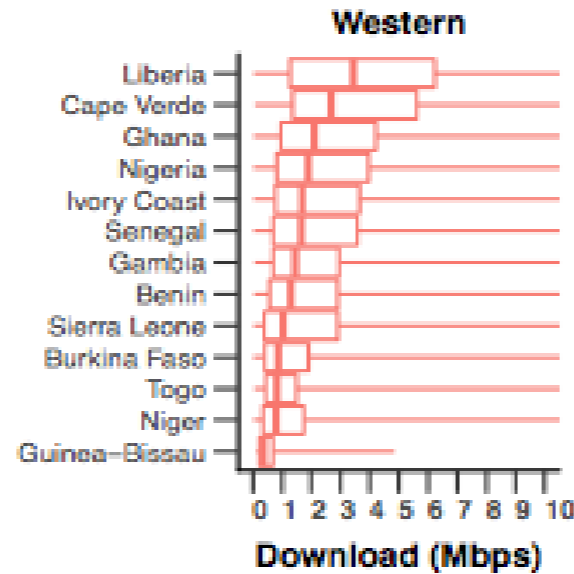
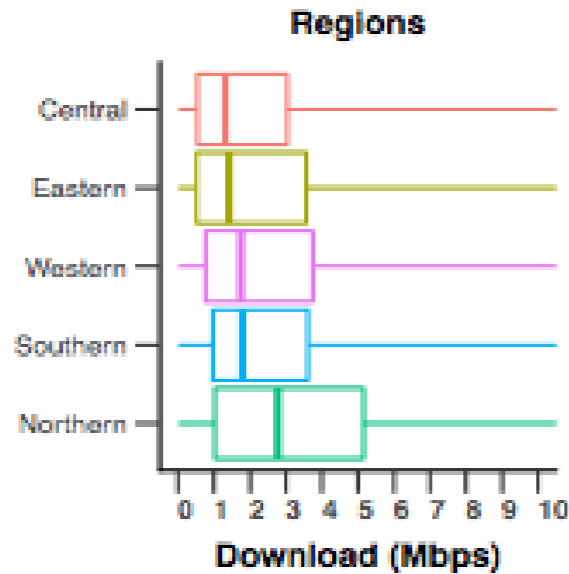
Quality of service

Download Speed in ZA vs Rest






Quality of service

Download Speeds 2014–2018



Competition, Ghana, Kenya and Nigeria

COMPETITION	COUNTRY-LEVEL INDICATOR	TRAFFIC LIGHT	COMPARISON AVERAGE	SOURCE
Market concentration (HHI)	3 495		4 087.66	GSMA
Number of mobile operators (excluding MVNOs)	4		5	GSMA
Market share of the largest operator	47.18%		50.69%	GSMA