



Is access to smartphones essential to bridge the digital divide?

Leveraging potential of agents and merchants to improve customer onboarding and customer experience and increased usage of services



Smartphones could be an important part of the puzzle ...

... but significant barriers to and challenges must be overcome if they are to realize their potential

- ▶ Usage of smartphones appears to increase household income and consumption ([Slide 3](#)).
- ▶ Both quality (relatively) cheap smartphones ([Slide 4](#)) and 3G+ coverage ([Slide 8](#)) are increasingly available in parts of our region.
- ▶ But the majority of households have very limited disposable income both to buy a smartphone, but in particular to purchase data ([Slide 5](#)).
- ▶ The prohibitive cost of data stops many using the internet/apps and those that do “sip” rather than “surf” ([Slide 7](#)).
- ▶ The result is a significant and persistent usage gap, even as the coverage gap reduces ([Slide 8](#)).
- ▶ Orality and lack of digital capability mean that icon- and IVR-driven interfaces will be essential to build self-initiated usage ([Slide 11](#)).
- ▶ But much of the shift to internet/app usage must be assisted and mentored by agents ([Slide 12](#)).
- ▶ Agents offer a range of real advantages but also a wide variety of risks/consumer protection concerns which will require attention ([Slide 13](#)).



Smart phones seem to increase HH consumption ...

... but rarely remain in the hands of women.

Roessler et al. undertook a large (n = 1,348) randomized control trial (RCT) in Tanzania in 2016-17 in which they randomly assigned:

1. basic handsets,
2. smartphones, and
3. cash placebo to women

and compared outcomes to a control condition in which subjects were placed on a waitlist for the phones to be received one year later.

Conditions 1. and 2. saw a 9-16% (\$12-20) increase in monthly consumption ... the main mechanisms through which the phones improve economic welfare involve mobile-money use and employment of the phones in small businesses.

BUT

31% of the basic phone group and 26% smartphone group did not own any phone at endline (after 13 months), reporting their project phone either lost, broken, stolen, or sold.

Moreover, many other women in the smartphone group had only basic phones at endline, having traded or sold their project smartphone ... only 34% of women in the smartphone group still had it.



Source: “[Mobile-Phone Ownership Increases Poor Women’s Household Consumption: A Field Experiment in Tanzania](#)” (2018) Philip Roessler, Flora Myamba, Peter Carroll, Cornel Jahari, Blandina Kilama, and Daniel L. Nielson

So could the foundation leverage PAYGO or similar for smartphones?

A range of options are in the East African market - and Safaricom's offer looks particularly attractive

Options	Description	Implications for East Africa
M-Kopa Partnerships	<ul style="list-style-type: none"> M-Kopa partnered with Safaricom and Samsung to launch a smartphone pay-as-you-go solution in Kenya The offering appears to have been successful and spurred the company's entrance into Nigeria 	<ul style="list-style-type: none"> 500K devices sold implies there is demand for the PAYG model and it could help drive up mobile ownership rates However, the devices cost double the original price under the payment plan - potentially raising ethical considerations about smartphone financing
Safaricom x Google	<ul style="list-style-type: none"> Safaricom partnered with Google to launch an affordable 4G-enabled smartphone that customers can pay for in installments The total cost of phone is 5,999 shillings (~\$55) is a fraction of what consumers would have had to pay to finance another smartphone with M-Kopa Down payment of (~\$9) followed by daily payments as little as 20 shillings a day (~\$0.18) for 9 months To qualify purchasers must: <ol style="list-style-type: none"> Must be using a 2G or 3G smartphone Must not be listed on CRB for pending loans Must have been a Safaricom customer for 1 year 	<ul style="list-style-type: none"> Safaricom is making an active push to transition users from 3G / 3G to 4G, but the impact of this on financial inclusion is unclear Partnerships with external technology providers, whether OEMs or platforms like Google, could significantly drive down the cost of mobile ownership \$9 and \$1 a weeks is not an inconsequential investment for many in East Africa (see next slides) 4 million+ Kenyans are already negatively listed on the credit bureaus (often for loans outstanding of <\$5)

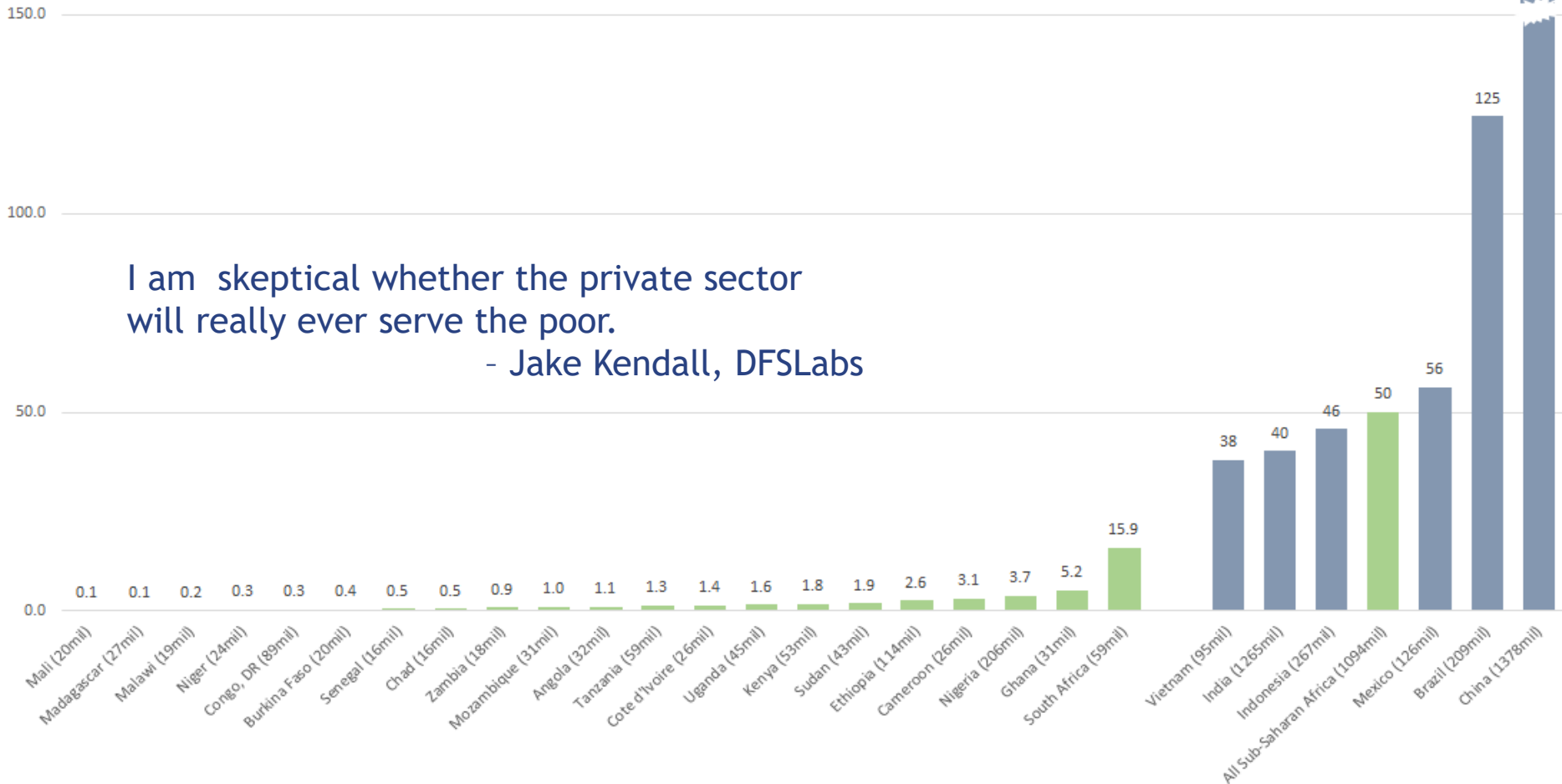
Easy purchase options can improve choices for women but should not distort household decision making e.g. many households will have very high opportunity cost of even USD 50 when there is inadequate regular supply of food.

Source: MSC analysis

Even the apparently modest costs could prove prohibitive

In our four countries just 7.3 million people (2.6% of the total population) live on >\$10/day

Number of people living on \$10 per day or more, in millions
(numbers in parentheses are total population)



I am skeptical whether the private sector will really ever serve the poor.
- Jake Kendall, DFS Labs

If we are going to change the lives of women and the poor, they HAVE to be connected digitally.

The MTN & Safaricom ARPU (Average Revenue Per User) is ~\$5/month

Top 20% of clients are over \$20 ARPU

The rest are under \$1. These people are not connected digitally.

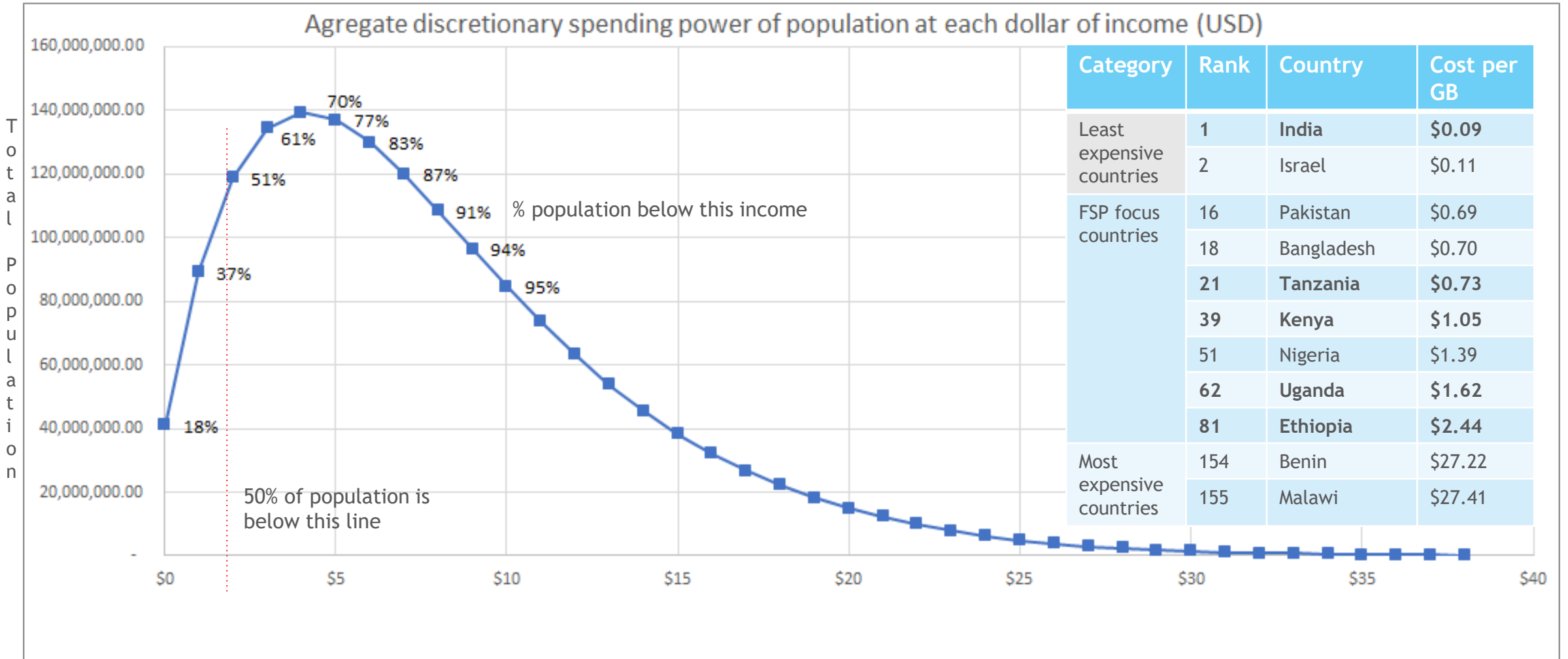
They use USSD ... and do not provide a market that can be addressed by fintechs.

- John Staley

Source: Jake Kendall/DFS Labs

50% of the population of Africa has almost no spending power

Down payments and the cost of data preclude the vast majority from smart phone ownership



Sources: [Jake Kendall/DFSLabs/](#) [Cable.co.uk](#)

— Discretionary spending

[See Appendix](#) for more detail on data costs in East Africa



Data is still prohibitively expensive (\$0.73-2.44/GB) in the region

For this reason “data dipping and sipping” is the most common behavior amongst those with smartphones


- Most users closely monitor their data consumption, displaying a “metered mindset” about data consumption.
- The vast majority of bundles purchased are quite small, <10MB or between 10 and 50 MB. Bundles were smaller amongst rural users.
- “Sipping and dipping” than “browsing or surfing,” limits discovery, reliability of contact, and deep engagement with digital resources.

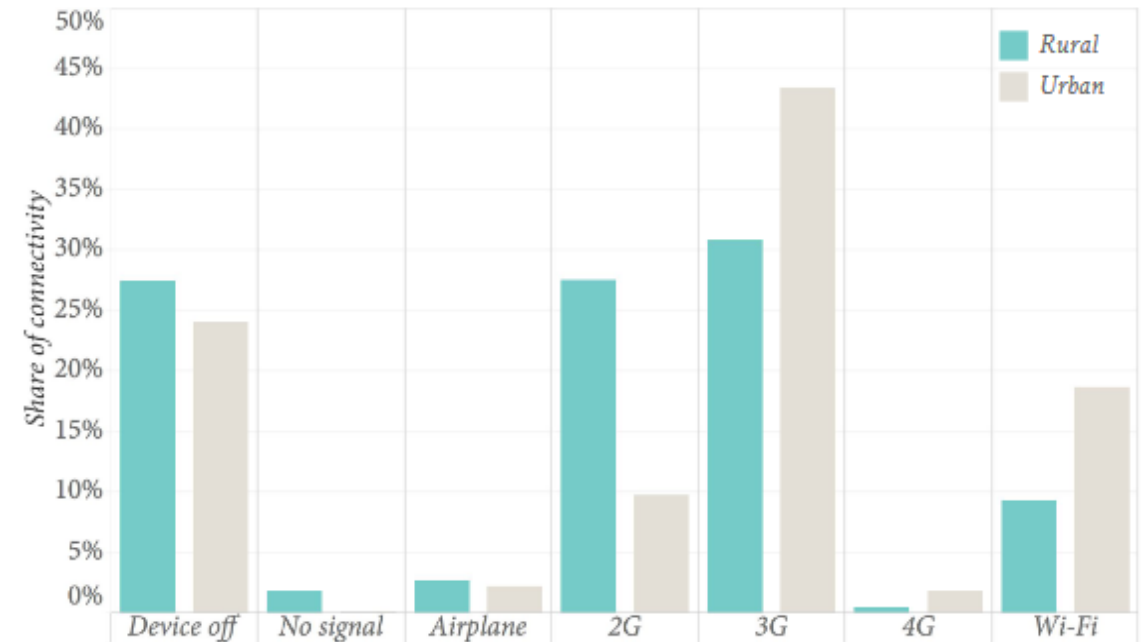
Share of data bundles purchased

Q3 2017, n=1,000  Caribou Data • insights built on privacy



Time spent connected to each network modality

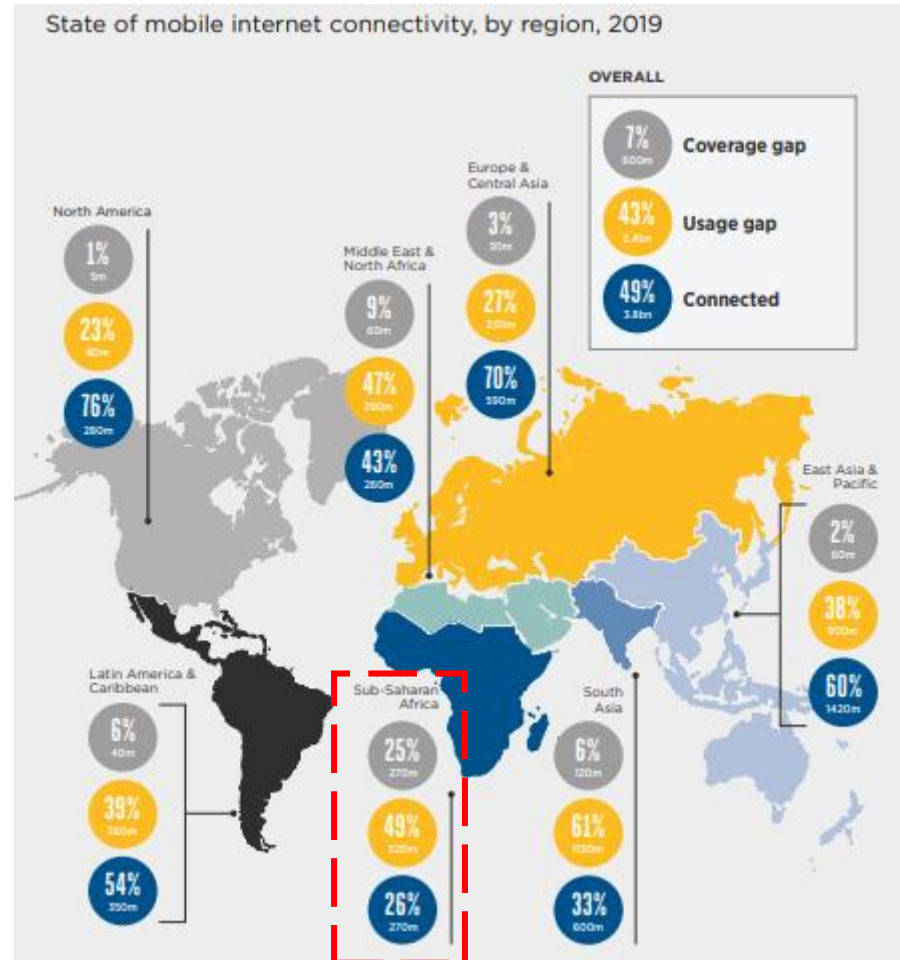
Q3 2017, n=1,000  Caribou Data • insights built on privacy



Source: Caribou Digital, [DFS Use Amongst Digital Kenyans](#)

Significant gaps in mobile data coverage (3G/4G/5G), particularly in rural areas, will continue to be a major constraint

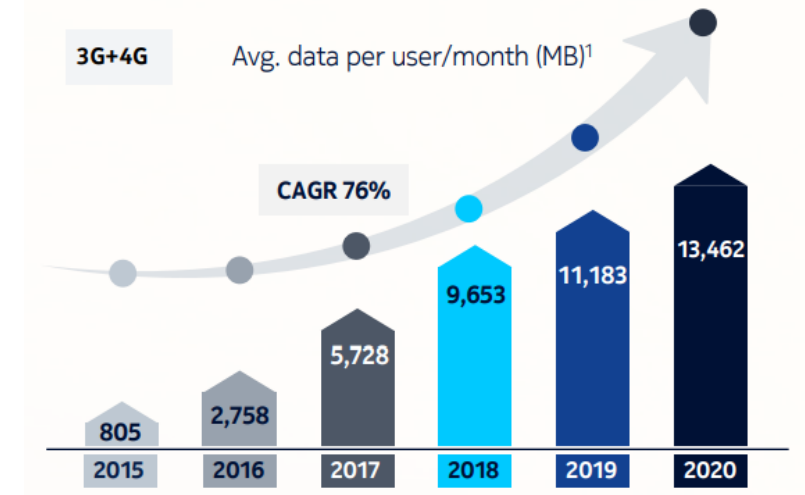
- Mobile internet connectivity gap in Sub-Saharan Africa is still very high.
- For example, the maximum 4G coverage in Uganda was at 9% in the central region as of March 2018. The coverage was as low as 1-2% in Northern and Western Uganda.
- Even in countries like India that have witnessed massive growth in access and usage of mobile data, the future growth is expected to be linked to investments and coverage of 5G kind of technologies



Uganda mobile network coverage as of March 2018

Coverage by region	Geographic coverage		
	2G	3G	4G
Central	78%	48%	9%
Eastern	84%	51%	4%
Northern	78%	31%	1%
Western	93%	55%	2%
Total	83%	44%	4%

Source: NITA-U

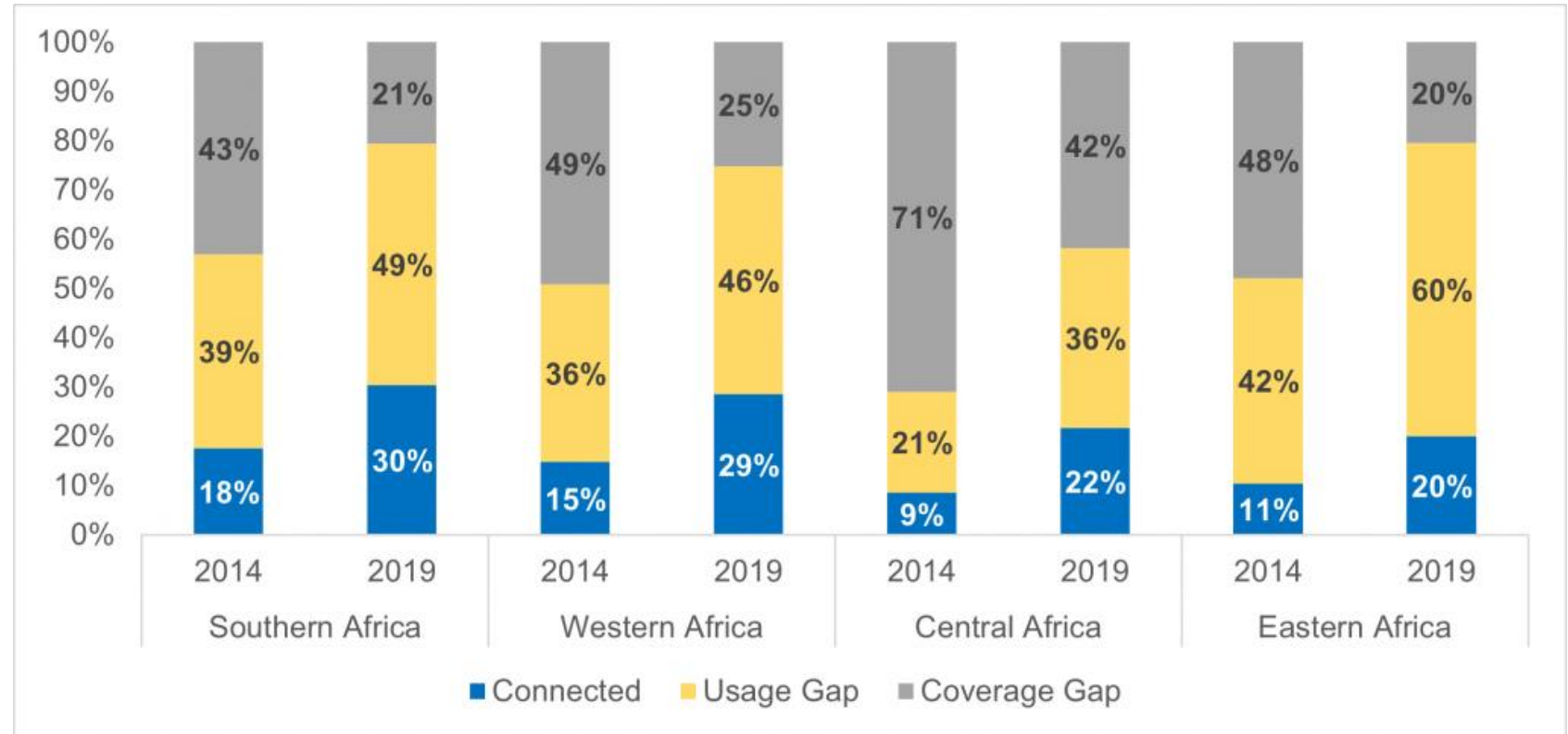


Sources: [GSMA Mobile Internet Penetration Report 2020](#); [GSMA Uganda Country Report](#); [Nokia India Report](#)

These behaviors are reflected in the 3+ usage gap

Access to and particularly usage of 3+ services in Africa remains limited

- The usage gap disproportionately affects the underserved, i.e. the rural population, women and those with low incomes.
- A large gender gap and rural-urban gap in mobile internet use persists in Sub-Saharan Africa, standing at 37% and 60% respectively.
- Biggest barrier to adoption is a lack of literacy and digital skills, followed by affordability and perceived relevance.
- Progress has been mostly driven by improvements in the affordability of handsets and extended 3G and 4G coverage, with related improvement in network performance.



Agent assistance must be a core part of any efforts to bridge the digital divide



This highlights the importance of agents providing assistance and counselling for internet/app-based transactions ... to build users' confidence and capability

Source: [Mobile connectivity in Sub-Saharan Africa: 4G and 3G connections overtake 2G for the first time](#)

Relatively high levels of functional illiteracy and innumeracy

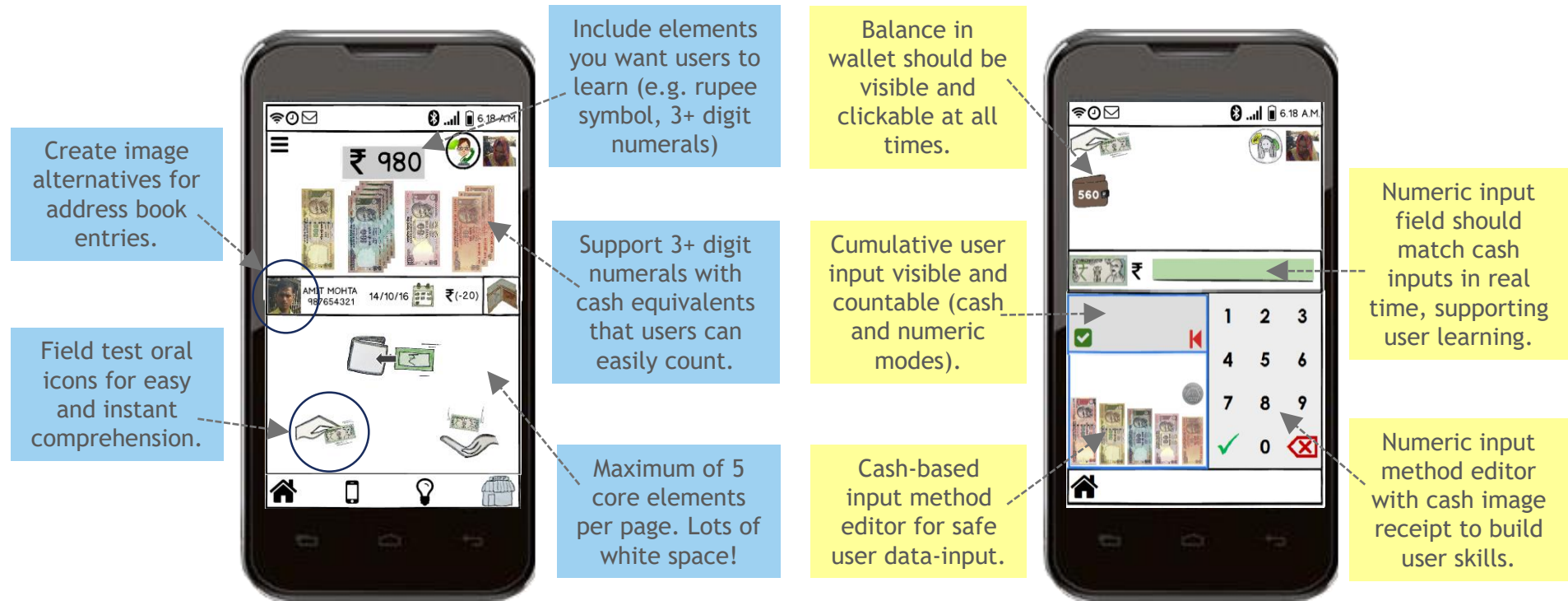
Oral people and many others will need agent assistance and tailored interfaces (icons and IVR)

Nominal literacy rates

	Adults 15+
Ethiopia	52% (2017)
Kenya	82% (2018)
Tanzania	78% (2015)
Uganda	77% (2018)

The underlying assumption that those that pass Standard V are literate and numerate is fundamentally flawed - and thus these estimates significantly understate the size of the problem - perhaps by as much as 100%. (For example: FinScope Tanzania 2017 noted that only 71% can add, 59% can subtract, 40% can multiply and 46% can divide)

Vernacular is typically better understood than English - but vernacular interfaces are limited in number and scope



Source: [Digital Wallet Adoption for the Oral Segment in India: Concept Development for MoWo \(Mobile Wallet for Oral\)](#)

Add voice facility for oral segment

Adding voice facility in the application for the oral users, will make them understand written information, by just clicking a button placed against the particular field

Longer term IVR and NLP-based applications (think Siri/Alexa) may hold the key

However these are not widely available - and even less so in vernacular languages

Agent assistance could be the game changer ...

For years we worried about OTC increasing risk and destroying provider's business case - we need to see it as an on-boarding service, an on-ramp for the excluded and poorly served (Segments 1 and 2)

➤ InterMedia research in 2014 in Kenya and Uganda showed that nearly a decade after the introduction of mobile money 57% per cent of registered users in Uganda, and 54% of registered users in Kenya reported they preferred to “use OTC via an agent”.

➤ Agents can provide:

- Assistance to those who are oral or simply lack confidence
- Guidance on what apps, product and services to use
- Brief/focused use of data-enabled services, thus reducing the cost involved

➤ **Sales agents** - located in towns with higher footfall and easier access to bank branches allowing them to provide a range of 3G+ services, manage higher value transactions and sale of sophisticated products.

➤ Ultimately they should evolve into **universal agents**.

➤ **Basic service/transaction agents** - conduct/assist with basic CICO transactions (even with 2G)

See: [A Strategic Approach for Next-Generation DFS Agent Networks](#) and [The Agent Profitability Conundrum in India - Time for Differentiated Agents?](#)

Universal Agents

Product Innovation & Delivery

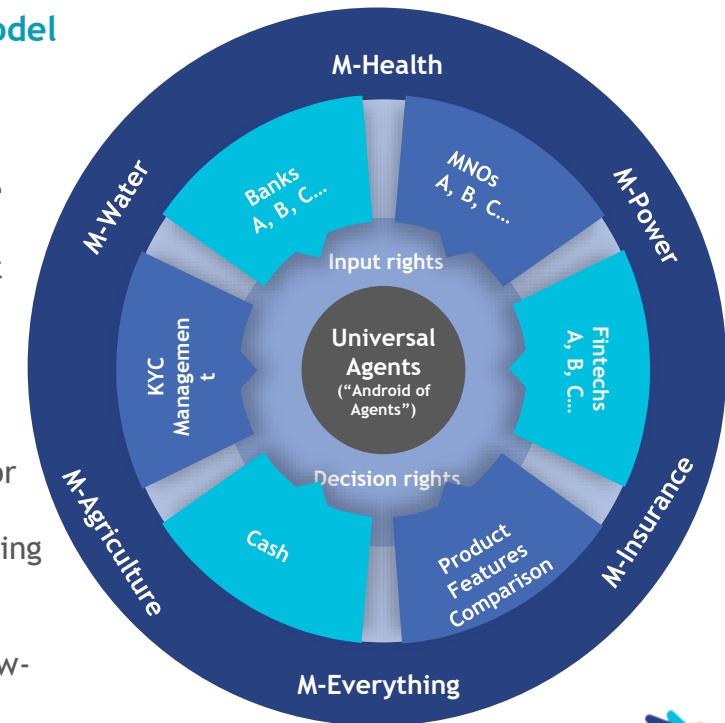
- ▶ Customer-centric, innovative solutions delivered by the agents
- ▶ Convergence of services such as M-Agri, M-Health, M-Insurance, M-Water, M-Power, and M-Everything
- ▶ Demand aggregation and packetization at the agent's point

Interoperable Operating Model

- ▶ A unified and interoperable platform
- ▶ Shared agents
- ▶ Unified e-currency to enable relevant product(s) delivery
- ▶ Un-bundling expensive agent networks
- ▶ Data sharing analytics

Leading to ..

Increase in value proposition for youth operating as agents for digital financial services providing last mile connectivity and delivering an amalgamation of products and services to the low-income populations.



Agents offer real advantages but customer protection is key

Agents as providers of services to the community must also be well trained and monitored

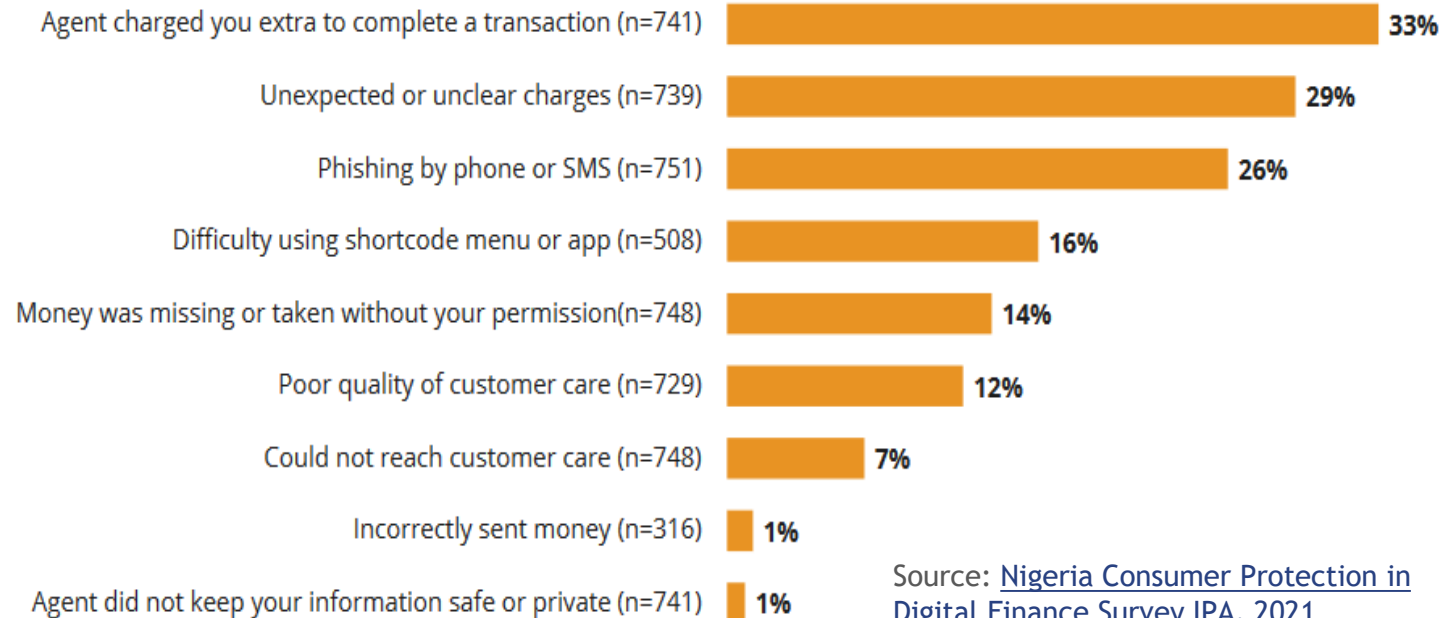
Agents allow for:

- Shared hardware resources and maintenance
- Guided and assisted internet-“dipping” on demand without having to buy data slabs
- Community assistance and learning to prepare the next generation of smartphone users

But agents amplify and spread risk

- The issues found in Nigeria in 2021 (see graph on right) almost exactly reflect those found in Uganda by [MSC and CGAP in 2015](#)
- These undermine trust and thus uptake and usage of DFS.

Which challenges we are most common for customers in Nigeria?



Source: [Nigeria Consumer Protection in Digital Finance Survey IPA, 2021](#)

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Note: sample sizes vary because respondents were asked only about challenges that applied to them based on their DFS usage. For example, a consumer who uses only OTC services would not be asked about incorrectly sending money.



“It is in the interest of providers to work diligently on these customer service/ protection issues to increase trust, and thus uptake and usage, as well as to create the foundations to allow them to move beyond basic payments.” - [MSC 2015](#)



Is access to smartphones essential to bridge the digital divide?

Annexures



Before low-end and secondhand smartphones are of limited use ...

.. but [Safaricom's Neon Ray Pro phones](#) seem to be relatively better than many models

Low-end smartphones leave much to be desired ...

[Mozilla report \(2017\)](#) highlighted that low-end smartphones have:

- limited RAM, [which prohibits running many fintech apps](#).
- hopelessly short battery lives,
- screens that shatter easily, and
- a persistent problem with '[fat finger error](#)' that makes them almost unusable.



Furthermore, in MSC's fieldwork, we have seen some men in Africa proudly carrying prestigious smartphones but using them only to make or receive calls and SMSs.

... and secondhand phones come with many additional problems:

“Women told us they sometimes buy two or three batteries over a year and, like buying mobile phone credit/airtime, replacing a handset's battery is an expected cost of owning a phone—an expense that represents a significant portion of rural women's incomes.

..we consistently observed a reluctance among women to use their mobile devices for any length of time because of their desire to “preserve the charge” of their batteries.”

“... although the women in our study benefited from having mobile phones, their effects on women's daily lives were not transformative, and persistent challenges (e.g., access to education, labor demands) remain.

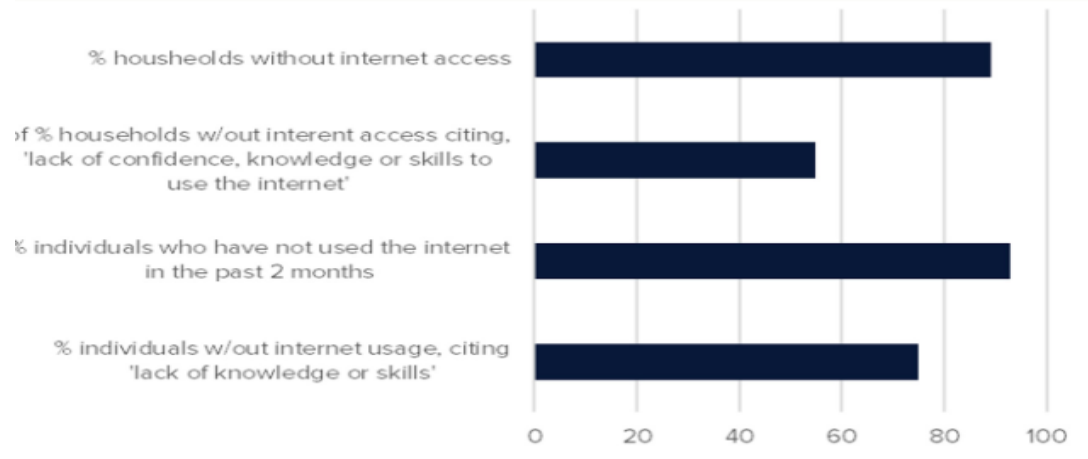
Technological interventions used to facilitate rural access to the mobile Internet (e.g., drones, balloons, durable modems) may have little actual impact if the constraints we identified are overlooked.”

- [“Kenyan Women's Rural Realities, Mobile Internet Access, and “Africa Rising””](#) (2016) by Susan Wyche and Jennifer Olson”

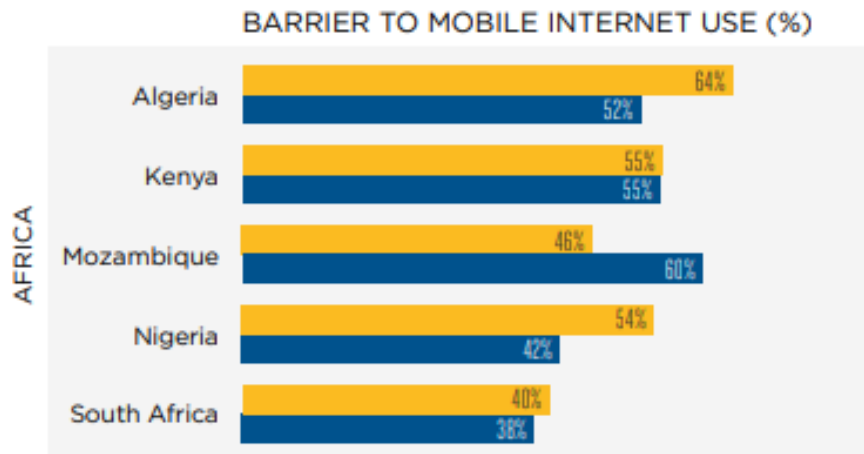
Evidence from the World Bank highlights limited access and usage

The issues seen in Kenya by Wyche and Olson (see previous slide) are reflected in Uganda

Figure 3-1: Reasons Why Households and Individuals Do Not Use Internet



- Access is limited - for want of:
 - ✓ Signal
 - ✓ Phone or
 - ✓ Data
- But interest in and/or willingness to use the internet is limited by:
 - ✓ Cost of data
 - ✓ Lack of confidence
 - ✓ Lack of skills

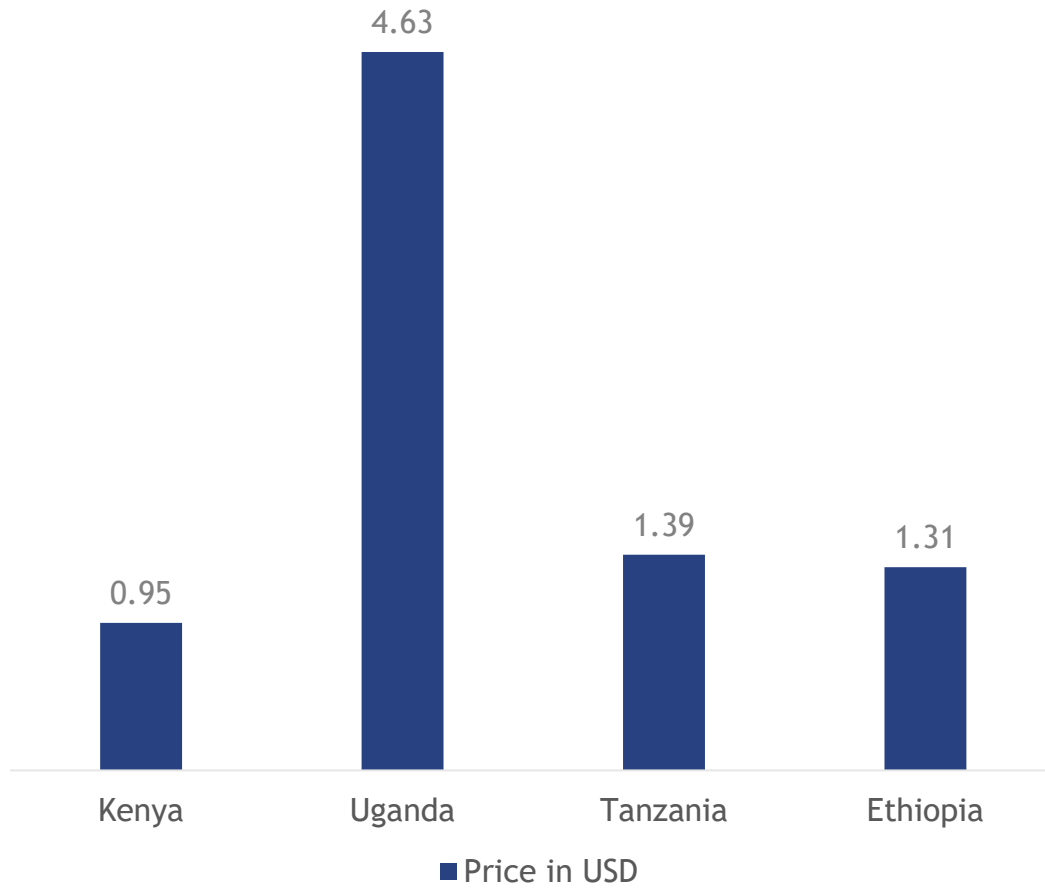


Sources: [World Bank's Digital Economy for Africa \(DE4A\) Initiative - Uganda assessment \(2020\)](#); [GSMA State of Mobile Connectivity Report, 2020](#)

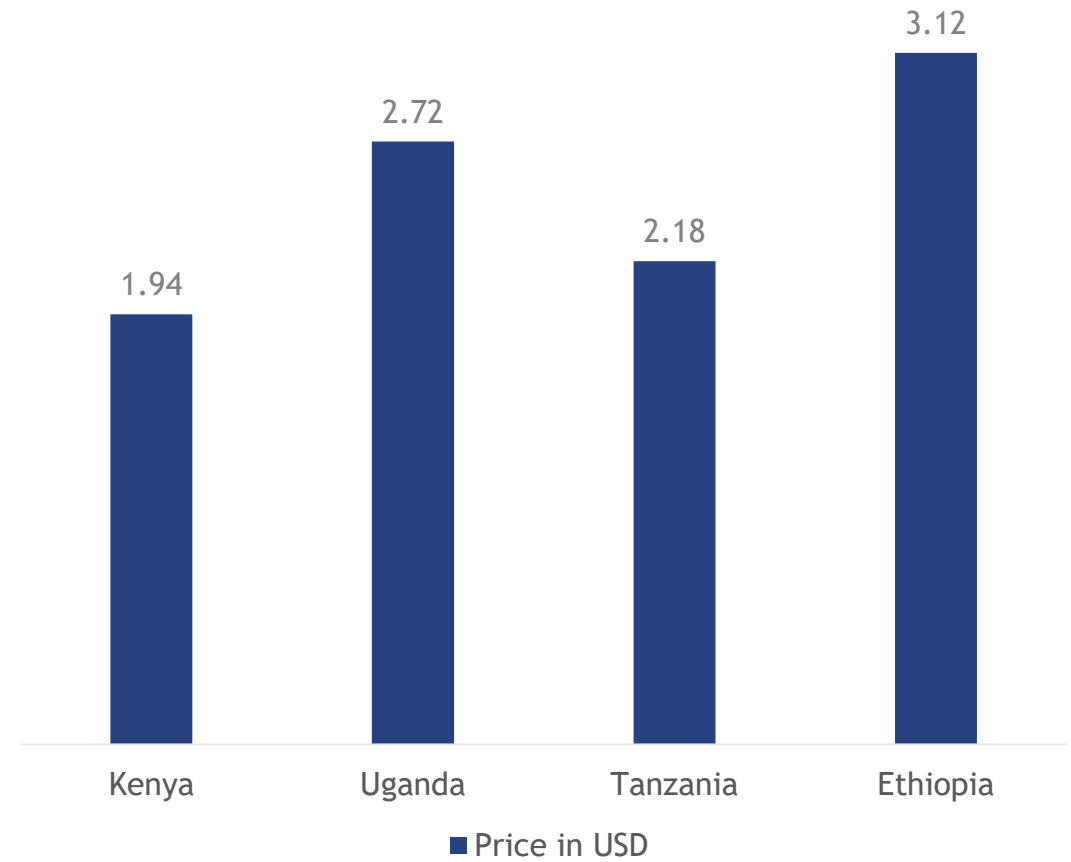


Voice, data, and value for money for mobile usage by low-income populations

Voice/SMS bundle (cheapest package in the country) (30 calls/100 SMS) in USD



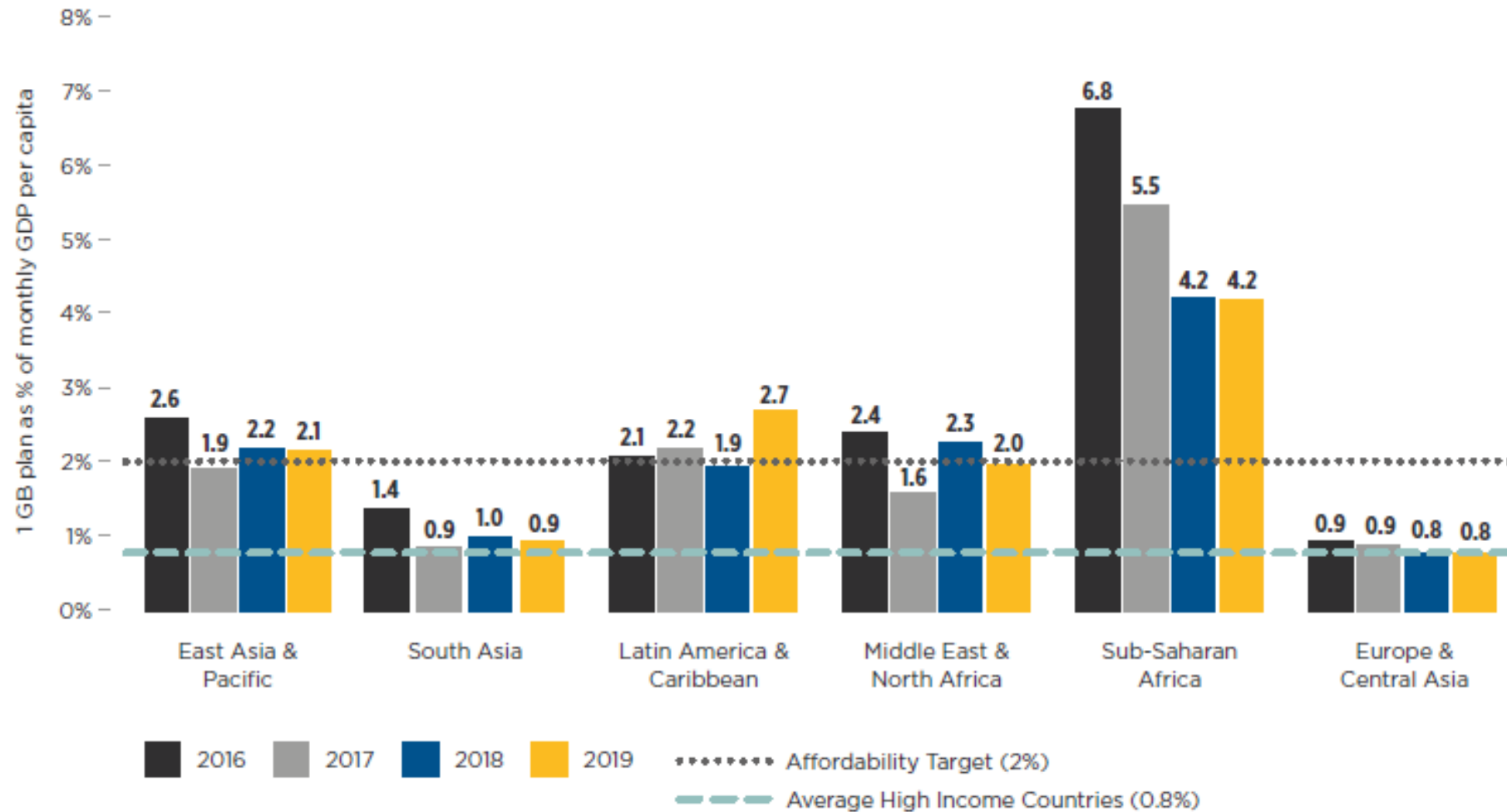
1GB bundle (cheapest prepaid broadband product by country) (in USD) in USD



Source: [RAMP Index](#)

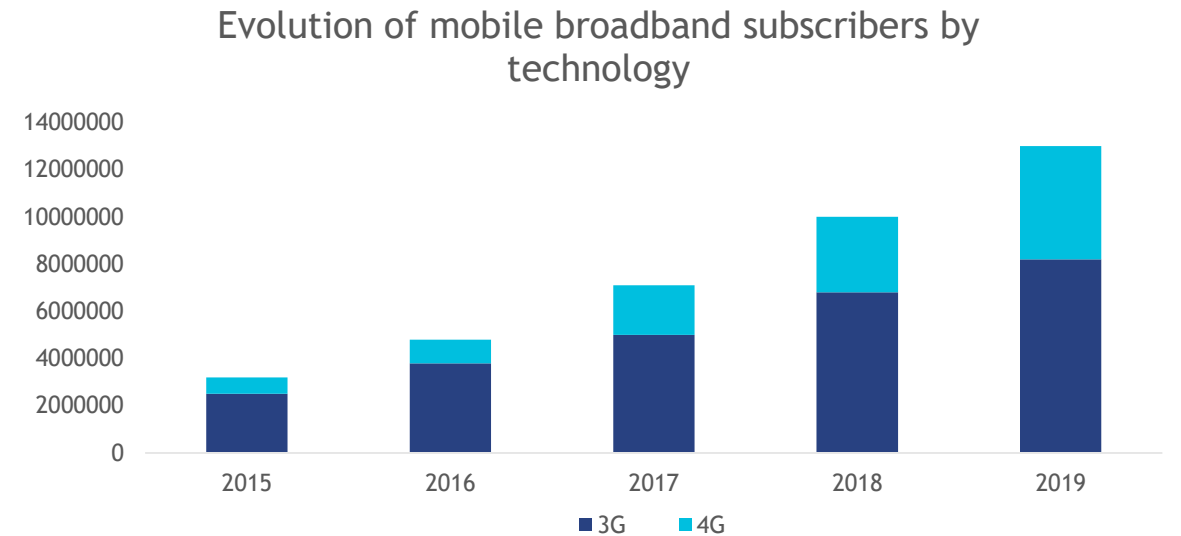
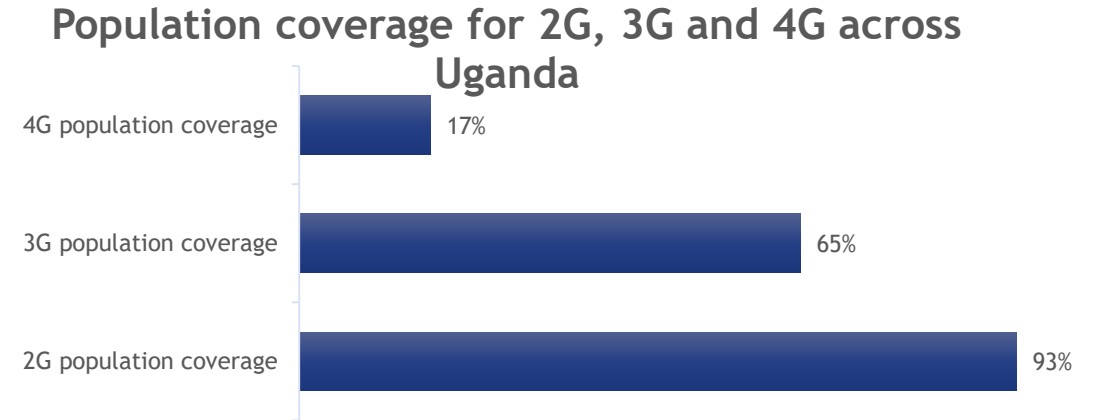
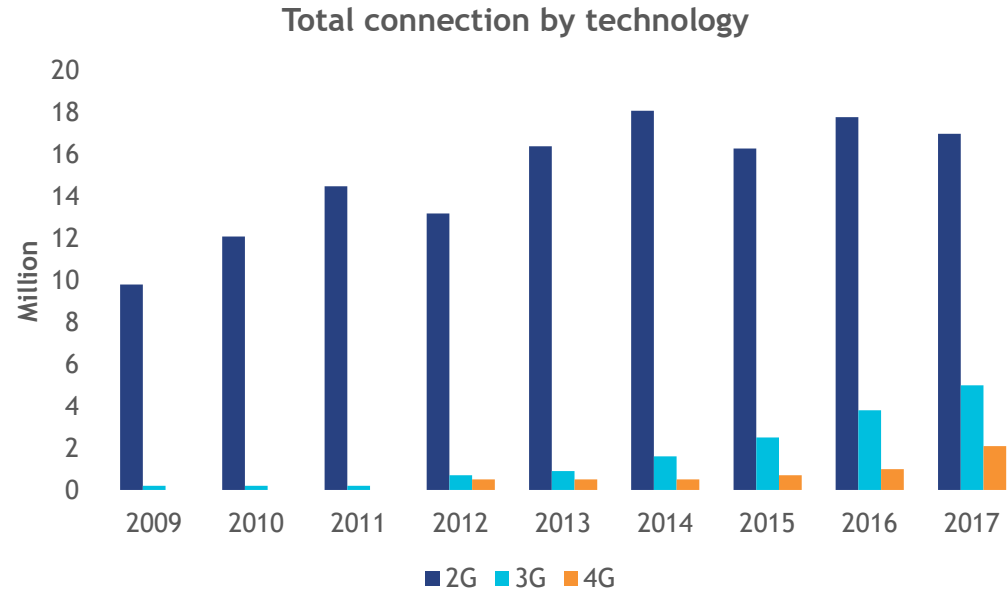
Annexures

Affordability of 1 GB of data in LMICs, by region, 2016–2019



Annexures

Mobile network coverage by population and technology



Sources: GSMA, 2019; World Bank

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