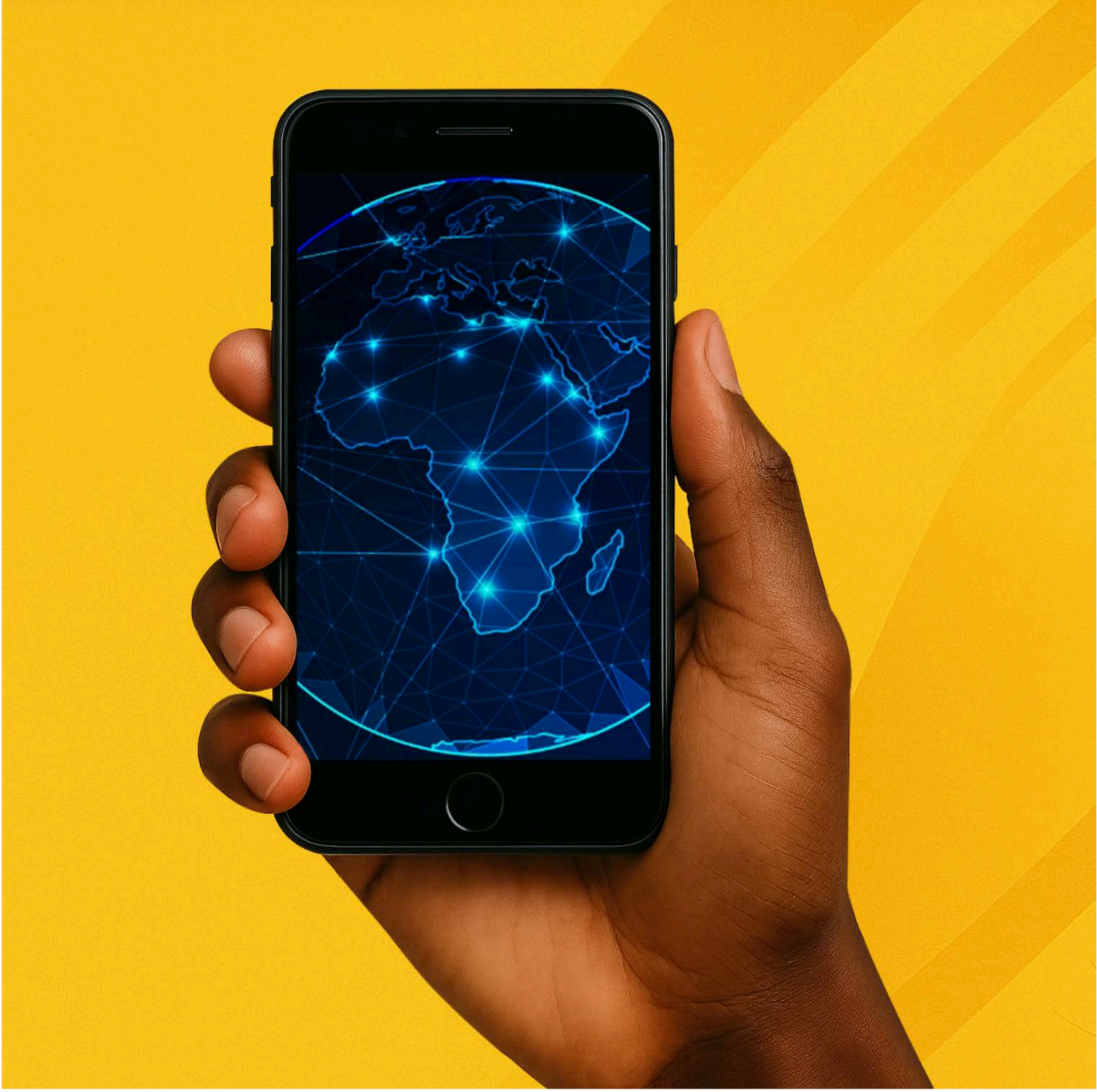

A Concept Note

Africa's Smartphone Divide: Insights from 10 Countries

April 2025

Executive Summary

Most Africans live under a 3G or 4G signal, yet nearly 700 million remain offline. Cost, trust, skills and social norms, not coverage are the real barriers. Drawing on household surveys, stakeholder interviews and multi-sector workshops held in late 2024 and April 2025, this report unpacks how those barriers interlock and what it will take to unlock both access and local manufacturing.

What keeps people offline?

- Cost is more than a sticker price; interest rates, charging fees and short-lived data bundles double the real out-of-pocket spend.
- Women are disproportionately affected, being 32% less likely than men to use mobile internet and 19% less likely to own a phone.
- Sharing is the default. Roughly one in seven users depends on a handset they don't own
- Supply and Demand: Low demand results in assembly volumes that fall below the break-even point.

Road-map in three moves

- Design an Africa-specific low cost handset with long-life battery, multi-user profiles, women-centred safety defaults.
- Bundle for value: zero-rated WhatsApp, micro-insurance and staged payments to push effective cost below today's feature-phone spend.
- Pilot regional manufacturing under AfCFTA, aiming for a five-million-unit annual run, the scale where local assembly pays.

Smartphones are Africa's gateway to the digital economy. This report shows what still keeps that gate locked and lays out a practical plan to swing it open for everyone.

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Africa's Smartphone Divide

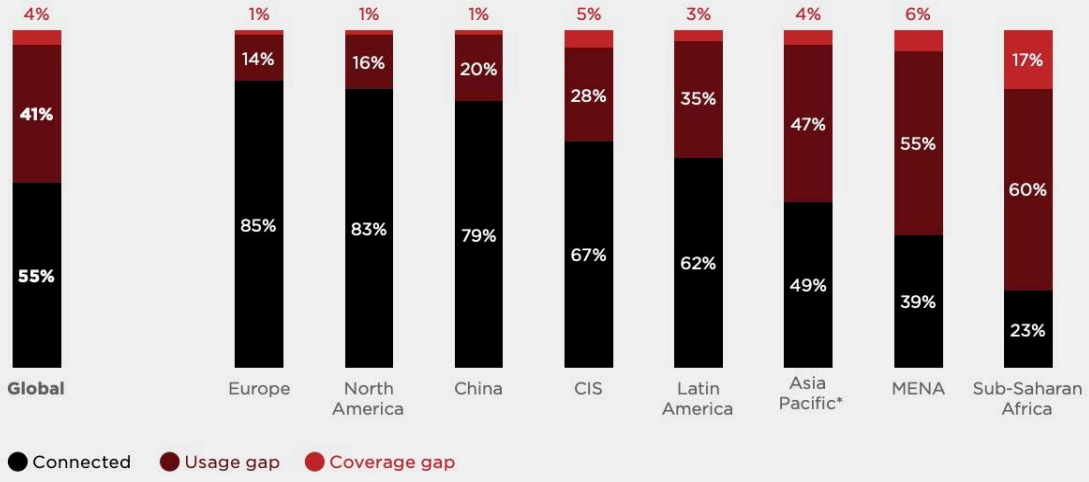
Insights from 10 Countries

Smartphones are the gateway to financial services, education, and civic engagement worldwide[1]. Yet in much of Africa they remain out of reach for many. Smartphone adoption rate stands at around 51%, lagging well behind the global average of 75% (GSMA[2]). Notably, roughly 80% of Africans live within range of a mobile broadband network, but fewer than 30% actually use mobile internet (GSMA[3]). An estimated 680–710 million people are covered by 3G/4G signals but remain offline. This "usage gap" underscores that connectivity is not just about signal coverage or device cost. It surfaces deeper issues of affordability, skills, trust, and relevance are at play.

Figure 2

Mobile internet penetration, 2022

Percentage of population



*Excludes Greater China
Source: GSMA Intelligence

[Visual: GSMA data map highlighting mobile penetration gaps across Africa.]

A theory of interdependence emerges: affordability is mediated by trust in financing models; digital literacy is diminished without relevant content; coverage loses meaning in the absence of electricity and device upkeep; and cultural norms shape how, when, and even if people use smartphones 4. These challenges do not operate in silos – they compound and reinforce each other. Smartphone adoption is not constrained by cost alone; it is shaped by the interwoven dynamics of cost, context, and confidence in the digital ecosystem.

[1] Platform Livelihoods work
[2] https://www.gsma.com/mobileeconomy/wp-content/uploads/2021/09/GSMA_ME_SSA_2021_English_Web_Singles.pdf
[3] https://www.gsma.com/r/wp-content/uploads/2024/10/The-State-of-Mobile-Internet-Connectivity-Report-2024.pdf

This report draws on extensive research and real-world narratives across ten African countries – Kenya, Nigeria, South Africa, Uganda, Rwanda, Zambia, Ethiopia, Senegal, Egypt, and Togo 5. We combined national surveys, roundtables, stakeholder interviews, and case studies. While comprehensive, our approach has gaps: for instance, informal phone sharing and cultural nuances are hard to quantify, and gender-disaggregated data remains limited in some areas. We acknowledge these limitations even as we weave together quantitative indicators and personal stories to illustrate the complex system of barriers and opportunities. Importantly, a strong gender lens is needed throughout.

Preliminary findings were presented at the Smartphone for Africa Summit (Nov 2024) and at two multi-stakeholder workshops on 25 March and 2 April 2025; feedback from government, MNOs and OEMs was incorporated. The final report will be circulated to the same public- and private-sector partners for formal alignment and sign-off in Q3 2025.

Across Sub-Saharan Africa, women are 32% less likely than men to own smartphones or use mobile internet GSMA findings 6 7 . This gender digital divide stems from several barriers: fewer resources, lower digital literacy, and restrictive social norms. We also must recognize the widespread practice of phone sharing (paper is in print, need to find a good way to tag this). Phone sharing is an informal adaptation where many access mobile services without owning a device; this blurs the lines of who is "connected" and challenges conventional metrics of access. These cross-cutting themes of gender inequity and shared use will be highlighted alongside the core barriers of affordability, infrastructure, literacy, and trust.

In the subsequent sections, we first put a human face on the digital divide through individual stories, revealing how these issues manifest in daily life. We then examine the crosscutting barriers that keep hundreds of millions offline, and explore how communities and stakeholders are innovating to turn these challenges into opportunities for change. Finally, we outline a roadmap of strategic interventions to catalyze progress, and consider emerging trends that could shape Africa's digital future. The goal is to inspire bolder, more coherent action from public policymakers, telecom actors, hardware manufacturers.

The Stories Behind Africa's Smartphone Gap

Across Africa, many women and men navigate daily hurdles to access and use smartphones, revealing both struggles and ingenuity. Their stories bring to life the statistics and systemic issues.

1. Esther in Kenya

In the uptown market of Nakuru, 28-year-old Esther, a clothes seller, views her smartphone as more than a gadget, it's her point-of-sale system, marketing outlet, and link to suppliers. Owning the device cost her a small fortune. She financed a mid-range phone through a local asset lender, and every month she agonizes over repayments and data bundle costs that cut into her earnings. *"I have ten months to go,"* she says warily of her installment plan, having heard rumors of hidden fees and threats of phones being locked or taken away despite repayment. Her skepticism isn't unfounded many share a "trust gap" with formal financing after experiences with opaque contracts leading to repossessed assets[4]. We heard similar stories in Rwanda and Zambia.

Still, Esther perseveres. With no laptop or landline, the smartphone is her lifeline to the digital economy. As a young woman entrepreneur, she also faces subtle cultural expectations, for instance, she shoulders all childcare and household duties after work, leaving little time to learn new apps. She persists, determined to expand her business via Instagram and WhatsApp. Her story reflects a broader reality. In Kenya, owning a smartphone is practically essential for small businesses, but high device costs and expensive data make it a constant struggle. For women like Esther, those challenges are often magnified by social norms. If her business falters, some in her community might blame her "wasting time on the phone" rather than lack of capital or unreliable internet.

2. Jean in Rwanda

Hundreds of miles away, in Nyagatare, a town in Northern Rwanda, 50-year-old Jean listens intently to his battery-powered radio at dawn. A respected farmer in his village, Jean actually owns a smartphone (acquired through a government program), but it mostly sits idle in a drawer. With limited reading skills and training on smartphone apps, he finds the radio far more useful for weather reports and crop prices. In fact, 76% of farmers in Nigeria for instance, rely on FM radio for agricultural information[5], yet only 23% own smartphones. Jean's phone ends up functioning as an expensive flashlight and occasional camera. *"We no longer have agricultural extension officers; radio plays that key role. Our phones are essential mainly for calling, SMS, and radio*," he explains. The promised farming apps in Kinyarwanda are nowhere to be found, and without digital literacy support, the device's potential remains locked.

Jean's caution mirrors that of many rural Africans who see little practical value in smartphones that don't speak to their immediate needs. His children, however, eye the device with curiosity; for them it holds the allure of connecting to the outside world through Facebook and YouTube – if only they had

[4] https://techcabal.com/2025/05/16/bnpl-startups-debt-crisis-kenya/

[5] Nexus among indigenous languages, agricultural radio programmes and behavioural change towards agricultural practices in Nigeria https://pmc.ncbi.nlm.nih.gov/articles/PMC11268189/

steady electricity and could afford data cards. In Jean's household, as in many others, the smartphone's value is negotiated among generations and genders: his children are eager to go online for school resources, while Jean worries about costs and content, and his wife views the phone as a luxury when basic needs aren't met. This generates tension highlights how digital uptake can stall without local-language content and reliable infrastructure.

3. Jacob in Zambia

In a small town in Zambia's Eastern province, 30-year-old Jacob runs a tiny "cyber café" in his town. A digital pioneer in his area, Jacob also teaches basic computer skills to local youth. Yet, even he struggles with instability that hinders smartphone use. The only smartphone he owns is a used model with a weak battery. Frequent power outages force him to ration device charging, and he sometimes travels 50 kilometers to the provincial capital just to a reliable repair shop. When the power is out or the network is down business grinds to a halt. "*Having 4G coverage is one thing, but if my phone dies or the network is down, we're back to square one*," he laments. Jacob's initiative demonstrates grassroots resilience: with collective effort, his village squeezes whatever benefit it can from limited connectivity. But his experience also underscores an unfortunate truth, coverage on paper doesn't equal access in practice. Without consistent electricity and network quality, owning a smartphone is like owning a car with no fuel.

4. Thandi in South Africa

In an informal settlement on the outskirts of Johannesburg, 19-year-old Thandi waits her turn to use her family's single smartphone 13. In this multi-generational household of five, one device serves as a portal for all. Her mother checks government services on it and sometimes searches for jobs. Thandi does school research and chats with friends, and her younger brother plays games. This communal phone-sharing culture is common in South Africa's townships, even as the country's overall smartphone penetration is relatively high. The shared phone cycles through 3–5 users daily for tasks like mobile banking and job applications.

But sharing has its frictions, personal messages are never truly private, and older family members sometimes fear younger ones might "misuse" data or money. The device's cheap hardware wears out quickly under constant use. As one community youth in Soweto noted, "*Families need devices designed for sharing, dual SIMs, app lockers, a fixed place in the home, and easily repairable screens. Current financing models punish the poor with interest rates as high as 25%.*" The practice of sharing shows resilience and ingenuity, but it also highlights that most smartphones on the market aren't built for such heavy, collective use.

Together, these stories paint a layered picture of demand-side realities. Even when affordability is addressed, factors like digital literacy, infrastructure reliability, trust in financial mechanisms, and cultural norms profoundly shape usage. Women in particular often navigate additional barriers, from social expectations around phone use to male gatekeepers controlling finances. This means their digital agency is decreased even if a device is present[6].

[6]Mobile Gap GSMA https://www.gsma.com/r/wp-content/uploads/2025/06/The-Mobile-Gender-Gap-Report-2025.pdf

Every statistic about millions offline includes individuals like Esther, Jean, Jacob, or Thandi, each with hopes that could be unlocked or frustrations that could be eased with the right support. Grounding our understanding in these human narratives is key to crafting solutions that meet people where they are. In the next section, we examine the interlocking barriers that keep so many Africans offline, and then explore how communities and stakeholders are turning these challenges into opportunities for change.

Interlocking Barriers Across Countries

Despite differences among the ten countries studied, several common systemic barriers emerged. These barriers are interdependent and often reinforce each other, creating a complex challenge that no single intervention can solve. We surfaced five major categories that define the digital divide: affordability, infrastructure, digital literacy, cultural norms and phone sharing. Closing the gap can only be fully achieved when these barriers are addressing as a whole rather than in isolation. Dropping device prices, for instance, won't close the gap if the others, like network quality, skills, or trust, remain unaddressed. This calls for addressing solutions in parallel. Below, we dissect each barrier, while keeping in mind their overlaps and mutual influences.

1. Affordability and Financing : The Cost Barrier & How to Finance It

For most low-income Africans, the upfront cost of a smartphone is prohibitive. The price of even the cheapest internet-enabled handset, may or may not commence with a basic data plan, can consume a huge share of monthly income. In Rwanda, Ethiopia, and Uganda, an entry-level Android phone can cost up to 60% of a low-earner's monthly income[7]. In countries like Egypt[8] and South Africa, where average incomes are higher, adoption levels approach universal (over 70% of adults use the internet). But in poorer nations like Ethiopia or Togo, smartphone penetration remains below 25% of the population largely due to cost barriers (around ~19% in Ethiopia[9] and ~38% in Togo as of 2024). Income inequality within countries means even in middle-income economies, millions are left behind by high device prices.

One strategy to tackle high device costs has been device financing, spreading payment through installments or credit. Financing models differ by country. Pay-as-you-go schemes allow users to put down a small deposit and then pay in tiny daily increments (as little as $0.15 per day). Examples of the include Kenya's Lipa Mdogo Mdogo[10], Rwanda's Macye Macye[11], Uganda's Mpola Mpola[12] and South Africa's Easy2Own[13]. The phone is locked to a mobile operator, and set to auto-disable on days payment isn't made, serving as a nudge rather than an outright seizure. This model has enabled

[7]Alliance for Affordable Internet (2022). 2022 prices and affordability of smartphones and feature phones by country [database]. Retrieved from https://a4ai.org/research/device-pricing-2022/
[8] https://datareportal.com/reports/digital-2024-egypt#:~:text=Insights%20datareportal,analysis%20indicates%20that%20internet
[9] Digital 2024: Ethiopia — DataReportal – Global Digital Insights
[10] https://www.safaricom.co.ke/personal/value-added-services/other-services/lipa-mdogo-mdogo
[11] https://www.mtn.co.rw/macye-macye/
[12] https://www.mtn.co.ug/helppersonal/mtn-pay-mpola-mpola/
[13]Easy to Own by Vodacom https://www.vodacom.co.za/vodacom/shopping/easy2own

many to acquire a smartphone who could never have afforded a lump sum purchase. In Nigeria, by contrast, financing has often meant more traditional micro-loans that require formal collateral, effectively excluding the vast informal workforce. A financing executive observed, "*Many are locked out of smartphone ownership due to rigid financing structures and scoring algorithms that unfortunately favor men. There is need innovative pay-as-you-go models that are transparent and consumer- friendly.*"

But when financing is available, it often comes with a high cost. Interest rates on smartphone payment plans can reach 20–25%, which punishes low income buyers (See Table 1 for comparison). In extreme cases, our research found that financing can increase the total cost of a device by up to 200% in extreme cases. This penalty underscores why many, like Esther in Kenya, prefer to seek second-hand phones or delay upgrading rather than enter unfavorable plans[14]. As Angela Wamola, head of Sub-Saharan Africa at GSMA, noted during the Smartphone for Africa Sumit in November, *"Affordability alone isn't enough to drive adoption if people fear the terms of purchase or the ongoing costs."* Without trust in the financing process, even the best intentions stall. Access to devices isn't only about price. It's about fair terms that don't punish the poor for being poor.

[Table 1: Compares the total cost of purchasing a smartphone outright versus through a pay-as-you-go plan. Financing options can increase the price by up to 200%. (Courtesy of Mkopa and Jumia)

The cost of mobile data is the other side of affordability. Across the ten countries, data prices have been declining in the past few years, but not fast enough relative to incomes. A 2 GB data bundle costs 3.9% of average monthly income above the affordability benchmark[15]. For many families, a monthly data package is seen as a non-essential luxury that competes with food, school fees, and transport in the household budget. Data bundles often expire quickly (daily or weekly packages are common for prepaid mobile users), which discourages people from using bandwidth consuming apps or from using mobile internet at all once the bundle is depleted.

Taxes and pricing structures play a role in shaping affordability, both for for data and devices. In many countries, consumers face import duties, excise taxes, VAT, and regulatory fees layered onto

[14] https://freedomhouse.org/country/nigeria/freedom-net/2023#:~:text=Nigeria%3A%20Freedom%20on%20the%20Net,to%20the%20Nigerian%20Communications

[15] https://www.itu.int/hub/publication/d-ind-sddt_afr-2025/

both mobile data and handset prices, pushing total costs well beyond the reach of low-income users[16]. For example, in 2018 in Uganda, a daily "social media tax" of about $0.05 was introduced to access apps like WhatsApp, Facebook, and Twitter. Within just three months, internet penetration decreased from 47% to 35, leading to a loss of around 5 million users[17]. Even though the tax was eventually repealed after widespread public outcry, it's effects lingers. This remains cautionary tale that even modest levies can dramatically reduce digital participation[18]. Similar dynamics play out with handset affordability, where taxes make up 21% of the cost of an imported smartphone and 17% on the cost of a 1GB data bundle[19].

Recognizing the affordability challenge, some governments are revisiting mobile-sector taxes. DRC ($7 on smartphones) and South Africa (luxury tax[20]) have removed taxation on smartphones. While other countries have increased or introduced new taxes. Rwanda for instance, has reinstated an 18% VAT on handsets[21][22], while Kenya's mobile usage taxes have climbed to 36%, with a recent excise duty hike linked to falling data use and lower-than-expected tax revenue. These cases show how tax policy can either support or stall digital inclusion.

Some telecom operators are experimenting with *bundling* to make the ongoing cost of data more manageable. "Device + data" bundles allow a user to pay one monthly fee that covers both a smartphone (often on lease) and a set amount of data. This packaging can simplify the budgeting for users and ensure the phone comes with connectivity out of the box. Others have zero-rated certain apps (e.g. free Facebook or Wikipedia access) on low-balance accounts so that even those who can't regularly buy data can still derive some benefit from a smartphone. Such practices, while debated by net-neutrality purists, do ease people into internet use at low cost. After getting a taste, users may be more willing to spend on broader access.

While affordability remains perhaps the most immediate and visible barrier. The combination of high device costs, lack of accessible financing, taxation and ongoing data expenses keeps smartphones out of reach for hundreds of millions. Encouragingly, there are promising approaches to ease the cost burden, from innovative micro-payments and subsidy programs to prudent tax and pricing policies (as we will explore in later sections). But as we'll see, even making phones nominally affordable won't close the divide if other barriers persist.

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[16] https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/wp-content/uploads/2023/10/Mobile-Tax-Policy-and-Digital-Development-A-study-of-markets-in-Sub-Saharan-Africa.pdf

[17] https://www.cima.ned.org/publication/how-social-media-taxes-can-burden-news-outlets-the-case-of-uganda/#:~:text=How%20Social%20Media%20Taxes%20Can,after%20social%20media%20tax%20introduction

[18] https://cipesa.org/2019/01/%EF%BB%BFsocial-media-tax-cuts-ugandan-internet-users-by-five-million-penetration-down-from-47-to-35

[19] https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/wp-content/uploads/2023/10/Mobile-Tax-Policy-and-Digital-Development-A-study-of-markets-in-Sub-Saharan-Africa.pdf

[20] https://www.reuters.com/technology/south-africa-remove-luxury-duty-lower-value-smartphones-2025-03-12/#:~:text=smartphones%20www,from%20April%201%20to

[21] https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/wp-content/uploads/2024/12/Assessing-Rwanda-Mobile-Tax.pdf

[22] https://www.undp.org/sites/g/files/zskgke326/files/2025-05/rwandas_new_tax_reforms_new_2.pdf

2. Infrastructure Gaps Networks, Power, and the Service Gap

Having 4G coverage on a map does not equate to meaningful access on the ground. As Jacob's story in Zambia highlighted, frequent power outages and poor network quality can make smartphone use erratic. Similarly, in rural Kenya and Ethiopia, users report traveling long distances to find a repair technicians. It's not enough for a village to be "covered" by a cell tower, the signal must be strong and consistent enough to support data use. Many rural Africans complain of slow or unreliable mobile internet, which discourages them from using data-heavy services. Telecom operators often prioritize investments where returns are highest e.g., densely populated urban markets[23]. So even where rural coverage exists, capacity may be limited (for example, a single overstretched 3G tower covering dozens of kilometers, resulting in crawling speeds) .

In many communities, especially off-grid or underserved areas, keeping a phone charged daily is a challenge. This effectively limits phone usage to times and places where power is available. By contrast, urban users can generally charge their devices at will, however, even Africa's major cities like Lagos, Nairobi, and Johannesburg suffer frequent blackouts, leading to a thriving market for power banks and generators to keep phones running. Without electricity, device maintenance, and stable networks, smartphones fail to deliver real value. These constraints turn one-time ownership into an ongoing struggle; a phone might be affordable to acquire, but keeping it charged, connected, and functional is a continuous battle. Coverage does not equal inclusion, without the supporting infrastructure, connectivity exists in name only.

Infrastructure gaps also have a gendered dimension. In many communities, women have more limited mobility. If charging stations or repair shops are far away or in unsafe areas, women may not be able (or allowed) to travel there as freely as men. For example, if a phone breaks in a rural village, a man might hop on a motorbike to town to get it fixed, whereas a woman might have to wait or seek permission, causing her to lose connectivity for longer. A lack of electricity in the home also leaves women to rely on others to charge the shared phone.

On a positive note, some countries are bridging infrastructure gaps. Universal Service Funds (public funds for telecommunications access) in a few nations have been used to extend cell coverage to remote areas or to set up community phone-charging stations with solar panels. Kenya's for instance has significantly increased electricity access to rural households in the past decade. Nigeria's entrepreneurs have also deployed solar-powered phone-charging kiosks and mini-grids, allowing villagers to charge devices for a small fee.

3. Digital Literacy and Local Relevance Skills Gaps and Content Gaps

Even when a person can afford a smartphone and has network access, another barrier can keep them offline: lack of digital skills and locally relevant content. This is a human capacity challenge where many potential users simply do not know how to use smartphone features beyond basic

[23] https://www.gsma.com/about-us/regions/sub-saharan-africa/wp-content/uploads/2024/11/1111125-Rural-Renewal.pdf

calling/texting. Some do not also see the need to use the internet if the content isn't relevant to their life/needs. Digital literacy often correlates with general education levels and language. For example, countries with higher literacy rates like South Africa or Egypt[24] (where around 70–75% of adults use the internet) naturally see more smartphone uptake, whereas in Ethiopia[25] (adult literacy ~50%), digital skills are limited and internet use lags accordingly.

Rwanda's experience provides a telling case. The government's ambitious Connect Rwanda initiative set out to increase smartphone access by encouraging donations and subsidizing distribution. In the end, tens of thousands of devices were distributed, not the million initially envisioned. But access alone wasn't enough to convert them into active internet users. In response, Rwanda began pairing device access with community-based digital literacy efforts, led by trained Digital Ambassadors[26]. This shift significantly improved meaningful usage, especially among first-time users.

Similar patterns have played out in Uganda and Kenya, where civil society groups and NGOs have stepped in with tailored digital skills workshops for women, rural youth, and other marginalized communities. These trainings often cover everything from navigating a smartphone interface and using mobile money, to understanding internet safety and privacy. The impact is especially visible among women who may have been excluded from formal tech learning. Gaining these skills builds confidence and unlocks new possibilities—whether for business, education, or healthcare.

The local relevance of content is tightly connected to literacy. Much of the global internet's content, and many popular apps are in English (or French, for francophone Africa). A farmer or trader who isn't comfortable in these languages might find a smartphone of limited use. As Jean's case showed, if crucial information (say, farming advice or market prices) is only available via the radio in the local language, a smartphone that delivers the same info only in English (or not at all) doesn't add value . In Senegal, for instance, many older adults speak primarily Wolof and have low French literacy; for them, voice-based services or local-language community radio programs are far more accessible than text-heavy websites or apps.

Some content gaps are being filled by innovation: local entrepreneurs are developing vernacular-language apps (for example, a market price app in Hausa in Nigeria, or a maternal health information app in Kinyarwanda in Rwanda) 57 . But these remain relatively few and often not well-known to the target audiences. Moreover, smartphone user interfaces themselves can pose a mismatch: surveys in Kenya and Zambia found many rural users felt that the pre-installed apps on smartphones were irrelevant mostly global social media, games, or bloatware. Whereas the services they did need (agricultural market prices, weather forecasts, local news) were either not present or hard to discover. This disconnect has led some to suggest "hybrid" solutions. A Rwandan informant asked, "*Why force farmers to choose between a smartphone and a radio? Hybrid devices would bridge the digital divide overnight.*"

[24] https://datareportal.com/reports/digital-2024-egypt#:~:text=Insights%20datareportal.analysis%20indicates%20that%20internet
[25] https://datareportal.com/reports/digital-2024-ethiopia#:~:text=.4%C2%A0percent
[26] https://www.minict.gov.rw/projects/digital-ambassadors-program

This sentiment nods to emerging solutions like smart feature phones – devices (such as those running the KaiOS operating system) that combine some smartphone-like capabilities with the familiar features of basic phones (long battery life, FM radio, SMS) and simple interfaces. Indeed, KaiOS phones costing only $20–$25, which come with apps like WhatsApp, YouTube, and Google Assistant (accessible via voice commands), have brought thousands of late adopters online who would struggle with a full-fledged smartphone. As Sebastien Codeville, KaiOS CEO mentioned at the Smartphone for Summit in Nairobi noted, "*a good smartphone for Africa balances affordability with essential features, 4G support, long battery, and mobile financial services integration*." It also crucially includes offline functionality and menus in local languages, so users can benefit even when not connected or not literate in English. These kinds of human-centered design tweaks, whether in hardware or software, can make a big difference in bridging the usability gap.

[Picture 2: KaiOS brand feature phones]

Digital literacy and locally relevant content are the "demand-side" catalysts for smartphone adoption. Without them, all the coverage and affordable devices may still yield low usage because people either don't know how to use the technology or don't see any benefit from it. Countries like Senegal and Kenya, which have higher youth literacy and a burgeoning local app scene, are seeing more organic uptake of advanced smartphone uses (like social media, e-commerce). Conversely, in places like Ethiopia or rural Uganda, where education and local digital content lag, smartphones haven't yet proven their worth to large portions of the population. Policymakers should recognize that *internet access is as much a social issue as a technical one*. Investing in digital skills programs, promoting local language content creation, and even interface design tweaks (big icons, voice assistants, etc.) can significantly enhance the uptake and *meaningful* use of smartphones.

Smartphones as Enablers of Women's Economic Participation

When women own and can freely use a smartphone, household income and women's labour-force participation both rise. Yet across Africa, women face intersecting barriers: lower purchasing power, limited digital skills and, in many households, reduced control over device use.

A 2022 Kenya-wide study of platform livelihoods illustrates the gap: 51 % of Jumia's online vendors are women, yet only 22 % of rural women feel economically empowered; the top

constraints they cite are handset cost, credit for data, and lack of digital skills[27] (Qhala & Caribou Digital 2022). Safety and privacy also rank high in women's handset priorities.

Designing smartphone ecosystems with women's realities in mind isn't just about closing access gaps; it is a lever for inclusive growth. Long-battery phones for off-grid use, built-in privacy safeguards, micro-financed data bundles and bundled digital-skills training can unlock new income streams for millions of women. Meeting those needs should guide the Africa-spec handset and distribution roadmap outlined in the next chapter.

4. Cultural Norms and Trust Deficit

Technology adoption does not happen in a cultural vacuum. In many African communities, especially more conservative or remote ones, deep-seated social norms influence who uses a smartphone, when, and how. A recurring theme is the generational gap where elder community members sometimes view smartphones with suspicion or disapproval, while younger people are eager to adopt them. In rural Ethiopia and North Eastern Kenya, for example, some elders associate smartphones with moral decay and foreign influence. We encountered anecdotes of elders dubbing them "a tool of the devil," worrying that unfettered internet access will expose young people to pornography or simply distract them from traditional responsibilities. In parts of northern Kenya, similar concerns arise that smartphones erode culture and religion. One community leader lamented that youths "*stare at screens instead of respecting their elders*." Such attitudes carry weight. A young woman might avoid using a smartphone in the presence of her husband or father-in-law to avoid appearing disrespectful. One respondent said, *"It is viewed as disrespectful to look at a phone when my husband is speaking to me."* This can lead families to restrict daughters' or wives' phone access. In extreme cases, women have had devices taken away by spouses who feared infidelity or exposure to "corrupting" online content.

Over time, these views can evolve (today's skeptics may become users tomorrow), but in the interim they pose a real barrier by reducing the social acceptance of smartphones among certain demographics. Gender norms are a particularly salient cultural barrier. The result is a gendered digital divide driven by social control. That even if a woman can technically afford a phone, she may not feel free to use it openly or explore its capabilities. Efforts to increase women's smartphone adoption must address these community norms to gain buy-in and avoid backlash. For instance, some NGOs working in conservative areas involve husbands and fathers in digital literacy sessions for women to demystify the smartphone and showcase its productive uses (like accessing market prices or health information). When the male "gatekeepers" see value in women's connectivity, they are more likely to allow it, reframing the device as a family tool rather than a threat. Additionally, community leaders or religious figures can be engaged to publicly support women's access to information and communication, helping shift norms.

[27] https://www.platformlivelihoods.com/wp-content/uploads/2022/09/Kenya-v4.pdf

There's also a broader trust issue at play in the digital ecosystem. Years of exposure to subpar devices (that break quickly), confusing fee structures, and even digital scams have left many consumers wary. Digital fraud and predatory lending apps have made headlines and eroded trust in mobile services. For example, in Kenya and Nigeria the proliferation of shady loan apps in recent years led to data privacy abuses and harassment of borrowers, causing public outcry and regulatory crackdowns.

Stories of people being spammed or shamed by loan recovery agents spread quickly, making some more hesitant to use mobile financial services or to download new apps in general. Likewise, if someone's first smartphone was a cheaply made counterfeit that died in six months, they may be reluctant to invest in another device. This history of broken promises, whether from governments failing to deliver reliable electricity, telcos overcharging with hidden fees, or vendors selling low-quality products, contributes to a cautious, skeptical outlook among consumers, even when new opportunities arise.

Building trust is thus essential. Users need to feel confident that the devices and services will reliably improve their lives, not introduce new risks. This includes trust in financing (that installment plans won't cheat them), trust in online services (that their data and money are safe), and trust in the device itself (that it's durable and not a waste of money). Restoring trust requires transparency and consumer protections – themes we'll revisit in later sections on solutions. Encouraging shifts are happening on both the social and trust fronts. In some places, attitudes are slowly changing as people see real benefits from smartphones.

Phone Sharing as a Way of Life

Phone-sharing is an access model for many low-income Africans. When a handset is scarce or expensive, it becomes a communal asset. A forthcoming study on "shared-device households" (Witz University & Qhala, 2025) will map this practice in depth. Here we flag the design and policy implications.

Pew Research Center's 2018 cross-country survey already hinted at the scale. The median share of users who rely on a phone they do not personally own was 7%[1]. Conventional indicators, SIM penetration or unique-subscriber counts, therefore understate real reach and mask how that reach is achieved.

Phone-sharing means in practice

Reality in the field	Design / policy requirement
One device, many roles. From school research to WhatsApp, financial transactions remittances to TikTok	Multi-user modes (quick-switch profiles, app lockers) and rugged hardware built for heavy, mixed-age use.
Privacy is scarce. Personal messages, photos or M-PESA balances can be exposed.	One-tap "guest" sessions, auto-logout, minimal local data storage, OTP verification.
Time is rationed. Users may have 5-10 minutes before the next person needs the phone.	Government and banking apps must be resumable, lightweight and offline-tolerant.
Charging is contested.	Long-life batteries and battery-health guarantees matter as much as processor speed.

A Snapshot of Ten Countries

To appreciate the diversity and commonalities in smartphone adoption across Africa, it helps to examine specific country contexts. Table 2 below presents a snapshot of estimated internet use (as a proxy for smartphone uptake) alongside notable factors affecting smartphone adoption in each of our ten focus countries:

(Each country's internet penetration is an estimate for 2023–24, representing the percentage of adults using the internet. "Key Factors & Initiatives" highlight unique drivers or barriers in that country's smartphone landscape.)

[Table 2: Key Smartphone Adoption Metrics and Factors in 10 African Countries]

Country	Internet Penetration	Key Adoption Factors & Initiatives
Kenya	~44%[28] (2024)	Urban-rural divide; Multiple pay-as-you-go smartphone financing services (*Lipa Mdogo Mdogo*); VAT exemptions for local assembly
Nigeria	~45–55%[29] (2023)	High data costs; trust deficit in collateral-backed financing; informal entrepreneurs excluded
South Africa	~75%[30] (2024)	Phone-sharing norms; tax policy adjustments on low-end devices; Highest penetration among the ten, yet stark inequality: Government removed[31] a 9% "luxury" tax on smartphones under R2,500 to make entry-level devices affordable. Established infrastructure, but data prices historically high (now improving).
Uganda	~27%[32] (2024)	Social media tax suppressed usage; informal use of feature phones dominates in rural areas; Efforts underway to expand 4G outside Kampala & integrate digital skills in schools.
Rwanda	~30% (2023)	Connect Rwanda: more than 40,000 devices distributed & trained users; shutdown local manufacturing
Zambia	~31%[33] (2024)	SIM saturation masks low usage; long distances to repair services; energy unreliability; Initial device financing schemes offering high-end models were short-lived; community networks & ICT hubs are emerging to boost rural digital skills
Ethiopia	~19%[34] (2024)	Late telecom liberalization; limited local content in native languages; Government and donors are pushing digital payment and e-service initiatives, which could drive smartphone uptake if trust and literacy improve

[28] https://datareportal.com/reports/digital-2024-kenya#:~:text=Digital%202024%3A%20Kenya%20%E2%80%94%20DataReportal,percent%20of%20the%20total

[29] https://freedomhouse.org/country/nigeria/freedom-net/2023#:~:text=Nigeria%3A%20Freedom%20on%20the%20Net,to%20the%20Nigerian%20Communications

[30] https://www.askyazi.com/useful-data-sources-for-africa/south-africas-digital-statistics-2023#:~:text=South%20Africa%27s%20Digital%20Statistics%202023,80%20million

[31] https://www.reuters.com/technology/south-africa-remove-luxury-duty-lower-value-smartphones-2025-03-12/#:~:text=smartphones%20www.from%20April%201%20to

[32] https://datareportal.com/reports/digital-2024-uganda#:~:text=Insights%20datareportal.percent%20of%20the%20total

[33] https://freedomhouse.org/country/zambia/freedom-net/2024#:~:text=Zambia%3A%20Freedom%20on%20the%20Net,rely%20on%20mobile%20internet

[34] https://datareportal.com/reports/digital-2024-ethiopia#:~:text=.4%C2%A0percent

Senegal	~60%[35] (2024)	Francophone content limits Wolof-only speakers; youth-led adoption in cities; Orange's inclusive finance programs; Rural adoption lags, Digital Senegal strategy lowers data costs and supports local content creation
Egypt	~72%[36] (2024)	Arabic-language content bolsters uptake; significant gender divide; digital services used mostly in urban centers; enhanced local manufacturing
Togo	~38%	COVID-era mobile cash transfer via basic phones; recent tax breaks on smartphone imports; urban-rural content gap; Government explored zero-rating on certain educational content; reduced import taxes on devices recently to spur adoption.

As the table illustrates, no single factor explains the variance in adoption across these countries. Wealth and infrastructure set an overall context (hence Egypt and South Africa lead, while Ethiopia and Togo trail). But policy choices make a difference at the margins: Rwanda's aggressive interventions have pushed smartphone access higher than it would otherwise be at its income level, whereas Uganda's taxing of social media immediately knocked usage down. Cultural elements (e.g. gender norms in Egypt or Senegal) also shape how evenly distributed smartphone usage is within the population.

Affordability, infrastructure, skills, and social norms intertwine uniquely in each country, producing different outcomes. A comprehensive strategy must account for this local specificity.

[35] https://datareportal.com/reports/digital-2023-senegal#:~:text=Insights%20datareportal,at%20the%20start%20of%202023

[36] https://datareportal.com/reports/digital-2024-egypt#:~:text=Insights%20datareportal,analysis%20indicates%20that%20internet

Solutions to Close the Gap

Despite the challenges outlined, there are many encouraging efforts across Africa aimed at lowering these barriers and accelerating smartphone adoption. These involve a range of actors: governments crafting smart policies, telecom companies devising new business models, manufacturers tweaking designs for local needs, and civil society organizations working on the ground. In this section, we explore key interventions in the domains of affordability, infrastructure, skills, and systemic alignment, highlighting how they turn barriers into opportunities. We then synthesize these into a few strategic moves that could have continent-wide impact.

Making Smartphones Affordable for All

One of the most direct levers for governments is fiscal policy on devices. Several countries have recognized that treating smartphones not as luxury goods but as essential infrastructure can boost adoption. South Africa's 2024 budget, for instance, removed the 9% ad valorem "luxury" tax[37] on smartphones below R2,500 (roughly $130). This move specifically targeted low-cost models and immediately reduced prices in that segment, it was widely welcomed as a step toward digital inclusion. In contrast, policies that raise device costs draw criticism: a recent proposal in Rwanda to reintroduce an 18% VAT on imported handsets (after years of zero VAT) met with concern from industry groups like GSMA[38], which noted it would "further restrict affordability" and undermine Rwanda's digital vision.

Kenya, similarly, has offered tax waivers for phones assembled domestically, effectively encouraging local assembly plants (often small-scale) and making their products more price-competitive against imports. However, the process to get the VAT refunds[39] are an uphill task and hurt the operations. *"Delays in receiving tax reimbursements for imported equipment put startups at a disadvantage compared to more established international competitors"*. Latiff Cherono, GM Gearbox Europlacer at the Smartphone for Africa Summit. The key takeaway here is that taxing phones is counterproductive if the goal is broad digital access. Governments can instead look at reducing import duties, offering tax holidays for device manufacturers, or subsidizing handset costs for priority groups.

On the subsidy front, Rwanda's Smart Device Subsidy program under Connect Rwanda stands out. This move is echoed by Aneliya Muller, a senior digital development specialist at the World Bank who shares that *"Subsidies targeted at low-income groups, like Rwanda's, have shown that affordability interventions can significantly increase smartphone penetration."* The keys to success were targeting households without smartphone access and complementing the subsidy with user training so the devices wouldn't lie unused. significantly increase smartphone penetration." The key is targeting and

[37] https://research.hktdc.com/en/article/MTk3Nzc0ODcwNA
[38] https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/wp-content/uploads/2024/12/Assessing-Rwanda-Mobile-Tax.pdf
[39] https://www.businessdailyafrica.com/bd/opinion-analysis/columnists/vat-refund-dilemma-a-costly-manufacturers-pain-point-4985978

combining subsidy with training (so the devices wouldn't lie unused). Other countries are taking note: Togo[4041] and Zambia[42] have recently considered or launched small-scale initiatives to subsidize phones for, say, rural teachers or health workers, recognizing the spillover benefits that can bring.

Manufacturers, too, are contributing by designing user-centric features that enhance perceived value. As noted earlier, companies like Transsion (the maker of Tecno, itel, and Infinix phones) won over African consumers[43] by understanding their needs. They introduced practical features like dual SIM support (to let users juggle multiple networks and save money on calls/data) and camera software optimized for darker skin tones. This kind of cultural tailoring of hardware and software makes the technology feel more relevant and trustworthy to users. Transsion even includes several African languages in its phone OS menus and offers extra-long battery models (crucial where electricity is erratic). This relentless focus on the African user's daily reality, essentially a human-centered design approach, is a big reason Transsion now controls nearly 50% of Africa's smartphone market[44], surpassing global giants by focusing on "must-have" features for the continent.

Beyond devices, data affordability is also being tackled. Some operators are offering innovative data bundles (like "sachet" pricing for small, low-cost data packs that align with irregular incomes). Others have partnered with Wi-Fi hotspot providers to create community Wi-Fi zones where people can get connectivity at a fraction of cellular data costs. And a few governments have contemplated (or piloted) providing a free basic data allowance to every citizen though funding such a model remains challenging. What these initiatives have in common is an attempt to lower the ongoing cost of connectivity, not just the upfront cost of devices. It's a powerful lesson: aligning tech design with users' actual contexts and needs builds trust and boosts adoption from the ground up.

The mix of tax policy, subsidies, contextually relevant phone manufacturing and innovative financing is gradually chipping away at the affordability barrier. The most successful approaches recognize that affordability is not just about price tags, but how the price is delivered, small, transparent, bite-sized payments can make a huge difference.

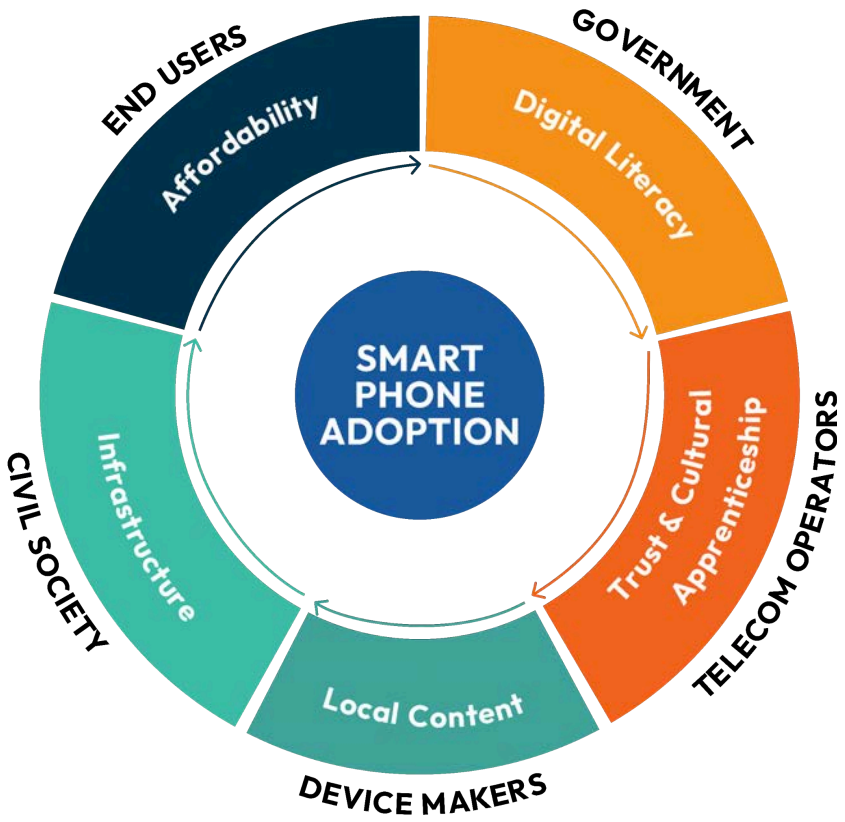
[40] https://www.worldbank.org/en/news/press-release/2024/12/19/togo-100-million-in-funding-to-accelerate-digital-transformation

[41] https://www.bboxx.com/news/bboxx-and-government-of-togo-sign-first-ever-mou-to-sell-smartphones/

[42] https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/blog/vitalite-zambia-learnings-from-providing-pay-as-you-go-smartphones-through-pay-as-you-go-solar/#:~:text=Under%20the%20grant%20VITALITE%20began,be%20purchased%20without%20a%20SHS.

[43] https://www.semafor.com/article/01/17/2024/africas-top-smartphone-seller-transsion-is-the-worlds-fastest-growing-phone-maker#:~:text=After%20setting%20up%20its%20first,calibrated%20for%20darker%20skin%20tones

[44] https://www.scmp.com/news/china/diplomacy/article/3289680/alarm-bells-ring-smartphone-king-africa-other-chinese-brands-chase-crown#:~:text=Alarm%20bells%20ring%20for%20%27smartphone,phone%20market%20share%20in%202021



[Picture 3; showing the Interdependence of factors affecting smartphone adoption in Africa]

Building a Local Industry and Infrastructure

Beyond making imported phones cheaper, a more ambitious question looms. Could Africa make its own affordable smartphones? Currently, more than 90% of smartphones sold in Africa are manufactured outside the continent. This reliance on imports perpetuates trade imbalances, raises consumer costs (due to import duties and transport), and forgoes potential job creation. It's no surprise, then, that several African countries have tried to establish local assembly or even manufacturing of phones. The journey has been challenging, but it's yielding lessons for the future about what works and what pitfalls to avoid.

Consider the core components of a device. As small as the smartphone may be, it embodies a complex global supply chain. The continent is rich with many of the raw materials that go into phones. The battery contains lithium and cobalt[45], resources that countries like the Democratic Republic of Congo (DRC) and Zambia hold in abundance. The display and electronics require rare earth elements[46], some of which are found in African soil[47]. So, in theory, Africa has the geological ingredients to climb the value chain by processing these minerals at home. For instance, Zambia is teaming up with neighboring DRC to process more of their cobalt for use in electric vehicle (EV)[48] and phone batteries. Yet translating raw material wealth into manufacturing power requires more than minerals – it needs skills, capital, energy infrastructure, and above all scale.

[Picture 4: Breakdown of smartphone components. Courtesy of Aljazeera]

[45] https://www.koreatimes.co.kr/www/tech/2023/11/419_363351.html

[46]USGS, 2024 2019 Minerals Yearbook U.S. Department of the Interior U.S. Geological Survey RARE EARTHS https://pubs.usgs.gov/myb/vol1/2019/myb1-2019-rare-earths.pdf

[47]African Natural Resources Centre (ANRC). 2021. Lithium - Cobalt Value Chain Analysis for Mineral Based Industrialization in Africa. African Development Bank. Abidjan, Côte d'Ivoire. https://africa-energy-portal.org/sites/default/files/2022-02/lithium-cobalt_value_chain_analysis_for_mineral_based_industrialization_in_africa_report.pdf

[48] https://www.uneca.org/stories/zambia-and-drc-sign-cooperation-agreement-to-manufacture-electric-batteries

The scale issue became evident in the tale of Mara Phones. Launched as Africa's first homegrown smartphone brand, Mara built factories in Rwanda and South Africa in 2019. However, within a couple of months, both facilities shut down. The venture was undone by limited consumer demand, high input costs (importing components), and razor-thin margins. Rwanda's digital first ethos and government backing couldn't compensate for the lack of market scale; South Africa, despite a more industrial base, faced similar headwinds.

These closures have become cautionary tales – symptoms of the same ailment: industrial ambition unaccompanied by regional strategy. As H.E. Wamkele Mene, Secretary-General of the African Continental Free Trade Area (AfCFTA), put it at the 2023 "Smartphone for Africa" summit: "*More than 90% of smartphones sold in Africa are manufactured outside the continent. This reliance on imports perpetuates trade imbalances, raises costs for African consumers, and limits opportunities for job creation.*" Mara's fall shook confidence in Africa-made phones, but it also yielded insight: a single country's market is often too small to sustain a smartphone factory. One key lesson as articulated by Mr. Fidel Karenzi, Sr. Technologist at the Rwanda Ministry of ICT and Innovation, *"for a manufacturing company to be profitable on the continent, it must produce at least 5 million devices annually, a scale that requires regional collaboration to establish a common market."* This scale is only achievable when trading across multiple countries.

Some countries have found partial success by focusing on assembly in partnership with foreign brands. Egypt[49] is arguably the model to date. Through clear industrial policies (like requiring 30–35% local value-add in electronics) and incentives (tax breaks, facilities in tech parks), Egypt attracted global brands – Samsung, OPPO, Xiaomi, Vivo, HMD (Nokia) – to assemble phones locally. Today, Egypt produces over 8 million units annually and is planning for 30 million by 2027. While most components are still imported, local assembly has created jobs and skills, and roughly one-third of some models' components (packaging, some plastics, etc.) are now sourced domestically. Egypt leveraged its large market and strategic location to become an assembly hub. An approach other countries aspire to emulate. In contrast, Ethiopia's partnership with Transsion (Tecno) to assemble phones domestically struggled due to structural bottlenecks, foreign exchange shortages, logistics hurdles, and limited local demand, showing that policy intent must be matched by macroeconomic stability and infrastructure to succeed .

A theme emerging from these experiences is the need for **regionalism**. As a Kenyan engineer named Peter lamented, "*We're all solving the same problem in silos. We need to work as a bloc.*" His sentiment echoes across factories and ministries from Lagos to Lusaka. The AfCFTA offers a framework for a 55-nation single market, but policy harmonization remains partial. Currently, countries often tax smartphones assembled in a neighboring African country as if they were any other import, stifling regional trade. Customs delays between African nations can paradoxically be longer than those between Africa and China. If true free trade in electronics were realized, a phone assembled in Nairobi could be sold in Accra or Lagos without extra tariffs or red tape. Instead, most operations remain trapped within national borders, unable to attain the volume that makes local manufacturing viable. As Ms. Evalyn Oloo, Ministry of Trade & Investment, Kenya, notes, "*It shouldn't*

[49] https://itida.gov.eg/English/Programs/EgyptMakesElectronics/Pages/default.aspx

take longer to ship a smartphone from Kenya to Nigeria than from China to Kenya." Streamlining cross-border logistics and eliminating intra-African tariffs on devices is critical for any hope of African manufacturing competitiveness.

Another frontier is developing more advanced components locally, particularly semiconductors and printed circuit boards (PCBs), which are the heart of electronics. Across Africa, whispers of technological ambition are getting louder. Kenya's STL Semiconductors[50] is conducting a US Trade & Development Agency (USTDA[51]) backed feasibility study for a semiconductor fabrication plant. Egypt's Si-Ware[52] has achieved success in analog chip design, exporting its expertise globally. South Africa's SAMES (South African Micro-Electronic Systems) has been laying the groundwork for circuit design education and small-scale production.

While Africa is still a minor player in the global semiconductor arena, these initiatives reflect a growing awareness that the continent cannot leapfrog forever. There is value in developing some midstream and upstream tech capabilities. PCB assembly, a relatively lower-barrier step, has seen ventures like Gearbox Europlacer[53] in Kenya and Bosco Circuits[54] in South Africa attempt to build locally. They show promise, the know-how exists, but sustainability remains elusive without steady demand, great infrastructure and patient capital. The closure of Bosco due to poweroutages showcases the role of infrastructure in maintaining projects.

For local smartphone industry manufacturing to thrive, it will require working on several structural issues. 1) achieving economies of scale through regional cooperation, 2) improving ease of cross-border trade, 3) developing human capital in electronics, and 4) ensuring a stable business environment.

The good news is that continent-wide initiatives (like AfCFTA and various regional economic communities) are oriented toward these goals, and some initial building blocks (like Egypt's assembly success) are in place. The realism, however, is that this is a long game. It will likely take the better part of a decade or more to see major results in local handset manufacturing or component production. In the meantime, encouraging local phone assembly and repair ecosystems can create jobs and reduce costs modestly, while laying the groundwork for bigger strides.

The aim should be twofold. Reducing dependency (so Africa isn't purely an end-consumer of imported phones) and increasing resilience (local capability to repair, refurbish, and perhaps eventually produce devices). This will also require frank policy realism: not every country can or should try to have a phone factory; identifying comparative advantages and partnering across borders is the way forward. We'll revisit a strategic vision for this in the "Roadmap for Action" section.

[50] https://stlsemiconductor.com/
[51] https://www.ustda.gov/ustda-partners-with-kenya-to-boost-semiconductor-manufacturing/
[52] https://www.si-ware.com/
[53] https://www.gearbox-europlacer.com/
[54] Ceased operations due to power outages https://www.bosco.co.za/

When Factories Close

The Tale of Over-Promise and Under-Scale

Kenya and Nigeria: Different Assets, Similar Struggles

In Kenya, EADAK, a consortium of Safaricom, Jamii Telecom, and TeleOne, assembled over 2.5 million phones with government support and bulk orders. The strategy was simple: link manufacturing to national digital inclusion goals. Complementary models like M-KOPA's pay-as-you-go financing created demand from the base of the pyramid. Even Moi University's ambitious smartphone assembly venture halted entirely due to financial and administrative challenges. These varied examples reveal a shared underlying struggle: without scaling collaboration and achieving sufficient local market demand, Africa's manufacturing ambitions remain constrained. Peter, an engineer at one of the assembly plants sums up the struggle, *"Our business constantly battles conflicting demands: customers want quality at low prices, yet importing components prevents cost efficiency. Inconsistent tax policies and poor infrastructure further undermine our efforts and dampen the motivation of local talent."*

Meanwhile, Nigeria, Africa's largest market by population, has seen its manufacturing efforts slowed by infrastructure gaps. Companies like AfriOne and ITF Mobile began operations, but unreliable electricity and high logistics costs persist. These failures reveal deeper structural challenges. A World Bank report mapped significant power outages in Nigeria[55], and when combined with costly transportation delays and steep import duties that can inflate component costs by up to 30%, sustainability remains elusive.

Both countries exemplify the same paradox: the most well-intentioned policy incentives are ineffective when infrastructure cannot support growth.

Egypt and Rwanda: Strong Institutions, Diverging Paths

Egypt's model is arguably the most successful to date. A clear industrial roadmap, integration of academic R&D, and preferential procurement have enabled manufacturers to thrive. While most components are still imported, local value-add has reached 35%, a benchmark other countries aspire to. "*Around 30% of components in our smartphones are locally sourced, an approach scalable across Africa if coordinated regionally."* As Mr. Yasser AbdelBary, Executive Director at Egypt's ITIDA.

Rwanda's digital policy, on the other hand, has exceeded expectations. The Smart Rwanda Master Plan set an ambitious vision for a tech-driven economy. But with limited domestic demand and regional isolation, Mara Phones in Rwanda couldn't survive. Mr. Fidel Karenzi, Sr. Technologist at the Rwanda Ministry of ICT and Innovation, highlights that "*for a manufacturing company to be profitable on the continent, it must produce at least 5 million devices annually, a scale that requires regional collaboration to establish a common market."* This regional approach is critical, as fragmented

[55] https://www.worldbank.org/en/news/press-release/2021/02/05/nigeria-to-improve-electricity-access-and-services-to-citizens

intra-regional trade, accounting for just 15% of total African trade compared to over 60% in Asia and Europe[56],severely restricts access to broader markets.

Comparing the 8 Country Cases

[Table 5: showing the comparative overview of Smartphone Assemblers]

Country	Policy Framework	Key Players	Impact
Egypt	35% local value mandate	Samsung[57], OPPO[58], Xiaomi[59], Vivo[60], HMD (Nokia) [61] , Micromax	8M+ units/year; plans for 30M by 2027 Egypt has become the assembly leader through policy alignment and foreign brand partnerships.
Ethiopia		Ethnio Telecom & Transsion Holdings[62]	Ethiopia aligns with Chinese partners for capacity building, though scale remains a challenge.
Kenya	Tax exemptions on components and digital inclusion	EADAK[63] (Safaricom, TeleOne & Jamii Telcom) and M-KOPA[64]	2.5M+ devices assembled; job creation Kenya blends digital inclusion with industrial development, showing how bulk orders and fintech can boost demand.
Rwanda	Smart Rwanda MasterPlan	Mara Phones, Positivo BGH	Operations halted due to low scale
Nigeria	Anti-counterfeit policies	AfriOne[6566], ITF Mobile[67] and RLG[68] Communications	Nigeria has the largest market but is plagued by infrastructure gaps.
Uganda	Partnerships with Chinese firms	SIMI Mobile, MiOne	Incremental job growth; distribution issues
South Africa		Maraphones Bams Telecom	South Africa has industrial expertise but face economic inefficiencies.
Zambia	Collaboration with ZTE	ZTE	Early-stage potential

Their paths diverge, yet they converge on the same realization: none can go it alone.

[56] https://media.afreximbank.com/afrexim/African-Trade-Report_2024.pdf
[57] https://www.sammobile.com/news/samsung-manufacturing-phones-in-egypt/
[58] https://www.egypt-business.com/paper/details/2336-mobile-phone-industry-in-egypt/429618
[59] https://businessmonthlyeg.com/xiaomi-and-al-safy-group-reveal-details-of-their-first-smartphone-factory/
[60] https://www.egyptindependent.com/egypt-signs-on-20-million-initiative-to-manufacture-smartphones-locally/
[61]https://itida.gov.eg/English/MediaCenter/News/Pages/HMD-Global-eyes-manufacturing-2M-Nokia-smartphones-for-Egypt.aspx
[62]https://www.ethiotelecom.et/ethio-telecom-tecno-mobile-and-transsion-manufacturing-sign-a-strategic-partnership-memorandum-of-understanding-towards-increasing-smartphone-penetration-in-ethiopia/
[63]https://www.safaricom.co.ke/media-center-landing/press-releases/kenya-sets-up-first-smartphone-assembling-plant-in-east-africa
[64] https://m-kopa.com/products
[65]https://businessday.ng/technology/article/afrione-makes-move-to-increase-market-as-it-launches-cygnus-x/
[66] https://techeconomy.ng/where-is-itf-mobile-buharis-made-in-nigeria-android-phone/
[67] https://www.vanguardngr.com/2021/06/buhari-receives-1st-made-in-nigeria-cell-phone/
[68] https://rlg.ng/rlg-communications-nigeria-launches-its-first-assembly-plant-in-nigeria/

What's Possible: Towards Smartphones Made in Africa

Perhaps the most important realization is that no single entity can solve the smartphone adoption puzzle alone. What's needed is systemic alignment, where policies, market initiatives, and community efforts reinforce each other instead of working at cross purposes. In practice, this means governments, telecom operators, device makers, and civil society coordinating strategies.

Africa's path to smartphone manufacturing sovereignty isn't a straight import-substitution model. It's a distributed model of *regional tech sovereignty*, where no one country owns the entire value chain but each contributes meaningfully to it. For instance, Zambia and the DRC can supply minerals, while South Africa and Egypt anchor advanced components with regional communities driving demand. Underlying this will be the regional bodies to harmonized trade policies and enable cross-border investment frameworks.

Below are the recommended next steps:

1. Build a Multi-Stakeholder Coalition

Creating a sustainable smartphone manufacturing industry in Africa begins with establishing a diverse coalition encompassing governments, private sector leaders, academia, NGOs, and consumer advocacy groups. This coalition will also actively involve local communities to ensure products are not just affordable but genuinely aligned with African users' aspirations and practical needs.

Key Roles

- Define Standards: Collaboratively develop technical specifications (e.g., rugged design, long battery life), set realistic price targets (under $60), and incorporate localized features like multilingual support and offline functionality.
- Localize Component Production: Foster partnerships to produce critical components locally, leveraging regional resources (e.g., batteries from cobalt in DRC and Zambia, PCBs in South Africa), and invest in semiconductor research and manufacturing.
- Workforce Development: Launch tailored vocational training programs (similar to JKUAT's mobile repair training initiatives), focusing on real-world skills and entrepreneurship. Partner with universities to cultivate advanced engineering and design talent.
- Empower Women Entrepreneurs: Tackle biases in lending by establishing gender-responsive microfinance and impact investment frameworks, increasing women's access to capital and participation in the technology ecosystem.

2. Bridging Affordability and Consumer Aspirations

Beyond affordability, understanding and meeting consumer aspirations is vital. Manufacturers should actively partner with telecom operators (e.g., MTN, Safaricom, Airtel) to develop consumer-centric business models that enhance accessibility while appealing to users' lifestyle aspirations.

Key roles

- Consumer-Centric Financing: Implement pay-as-you-go models, flexible warranty programs, and attractive resale options, testing these with telecom partners.
- Circular Economy Integration: Scale refurbishment and recycling hubs to extend device lifecycles, reduce environmental impact, and provide affordable options for consumers.

3. Establish a Regional Sandbox Ecosystem

"As a continent, if we need money and innovation, we must invest in regulatory sandboxes within AfCFTA. The smartphone industry could be the perfect pilot project to transform Africa's industrialization." H.E. Wamkele Mene, Secretary General, AfCFTA at the Smartphone for Africa Summit

To tackle the fragmented nature of trade policies and regulatory hurdles, stakeholders must create a regional "sandbox" to test harmonized regulations and facilitate cross-border collaboration.

Key Roles

- Policy Harmonization: Leverage AfCFTA to standardize tariffs, customs duties, and technical regulations, thereby eliminating market-entry barriers and reducing transactional costs.
- Regional Pilots:
    - Conduct cross-border market pilots in countries such as Kenya, Egypt, Nigeria, Rwanda, South Africa, and Senegal to test and refine policy and business models.
    - Initiate collaborative semiconductor R&D projects involving Kenya, Egypt, and Nigeria, emphasizing regional collaboration.
    - Foster a unified market approach through integration with regional economic communities (EAC, SADC, COMESA).
- Digital Infrastructure Development: Deploy comprehensive cross-border data frameworks to support innovative AI and cloud solutions, crucial for scaling manufacturing and distribution.

4. Pilot the "Smartphone for Africa" Initiative

To effectively test and refine market-ready devices, launch pilot assembly projects initially in two pilot countries. Use iterative design processes and continuous feedback from local consumers to ensure products align closely with real-world usage scenarios.

Key Tasks

- Human-Centered Design:
    - Prioritize durability (rugged casing, extended battery life, heat resistance).
    - Integrate apps relevant to local livelihoods such as agriculture, mobile finance, and education.
    - Maintain affordability with pricing targeted below $100 for rural and peri-urban communities.
    - Engage communities directly through beta testing models like Kenya's M-KOPA, incorporating consumer feedback into design iterations.

- Modular Assembly Hubs:
    - Establish assembly hubs in strategic locations (e.g., Nigeria, Egypt, Kenya, South Africa) to optimize distribution.
    - Prioritize local sourcing of components, harnessing regional minerals and manufacturing capacities.
    - Scale distribution strategically using AfCFTA protocols, partnering with entities like KaiOS to subsidize devices for at least 500,000 low-income users initially.

Smartphone for Africa's Vision

Meeting Consumer Expectations and promoting Regional Collaboration

To achieve the vision of 'Smartphones Made in Africa,' stakeholders must unite under a shared commitment to innovation, inclusivity, and sustainability. Through cultivating regional collaboration, investing in local talent, and aligning products with consumer aspirations, Africa can transform its position from a consumer to a producer of technology.

The Swahili proverb rings true: "Kidole kimoja hakiuwi chawa" (A single finger does not kill a louse). No single country can become a smartphone manufacturing powerhouse alone. As Dr. Nkundwe Mwasaga aptly noted, *"Not all African countries can or should engage in full-scale smartphone manufacturing. Regional collaboration is crucial, and pooled investment in semiconductor factories will drive cost efficiencies."* Dr. Nkundwe Mwasaga, Director General, ICT Commission, Tanzania at the Smartphone for Africa Summit.