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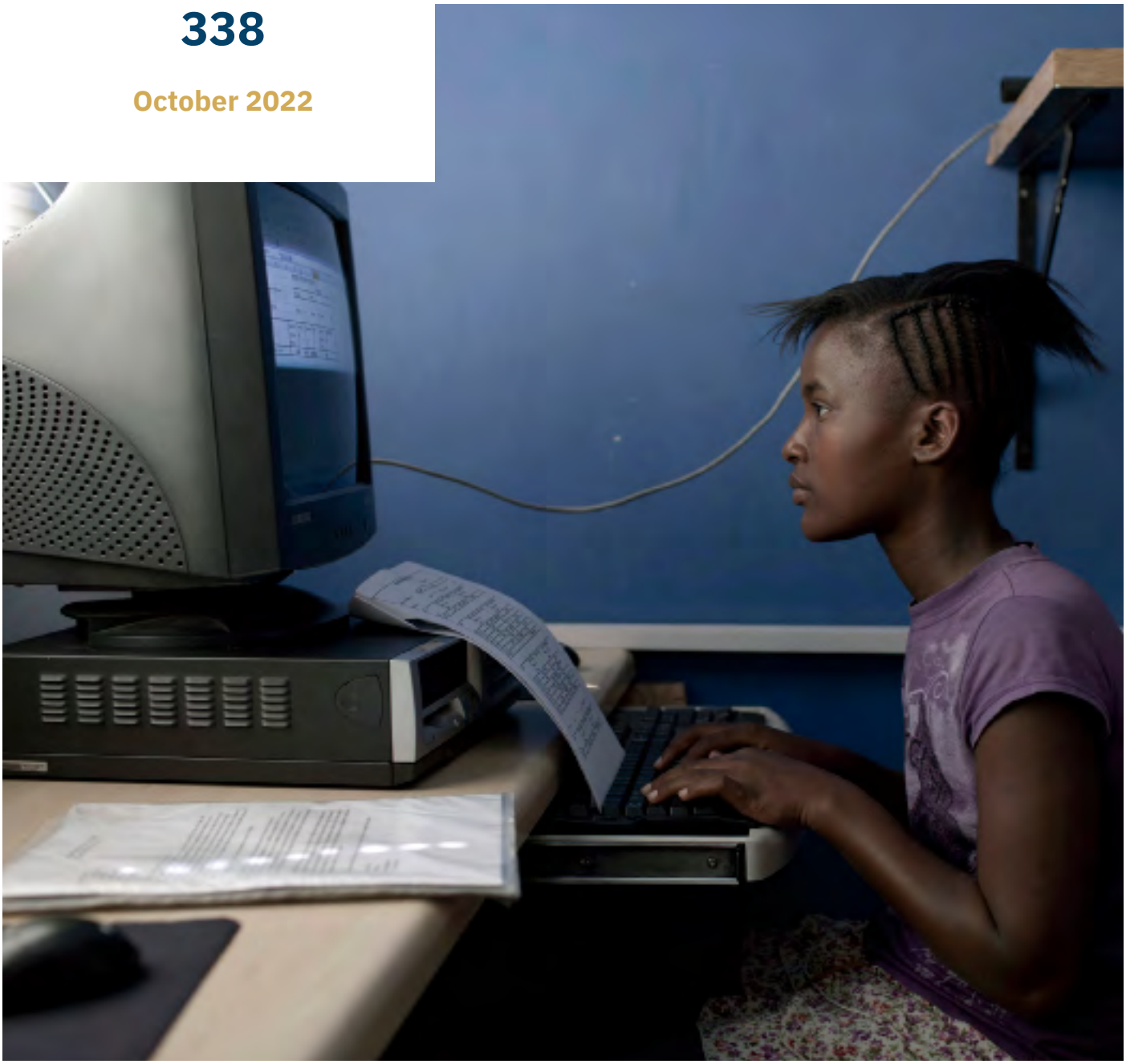

# Driving Digital Inclusion Within the AfCFTA Framework

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African perspectives
Global insights

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# Abstract

COVID-19 has highlighted the value of digital applications when lockdowns curtailed traditional forms of meeting, working and learning. However, it has also exposed the extent of Africa's digital divide. Even though many people on the continent have access to the internet and various digital platforms, many others do not, which means that they remain economically marginalised and unable to participate in the rapidly evolving 4th Industrial Revolution. Women and the youth are particularly vulnerable in this regard. While the pace and direction of digital advances have given rise to some legitimate concerns, the 4th Industrial Revolution presents innumerable opportunities both for economic growth and development at the national level and enhanced well-being at the personal level.

This occasional paper explores the drivers of digital inclusion in Africa. In this regard, African governments need to facilitate greater internet connectivity by creating a policy and regulatory environment that attracts investment and encourages high levels of internet usage, engaging in soft and hard infrastructure development, using digital technologies to enhance the quality of their services, forging private–public partnerships to optimise resources and share expertise, and enhancing digital awareness, education and skills. Africa has some digital successes to its credit, such as the large-scale production of inexpensive 4G mobile phones and the widespread use of mobile money services, notably M-Pesa, among poorer communities. Other innovative digital solutions have the potential to be further developed and scaled up.

An important vehicle for the development of Africa's digital capabilities and competitiveness is the African Continental Free Trade Area which aims to promote stronger intraregional trade through greater digital cooperation and connectivity, expanded and more diversified goods and services trade, fewer customs bottlenecks, reduced trade costs, and harmonised trade rules and standards.

# Introduction

The COVID pandemic has brought into sharp relief Africa's digital divide. COVID-induced lockdowns and restrictions on travel made it necessary for government and business meetings and conferences to be conducted virtually, via various online formats. Consumers bought online and, most importantly, schools and tertiary educational institutions moved their courses online. This was a global trend, but on the African continent there was a clear divide between the connected and the unconnected, and between those with access to online education and those without. The World Bank has characterised Africa's connectivity gap as a 'digital Grand Canyon'.

## What exactly is a digital divide?

As defined by the Organisation for Economic Co-operation and Development (OECD)[1]

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In this occasional paper, we focus mainly on the digital divide as the absence of internet connectivity and the impact this has on vulnerable groups such as women, who are critical for the successful implementation of the African Continental Free Trade Area (AfCFTA).

Many innovative (including homegrown) solutions have been proposed to help bridge this 'digital Grand Canyon', with Africa having spawned many digital innovations. This occasional paper recognises the importance of internet connectivity and also that there are many approaches to driving connectivity. Critically, there is a need to address infrastructure challenges and to drive demand from the ground up. Once those who are presently unconnected move beyond basic telephonic communication (with 2G or 3G phones) to

1 Organisation for Economic Cooperation and Development (OECD), 'Glossary of Statistical Terms,' https://stats.oecd.org/glossary/detail.asp?ID=4719.

using the internet to help them become more productive in their businesses (farming, small industries or informal trading), demand for data will grow. This will contribute to the steady growth of the digital economy and will help businesses within the AfCFTA to gain momentum.

A lack of connectivity is not only an African problem. Over 3.7 billion people in low- and medium-income countries are without internet access. Yet access to connectivity, underpinned by adequate and affordable infrastructure as well as digital skills, is paramount if these countries are to participate fully in the digital economy and rebuild their economies in the post-COVID era.[2] In the UN Secretary-General's Roadmap for Digital Cooperation in 2019, it was stated that 'least-developed countries are the least connected with just 19 per cent of their populations using the Internet compared to 87 percent in developed countries'.[3]

The UN Children's Fund (UNICEF) has called for universal and affordable internet access for children, highlighting that there are currently multiple barriers to such access:

- A lack of affordability due to the high cost of technology;
- A lack of connectivity due to inadequate communication networks or infrastructure;
- A lack of digital literacy due to low levels of basic literacy, reading ability and technical skills;
- Discrimination based on gender, race, ethnicity and age; and
- A lack of inclusivity due to non-standard information and communication technology (ICT) designs and user interfaces and other hindrances, such as language and capacity differences or disabilities.[4]

Access to data and telephonic and internet connectivity is a fundamental building block of the digital economy. The digital economy depends on data for communications, for trade and for governance. Indeed, the free flow of data, as well as suitable protection surrounding its use, will be essential for the success of the AfCFTA. As the authors wrote in 2021:[5]

> The mobile market in Africa is growing, with smartphone connections set to almost double to 678 million by the end of 2025, with an adoption rate of 65% in Sub-Saharan Africa. Although this adoption rate is a positive shift, the mobile internet penetration rate remains low, limiting connection for many. It is crucial that investment in broadband and other forms of infrastructure is prioritised to maximise and leverage better connectivity and access to data through mobile channels.

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2 ITU, *Measuring digital development: Facts and figures 2021*. https://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx.

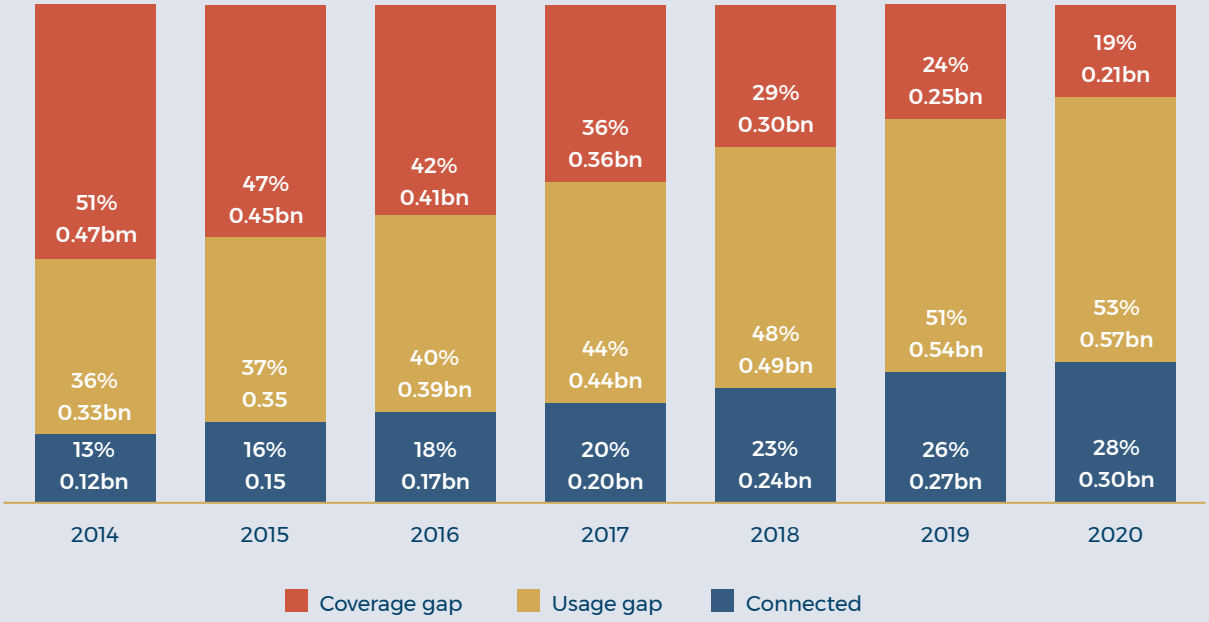
3 UN, *Report of the Secretary-General: Roadmap for Digital Cooperation*. June 2020. https://www.un.org/en/content/digital-cooperation-roadmap/assets/pdf/Roadmap_for_Digital_Cooperation_EN.pdf.

4 UNICEF, *The State of the World's Children 2017. Children in the Digital World*. https://www.unicef.org/media/48601/file.

5 Michelle Chivunga and Alastair Tempest, 'Digital Disruption in Africa: Mapping Innovations for the AfCFTA in Post-COVID Times,' (Occasional Paper 317, South African Institute of International Affairs January 2021); GSMA, 'The Mobile Economy Sub-Saharan Africa 2020' (GSMA, London, 2020), https://www.gsma.com/mobileeconomy/wp-content/uploads/2020/09/GSMA_MobileEconomy2020_SSA_Eng.pdf.

About 52% of Africa's population live in rural areas, which are the most difficult to reach and the least financially interesting for existing telecoms providers. GMSA, in its 2021 annual report on the penetration of mobile phones and the internet, estimates that 46% of the continent's population owned a mobile phone in 2020, but only 28% had access to the internet. It is worrying that there has been a steady expansion in the digital divide since 2014 (see Figure 1), particularly given the rapid increase in Africa's population during that period.[6]

## Figure 1 Evolution of mobile connectivity in Sub-Saharan Africa




Note: totals may not add up to 100% due to rounding

Source: Anne Delaporte, 'The state of mobile connectivity in Sub-Saharan Africa: Why addressing the barriers to mobile internet use matters now more than ever' (GSMA Mobile for Development Blog, October 27, 2021), https://www.gsma.com/mobilefordevelopment/blog/the-state-of-mobile-internet-connectivity-in-sub-saharan-africa/

The coverage gap in Figure 1 refers to the proportion of the population who live outside the footprint of a broadband mobile network (ie, 3G or above). This internet access gap has widened, even as the overall coverage gap has narrowed. According to a World Bank/UN Broadband Commission report, the estimated cost of closing Africa's digital divide by 2030 would be a staggering $100 billion. Yet it is important to remember that with connectivity

6 Anne Delaporte, 'The state of mobile internet connectivity in Sub-Saharan Africa: Why addressing the barriers to mobile internet use matters now more than ever' (GSMA, October 27, 2021), https://www.gsma.com/mobilefordevelopment/blog/the-state-of-mobile-internet-connectivity-in-sub-saharan-africa/

comes real economic benefits. The International Finance Corporation and Google pointed out in a recent report that increased mobile phone coverage would stimulate national GDP:[7]

> Africa's Internet economy has the potential to reach $180 billion by 2025, accounting for 5.2% of the continent's gross domestic product (GDP). By 2050, the projected potential contribution could reach $712 billion, 8.5% of the continent's GDP.
>
> A 10% increase in mobile Internet penetration increases GDP per capita by 2.5% in Africa, compared with 2% globally. In addition, a 10% increase in digitization, the conversion of information into a digital medium, increases GDP per capita by 1.9% in Africa, compared with 1% in non-Organisation for Economic Cooperation and Development (non-OECD) countries. More generally, increasing Internet access to 75% of the population could create 44 million jobs.

On a broader level, despite the growth in mobile phone subscriptions, many Africans lack access to online platforms. In addition, digital illiteracy among African consumers and vendors presents several obstacles to the growth of online commerce on the continent. Merchants, in particular, lack the knowledge needed to adapt their value chains to the digital world. In response to this situation, a locally made smartphone has recently been unveiled in Côte d'Ivoire, which aims to improve access to mobile banking among users who cannot read and write, using voice commands in 16 local languages.[8]

The major infrastructural barriers, which will take both time and resources to eliminate, are considered below.

# Infrastructural and other barriers to connectivity in Africa

The vastness of the African continent obviously makes any form of physical infrastructure development enormously challenging. It is far cheaper to lay cables under the ocean than to lay cables on land. However, attempts are being made to provide coverage via satellite, drones and balloons. In late 2021 World Mobile announced that it would launch fixed, low-altitude platform balloons in Zanzibar and is talking to Kenya about using the same technology there.[9]

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7 IFC and Google, 'e-Conomy Africa 2020 - Africa's $180 Billion Internet Economy Future,' November 11, 2020. https://www.ifc.org/wps/wcm/connect/publications_ext_content/ifc_external_publication_site/publications_listing_page/google-e-conomy.

8 Reuters, 'First smartphone made in Ivory Coast caters to local users,' August 25, 2022, https://www.reuters.com/world/africa/first-smartphone-made-ivory-coast-caters-local-users-2022-08-24/#:~:text=ABIDJAN%2C%20Aug%2024%20(Reuters),in%20the%20West%20African%20country .

9 IT Web, 'World Mobile chooses Zanzibar for balloon-driven mobile network,' December 1, 2021, https://itweb.africa/content/lLn147mjg5yMJ6Aa Two solar-powered, helium-filled balloons will float 300 metres above the ground and have a broadcast range of around 70km apiece, using 3G and 4G frequencies to deliver the signal. The balloons can survive winds of up to 150km per hour and stay airborne for up to 14 days before descending for refilling. World Mobile aims to succeed where larger companies have failed. Facebook's Project Aquila, an internet delivery system using high-altitude drones, was closed in 2018. Google's Loon, which used stratospheric balloons to deliver internet connectivity to central Kenya, closed in January 2021.

The Africa Data Centres Association issued a report[10] in 2021 in which it forecast that the continent would need to add 'an aggregate capacity of at least 120MW of multi-tenant data centre capacity over the next decade to keep up with the current demand'. The report also stated that the rest of Africa would need to add nearly 1000MW of capacity and 700 data centres to catch up with existing South African levels.

Connectivity depends on a backbone of telecommunications infrastructure. The number of internet users has increased exponentially, from 0.4% of the global population in 1995 to 69% in 2022.[11] However, there is serious inequality in data connectivity, and developing countries need to have access to modern data infrastructure to ensure reliable and affordable connectivity for their populations. The starting point for national data infrastructure is the establishment of Internet exchange points (IXPs). Overall, countries without IXPs rely on overseas data exchanges which are much more expensive. Once IXPs are established, countries need to encourage the private sector to invest in co-location data centres, which – among other things – allow popular internet content from overseas to be stored locally, greatly reducing the cost and increasing the speed of usage. However, at present, there are more data centres in California than in the whole of Sub-Saharan Africa, and Africa accounts for less than 1% of the world's co-location data centres.[12]

For the private sector to be willing to invest in co-location data centres, stable physical and regulatory environments are required, combined with abundant, low-cost renewable energy. Meeting these conditions can be challenging for low- and middle-income countries. Internationally, cloud computing services are also becoming critical for accessing state-of-the-art software services and leveraging the power of the 4th Industrial Revolution (or 4IR) – in particular, artificial intelligence (AI) and blockchain. However, hyperscale global cloud data centre providers operate in just a handful of large emerging markets, including Brazil and South Africa. While it may not be feasible to develop cloud computing in smaller countries, cloud on-ramps – cheap, fast and secure direct links to cloud computers that bypass the public internet – are emerging as a valuable alternative.

Co-location facilities provide rented space, power and cooling to companies and hyperscale customers; they also offer interconnections, which allow scalability at low cost. Customers in Africa are increasingly using data centres to access public cloud-based services from Amazon Web Services, Microsoft and others.

There are strong indications that investors and big tech providers are becoming increasingly interested in providing the resources for the infrastructure needed to drive connectivity in Africa. Standard Bank forecasts that there will be a significant number of data centre investments over the next few years, led by Nigeria, South Africa and Kenya. Other markets,

10 Judith de Lange, 'White paper: What utilities are required for Africa's digital infrastructure needs?' (The Africa Data Centres Association and Xalam Analytics, February 2, 2021), http://africadca.org/en/white-paper-what-utilities-are-required-for-africas-digital-infrastructure-needs.

11 Internet World Stats, 'Internet Growth Statistics,' https://www.internetworldstats.com/emarketing.htm.

12 World Bank, *World Development Report 2021: Data for Better Lives. Overview.* (Washington, D.C., World Bank, December 2021), file:///C:/Users/27834/Downloads/211600ov.pdf.

including Ghana, are attracting investment from big US tech giants like Twitter and Google, while there is also growing interest in North Africa. Secondary markets to watch include Uganda and Côte d'Ivoire. However, connectivity in the future will also be affected by regulatory restrictions, such as data localisation legislation, which could significantly reduce the attractiveness of co-location.[13]

Another key infrastructural challenge is electricity supply. The UN Conference on Trade and Development (UNCTAD) estimated, in a 2021 report[14], that more than half the people living in least-developed countries (LDCs) lacked access to electricity in 2019. The level of rural electrification was particularly low, but as many as 33% of people in urban centres had no access to electricity and where electricity was available, supply was often unreliable. There are also supply problems in major African economies such as Nigeria and South Africa, with rural areas being the most neglected.[15] As the UNCTAD report sadly concludes: 'The UN policy is for everyone to have access to electricity by 2030. That target seems unobtainable.'[16]

The cost of mobile data is a major constraint in Africa. Internet access is 'affordable' when the cost of one gigabyte (gig/1GB) is less than 2% of gross monthly income. On the African continent, the price of data averages 5.7% of gross monthly income (compared to 2.7% in South America and 1.6% in the Asia-Pacific region). Only 14 of the 48 African countries included in the ranking have affordable internet access'. In the Central African Republic, the price of one gig of data represents 24.4% of monthly income, in the DRC it is 20.6%, while in Chad and Togo it is 15%. In Equatorial Guinea, which is connected to three undersea fibre-optic cables, one gig of mobile data costs $35 – the most expensive in the world. However, data prices in some other African countries are among the world's lowest. For example, in Mauritius the cost of one gig of data represents only 0.5% of monthly income, in Algeria it is 0.8%, in Gabon it is 1.3% and in Ghana it is 1.4%.[17]

In support of this, the Worldwide Mobile Pricing 2022 report, containing the results of a survey of 233 countries and territories, shows that 5 of the 10 most expensive countries in the world in which to buy mobile data are in Sub-Saharan Africa. In Sao Tome and Principe, 1GB of data costs $29, while other African countries with expensive 1GB data packages are Botswana ($16), Togo ($13), Seychelles ($13) and Namibia ($11). However, the decline in the cost of mobile data from 2021 to 2022 has been significant in Malawi (from $26 to $2), Chad (from $23 to $2) and Equatorial Guinea (from $50 to $10) – resulting in their being taken off the list of countries with the most expensive mobile data.[18]

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13 Standard Bank, 'Africa's data centre market poised for massive growth,' June 25, 2021. https://corporateandinvestment.standardbank.com/cib/global/insights/africas-data-centre-market-poised-for-massive-growth.

14 UNCTAD, 'Over half of the people in least developed countries lack access to electricity,' July 1, 2021. https://unctad.org/topic/least-developed-countries/chart-july-2021.

15 Power outages (load shedding) in South Africa during the first half of 2022 resulted in a loss to the economy of between ZAR 700 and 950 million/day; Fifi Peters, 'How much is load shedding costing the economy?' Moneyweb, June 30, 2022, https://www.moneyweb.co.za/moneyweb-radio/safm-market-update/how-much-is-load-shedding-costing-the-economy/.

16 UNCTAD, 'Over half of the people'.

17 Solène Benhaddou, 'Africa: Which countries charge the most for internet data?' The Africa Report, July 13, 2021, https://www.theafricareport.com/107259/africa-which-countries-charge-the-most-for-internet-data/.

18 The Worldwide Mobile Data Pricing 2022, https://www.cable.co.uk/mobiles/worldwide-data-pricing/. It should be noted that different systems of measurement were used by the A4AI and the authors of this occasional paper.

In addition to the direct cost of data, several African countries have imposed taxes on social media, mobile banking and mobile money services. For example, in 2021 the Tanzanian government imposed a levy (fee) of between $0.0043 and $4 on mobile money transactions. GSMA conducted an impact analysis, which showed that Tanzanians were returning to the use of cash and that the mobile money levy had started to reverse gains made in financial inclusion since Tanzania had become the first African country to implement payment interoperability. The government reduced the fee by 30% in September 2021, only months after introducing it, and in June 2022 reduced the fee by a further 43%. However, it is estimated that there has been a 12% contraction in the use of mobile money compared to 2020 levels.[19]

Other countries have banned certain social media services outright for various periods of time.[20] Imposing taxes on digital services reduces the appeal of and demand for internet connections and drives a deeper wedge between those consumers who can afford the higher costs and the poor who cannot. The phenomenon of the 'digital poor' is therefore reinforced.

There have been attempts made by governments in some countries to reduce data costs. For example, in South Africa, following a market inquiry in 2019, the Competition Commission instructed the country's mobile operators to reduce their prices.[21] This led to a small price drop for consumers, but South Africa continues to have the highest prices per gig of data among the 10 most technologically advanced African countries.

5G technology should act as a major stimulus to connectivity as it is 100 times faster than 4G and takes less time to send and receive signals. It can also support up to 1 million connected devices per square kilometre, compared to 4G's 100,000 connected devices. Ericsson, in a 2021 study, forecast that Sub-Saharan Africa will see the lowest adoption of 5G mobile phone technology globally over the next five years, mainly due to the high cost of 5G technology and 5G phones. The study revealed that less than 1% of African mobile phone connections used 5G in 2021, although it predicted that this will grow to 7% in 2026.[22] Some countries, such as South Africa, are actively pushing 5G connections. The South African government has already unveiled plans to prohibit the importation of 2G phones and is also planning to ban the importation of 3G phones in the future.

19 Emmanuel Onyango, 'Tanzania reduces mobile money levy by 30 percent,' *The East African*, September 2, 2022, https://www.theeastafrican.co.ke/tea/business/tanzania-reduces-mobile-money-levy-3535616.

20 For example, Uganda introduced an electronic transaction levy (e-levy) in its 2022 budget. The levy, which came into effect on February 1, 2022, is 1.75% of the value of electronic transactions. It covers mobile money payments, bank transfers, merchant payments and inward remittances. Nigeria banned Twitter for nine months in 2021–2022. It should be noted that the principle of 'net neutrality' is not followed by many African countries.

21 Competition Commission South Africa. *Market Inquiry. Summary of Provisional Findings and Recommendations*. April 24, 2019, https://www.compcom.co.za/wp-content/uploads/2019/12/Data-Services-Inquiry-Summary.pdf. In 2016 the Competition Authority of Kenya ruled on mobile money costs (the use of USSD).

22 *Ericsson Mobility Report*. June 2021, https://www.ericsson.com/4a03c2/assets/local/reports-papers/mobility-report/documents/2021/june-2021-ericsson-mobility-report.pdf.

# Complex issues demand innovative solutions

The continent seems to be caught in a vicious circle. Solutions to infrastructural problems are expensive to implement, although some innovations being rolled out could become financially sustainable. Moreover, although internet coverage in many countries is limited, extending the reach of telecommunications services to those parts of a country that are poorly served or neglected altogether would simply increase data costs without necessarily boosting demand. Data costs in many African countries are already too high, which reduces consumer demand, particularly among the poor. Therefore, the financial costs incurred in achieving greater coverage would be unsustainable, according to the national telecoms sector. The economic argument against extending internet coverage may have been justifiable pre-COVID, but does it still hold good now?

We believe that there are two solutions to the problem of inadequate coverage, which need to be activated at the same time. First, governments and investors in Africa need to be persuaded to encourage and provide the resources needed for greater internet coverage. Second, local businesses, farmers, educational entities, health clinics and local governments need to be encouraged to embrace the digital economy, which will stimulate demand for data/access to the internet.

We do not believe that the proposed solutions can be implemented quickly; they could take a decade or more to take root, not a few years. Yet the 'digital Grand Canyon' can be bridged and the unconnected can be brought into the digital economy. This will benefit Africa's GDP and contribute greatly to the revitalisation of manufacturing on the continent, which is the AfCFTA's key underlying objective.

Aicha Jeridi of the African Civil Society on the Information Society (ACSIS-SCASI) pointed out at a recent UNCTAD meeting that many small, medium and micro enterprises (SMMEs) need to change their mindset about the digital economy and to actively embrace it. This requires improved training and appropriate upskilling.[23] An important catalyst for change has been the production in Africa of cheap 4G mobile phones, which are already available across most of the continent.

African countries have also recognised the vital importance of informal traders to their economies. Informal trading activities are estimated to generate around 35–40% of Africa's GDP,[24] while also providing significant employment opportunities for women. Moreover, mobile money and micro-lending services are extremely important in Africa, particularly among informal traders. M-Pesa mobile money, which started in Kenya, charges very low

23 UNCTAD ecommerce Week 2022, eCommerce Forum of Africa session on 'A Key to the Digital Economy in Africa will be Blockchain Powered by Data,' held in Geneva on April 28, 2022, https://unctad.org/system/files/information-document/eWeek-2022-Outcome-Report-FINAL_1.pdf.

24 Leandro Medina, Andrew Jonelis, and Mehmet Cangul, 'The Informal Economy in Sub-Saharan Africa: Size and Determinants' (WP/17/156, International Monetary Fund, 2016), https://www.imf.org/en/Publications/WP/Issues/2017/07/10/The-Informal-Economy-in-Sub-Saharan-Africa-Size-and-Determinants-45017.

commission on payments, making it a popular alternative to cash. Cash transactions are a burden to central banks, whereas digital solutions, such as mobile money, are much more cost-effective and put less strain on the national fiscus. Digital financial solutions also help to narrow the digital divide in society at large. Nevertheless, Wasoko, a Kenyan ecommerce company that sells a range of goods directly to informal traders and tuckshops, still finds that the most popular payment arrangement in the country is cash.[25]

Côte d'Ivoire provides an example of how the government's promotion of mobile money encouraged greater internet access. In 2014, Côte d'Ivoire started to encourage high school students to pay for their education electronically. This resulted in about 94% of the country's 1.5 million high school students paying for their tuition via mobile money platforms. This stimulated more widespread use of mobile money services, which 83% of the country's population now use. As a result, most of the country now has mobile coverage, although it is important to note that accessing mobile money does not require internet access.[26]

Another example is Somalia whose central bank, in collaboration with the World Bank, the African Development Bank (AfDB) and the International Monetary Fund (IMF), introduced a central payments system in 2021 which connects the nation's 13 acquiring banks and formalised digital payment systems, making payments easier for everybody. Somalia has become a world leader in mobile money, with over 70% of its population of 13 million using mobile money services. This has stimulated telecommunications connectivity throughout the country, thus bringing the possibility of internet access closer to the population.[27]

## Top-down solutions – government initiatives

Most African member states of the AfCFTA are making efforts to close the digital divide with a view to achieving trade scalability as the FTA develops. Different solutions, though, are required for different countries. In South Africa, the Department of Communications and Digital Technologies (DCDT) has released a strategy ('SA Connect') that combines 'must provide' requirements for the telecoms sector with a series of other initiatives aimed at consolidating public and private investments over the next three years. The strategy involves the creation of local base stations and wi-fi hotspots which will link into a national fibre backbone. Local suppliers will charge users wholesale rates.[28]

25 Interview with Daniel Wu, Founder and CEO of Sokowatch (now renamed Wasoko), for a series of case studies published by the International Trade Centre, 2019.

26 Groupe Speciale Mobile Association (GSMA), Mobile for Development, "New case study on paying school fees with mobile money in Cote d'Ivoire: A public-private partnership to achieve greater efficiency", https://www.gsma.com/mobilefordevelopment/region/sub-saharan-africa-region/new-case-study-on-paying-school-fees-with-mobile-money-in-cote-divoire/.

27 The examples from Cote d'Ivoire and Somalia were provided by Dr Bienvenu Agbokponto Soglo, Director, Government Affairs Africa, Intel, in an interview on March 17, 2022.

28 Information on this case was provided in an interview with Alf Wiltz, Chief Director, Telecommunications and IT Policy, Dept of Communications & Digital Technologies, and Minister Khumbudzo Ntshavheni's speech to The Naspers/DCDT Stakeholder Forum on 'Unlocking the Potential of South Africa's Digital Economy,' Sandton, South Africa, March 23, 2022.

At present, telecommunications coverage in South Africa is just under 90% of the country. However, the quality of the coverage is not high outside the rich, urban areas.

The key to the success of this strategy is that local government infrastructure, such as schools and health centres, must be connected. As Communications and Digital Technologies Minister Khumbudzo Ntshavheni reported to Parliament on 15 February 2022:[29]

> In the next three years, we will connect 44,800 government sites (including 18,036 schools, 3,873 health facilities, 949 libraries and Thusong centres, and 8,241 tribal authority sites that will be connected through the telecommunications operators). In the same period, we will roll out more than 33,000 community wi-fi and broadband to households via base stations.

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'SA Connect' aims to ensure that 80% of the population will have access to the internet via smart phones by 2025 and that the digital economy will contribute 30% to GDP by 2028. All households will be provided with 10GB of free data per year and all public-school students will be given an email address.[30] In addition, e-IDs are being planned and government data on the population will be connected to ensure a seamless process rather than one involving the storage of data by each agency or ministry operating in silos. New rules have also been put in place to ensure that the government adheres to specific cloud computing and data storage practices.

This is a sophisticated strategy designed to drive content and ensure that the digital divide is bridged within a reasonable period of time. It provides a financially sustainable model for other countries to follow as it combines public and private engagement. It is important to note, however, that the strategy acknowledges that mobile telecom providers are responsible for delivering the last mile connection to subscribers. This is the case in almost

29 Government of South Africa, Department of Communications and Digital Technologies press release, https://www.dcdt.gov.za/images/Minister-Speeches/Key_Messages_during_the_SONA_Debate.pdf. The South African strategy comes at a time when the licences for telecom providers were being renewed; A Thusong centre is 'a one-stop service centre providing Government information and services to communities based on the needs of the specific community'.

30 'Cabinet approves SA Connect Phase 2 – 100 Mbps for Home Affairs Offices,' MyBroadband, 1 February 2022, https://mybroadband.co.za/news/broadband/432310-cabinet-approves-sa-connect-phase-2-100-mbps-for-home-affairs-offices.html.

all countries. Therefore, if providers are not fully engaged and motivated, attempts to close the digital divide will fail.

Other national initiatives undertaken by African countries to foster digital inclusion include Kenya's support-for-community-network initiatives. These require contributions from telecom companies to the Universal Service Fund which provides resources needed to build connectivity infrastructure in low-income and rural areas. Another example is Nigeria extending electronic money licences to telecom companies such as MTN, thereby facilitating financial inclusion, and Egypt withdrawing previous limits on digital transactions.[31]

# Infrastructure investment and financing

Infrastructure development costs to connect Africa are extremely high. Economists have estimated that the continent needs around $86 billion in infrastructure investment to provide universal internet access.[32] This can only be realised if there is public–private cooperation. Governments are therefore collaborating with internet-based companies in several ways.

For example, in 2021 Google committed $1bn in investments to improve connectivity on the continent and to back African tech start-ups and entrepreneurs over the next five years. Facebook has its 2Africa sub-marine cable project which has recently been expanded to cover 26 countries, while Google has been working on its own sub-marine cable project stretching down the west coast of the continent via Nigeria, Namibia and South Africa. The aim of the project is to improve internet access and reduce the cost of internet usage. Google expects this undertaking to be completed by 2023. Other sub-marine cables have been laid to link Africa to the north through the Mediterranean and east to India and beyond.' 'Smart Africa has launched an initiative designed to make broadband affordable for African countries by encouraging them to enter into agreements with international broadband providers for long-term, bulk sub-marine and/or satellite bandwidth.'[33]

While these inter-continental cables provide fast internet connectivity and will undoubtedly help to reduce internet costs overall, the major investments will be in overland projects, as already mentioned. How can African countries find the enormous amounts of finance needed to bridge the digital divide? Most of the funding solutions must be found locally.

31 Alexander Onukwue, 'Why Nigeria's biggest telecom companies are getting banking licenses,' Quartz Africa, May 5, 2022, https://qz.com/africa/2162354/why-nigerias-top-telecom-companies-are-getting-banking-licenses.

32 TrendsNAfrica, 'The Euphoria about Google's investment announcement,' October 16, 2021, https://trendsnafrica.com/the-euphoria-about-googles-investment-announcement/; Note that the World Bank suggests the slightly higher figure of $100 billion.

33 Smart Africa, 'Bulk Purchase of wholesale submarine and satellite internet bandwidth'. https://smartafrica.org/sas-project/bulk-purchase-internet-bandwidth/; This Smart Africa initiative is ongoing.

There is an opportunity to expand access to new forms of financing to help bridge the digital divide and reduce the $86 billion shortfall in infrastructure funding. African countries should find new ways to strengthen local capital markets and private investment pools, which are driven by local partners and local investors, to fill the funding gaps. Strengthening private–public partnerships will accelerate the funding of large infrastructure projects. This will help to address the challenge of funding the development of necessary but expensive digital infrastructure, especially in the rural areas. The advantage of public–private partnerships is that the risk is shared between the public sector, which is financially constrained, and the private sector, which has more ample resources. Furthermore, it frees governments up to engage in targeted policy reforms that are needed to facilitate flows of investment for ongoing infrastructure development.

As the world transitions into the 4IR, which has introduced new forms of digital assets and decentralised financing instruments, the time is ripe for African countries to explore new avenues of capital generation. Decentralised financing packages can be a source of long-term financing that not only cover infrastructure development costs but also provide access to digital micro-financing to enhance the spending power of African people.

With improved spending capacity, more people will be in a financial position to participate in the digital economy and access digital products. This is extremely important, especially for young African people who make up the bulk of Africa's population. Africa has the youngest population in the world, many of whom are tech-savvy and well placed to adopt digital technologies. However, young entrepreneurs will become increasingly reliant on robust and secure digital platforms to create new digital-economy jobs, boost African productivity and capacity, and strengthen intraregional value chains. Closing the digital divide is critical if African regional value chains are to expand and become more productive. Young people and SMMEs are increasingly using mobile phones and telecoms infrastructure, which are connecting them to regional and global markets around the world.

Funding frameworks for trans-African or intraregional telecoms infrastructure are therefore critical and may be achieved through public–private institutional partnerships between regional banks and bodies, such as AfreximBank, Smart Africa and regional economic banks, including the East African Development Bank or the ECOWAS Investment and Development Bank, taking the lead in regional connectivity projects. In addition, greater alignment should be forged between partners in projects such as the Policy and Regulation Initiative for Digital Africa (PRIDA) and the Digital Moonshot initiative by setting up basic telecommunications infrastructure and IXPs as well as creating incentives to, for example, establish data centres in special economic zones and/or reduce the tax obligation of cloud service providers.

Although the appetite for investment in African projects is growing, infrastructure investment opportunities are largely dominated by the same players providing traditional financing packages. With the transition into the digital economy, more emphasis should be placed on sourcing innovative financing packages. With alternative sources of financing and numerous digital assets coming to the market, the number of funding possibilities

for digital infrastructure projects is growing. These in turn must be underpinned by more political alignment to create the right enabling environment in which new forms of financing can be effectively deployed.

# Addressing the gendered digital divide

The scope of this occasional paper does not extend to an in-depth analysis of the impact of the COVID-19 pandemic on women in Africa. However, it does provide a deep (though relatively quick) dive into some of the consequences for women, given their existing socioeconomic circumstances.

Globally, 327 million fewer women than men have a smartphone and can access the mobile internet. This translates into women on average being 26% less likely than men to have a smartphone. In South Asia and Africa, the proportions are 70% and 34%, respectively. In 2017, the female internet penetration rate in the world was 18.6%, compared to 24.9% for men.[34] Women are therefore less likely to participate in the digital economy.

At the height of COVID-19, between March and August 2020, women were 79% more likely to be made redundant, resulting in a 63% drop in earnings.[35] Many women lost or left their jobs to take on childcare and home responsibilities which, in the face of lost income, made access to digital platforms and networks unaffordable. Furthermore, it has been estimated that '20 million secondary school-aged girls in developing countries could be out of school following the crisis.'[36] These young girls were also denied the opportunity to participate in online education programmes given their lack of access to digital platforms and/or cultural barriers limiting their participation. It is these women and girls who need to find new pathways towards digital literacy and access so that they will be able to improve their living conditions and future economic prospects.

The COVID-19 pandemic has had a disproportionately negative impact on women across Africa. Women work predominantly in the informal economy and service-based sectors, such as tourism, retail and hospitality, as well as in agriculture. These sectors have all been negatively impacted by COVID-19, with stringent lockdown measures exacerbating gender divisions as many women were unable to take advantage of digital opportunities. In the Sub-Saharan African region, where women account for more than 90% of the informal workforce, it is estimated that informal workers have lost on average 80% of their income as a result of COVID-19.[37]

34 OECD. Bridging The Digital Gender Divide. Include, Upskill, Innovate. 2018. https://www.oecd.org/Digital/Bridging-The-Digital-Gender-Divide.Pdf.

35 Women 20 (Saudi Arabia 2020), Accenture Research & Quilt.AI, 'If Not Now, When? A roadmap towards a more gender-equitable economic recovery.'

36 Malala Fund, 'Girls' education and COVID-19. What Past Shocks Can Teach Us About Mitigating The Impact of Pandemics,' April 6, 2020.

37 IMF, *Jobs in Lockdown: Insights from Sub-Saharan Africa*, Special Series on Covid-19 (IMF African Department, 2021).

Mobile usage across Africa is the most utilised means of accessing the internet and digital platforms. Participating in the digital economy through the use of affordable technologies such as feature phones capable of hosting offline services is an opportunity to alleviate the poverty trap in which many African women and young people find themselves. However, in 2019, 37.9% of economically active women and 35.6% of men in Sub-Saharan Africa were living in extreme poverty, ie, on less than $2.15 per day.[38] As a result, women and girls face the constant threat of being pushed further into the poverty trap, prompting greater labour market distortions, widening gender gaps and greater income inequality, which will further constrain women's capacity to afford and effectively leverage digital technologies.

The AfCFTA has come at a critical juncture in Africa's development and could be the catalyst for alleviating some of the challenges faced by many women on the continent. Closing the gender digital divide requires a holistic, collaborative approach underpinned by the AfCFTA and a comprehensive strategy geared towards boosting access to digital platforms, affordable data, trade across regional and global value chains, gender-led investments, and tailored approaches to digital skills development and upskilling. To narrow the gender digital divide, several critical areas need to be addressed, including the following:

- Tackling the lack of accessible and affordable data and interoperable data infrastructures, so that women can leverage the benefits of digital technologies.
- Expanding and accelerating digital upskilling, capacity building and easy access to digital tools and ecommerce platforms (already about 20% of Africa's digital developers are women).[39]
- Establishing accelerator hubs and business support and mentorship programmes to enable more women to actively leverage emerging technologies and the platform economy.
- Collecting better data and information on women's internet usage and responsiveness to digital platforms, thereby informing the design and rollout of women-oriented initiatives that will help to eradicate the digital divide.
- Creating inclusion initiatives that will align with other strategic interventions and tackling related problems, such as unpaid childcare and housework that act as deterrents to women's participation in the digital economy.
- Designing new and innovative digital solutions that will directly and indirectly benefit women in Africa, while also ensuring that women are themselves actively involved in the development process to minimise the risk of gender bias.

38 UN Women, 'SDG Indicator Dashboard', https://data.unwomen.org/data-portal/sdg.

39 Google and IFC, a member of the World Bank Group, *e-Conomy Africa 2020 - Africa's $180 Billion Internet Economy Future*, https://www.ifc.org/wps/wcm/connect/e358c23f-afe3-49c5-a509-034257688580/e-Conomy-Africa-2020.pdf?MOD=AJPERES&CVID=nmuGYF2.

- Facilitating women's participation in digital ecosystems, such as blockchain and the digital asset marketplace, thereby affording women access to more trustworthy and transparent digital trading environments.

# Addressing the digital divide among the youth

The needs of young people in Africa also need to be considered in the light of the continent's pronounced digital divide. Klaus Schwab from the World Economic Forum recently emphasised the need for 'developmental approaches' in the wake of the COVID pandemic and highlighted how inequalities in access had been induced by:[40]

> … gaps in affordability, digital devices and bandwidth; professional development programmes failing to impart the necessary digital skills to support hybrid teaching practice; weak attention to pedagogy and poor lesson design; difficulties in maintaining engagement between teachers and students; potential biases inherent in automated tools that may not be designed with learners in mind; a lack of appropriate learning content; the alienation of educators from the learning process; the replacement of educational institutions with technological fixes; and limited use of hybrid [learning approaches].

It is obvious that urgent attention needs to be given to improving education in Africa, from primary level upwards. Many observers have called for a more holistic approach to education which will prepare the youth for the digital economy. Kenya, for example, has been the first African country to build coding into its secondary level curriculum. In its work on education and children, UNICEF has proposed that innovation in teaching should extend beyond a focus on new technologies to also include newer, simpler means to promote lifelong learning and equity. In this regard, it suggests that hybrid learning approaches have the potential to transform education. The International Labour Organization, which recently concluded a study on employment in the digital economy, reported:[41]

> Digital innovations will rapidly change the demand for skills. In order to avoid the creation or a widening of skills gaps and to ensure their employability over the work-life, individuals need to have access to lifelong learning systems. At the same time, change is required in technical training and education institutions, with a view to developing the skills workers will need in the digital economy.

40 Klaus Schwab with Thierry Malleret, Covid-19: *The Great Reset*. Forum Publishing, 2020, http://reparti.free.fr/schwab2020.pdf.

41 UNCTAD Ecommerce Week 2022, session on 'A Key to the Digital Economy in Africa'; UNICEF, *The State of the World's Children 2017. Children in the Digital World*, https://www.unicef.org/reports/state-worlds-children-2017; ILO, *The future of work in the digital economy*. Paper prepared for the Employment Working Group under the 2020 Russian presidency of the BRICS September 2020.

While it would appear, at the time of writing, that the worst effects of the pandemic are behind us and that school and tertiary education have settled into a 'new normal', the lesson of the last two years for educators is surely that teaching must be seen against the backdrop of the digital economy. As the UN Broadband Commission has pointed out, it is not only technology that has been evolving rapidly but also the effects of the COVID-19 pandemic, which isolated students and affected the ability of teachers to deliver their lessons. The first target of training must be teachers themselves so that they become aware of the new technologies. However, if they do not have access to the internet, how can they be expected to teach their students? Using the regulatory system to ensure that all schools have adequate internet connectivity is therefore essential.

## Bottom-up solutions – market-based initiatives

As mentioned in the introduction, the COVID-19 pandemic forced many activities to be performed online. In particular, many secondary and tertiary education programmes had to be delivered online as students were locked down. While these arrangements are now being reversed, online teaching and training have nevertheless been proven to be effective. Other areas have benefited from online activity as well, eg, remote health services have assisted rural communities, while e-government services are expanding. Some countries are introducing e-IDs which will be of great help in rural and poorer areas where births are often not formally registered. It is estimated that as many as 45% of Africans have no formal identification. This creates many challenges for the individuals concerned – from an inability to open a bank account or to vote, to restrictions on travel, the lack of a recognised physical address, and so on.[42]

In the face of these challenges, it is in national governments' interests to bridge the digital divide. But do local authorities share these concerns? Local governments, including traditional leaders, tend to be more conservative and resistant to change, unless they have proof that change will benefit their constituents and themselves.

The farm-to-table or farm-to-city-wholesalers movement has acquired prominence in a number of countries, led by innovators such as Kenya's Twiga, Egypt's MaxAB and Nigeria's Agriple.[43] These companies order directly from farmers, using ecommerce solutions. They provide advice on crops and arrange collection and delivery from the farmgate to the city wholesale market or final consumer. The more sophisticated the communication, the better things are for both farmer and buyer.

42 The World Bank is investing in 'e-IDs' for Africa. Smart Africa is engaged in an ongoing project and there are some national projects, such as an undertaking by BankServAfrica in South Africa, and a scheme in Kenya.

43 Michelle Chivunga and Alastair Tempest, 'Why Regional Value Chains in Africa Need to go Digital' (Occasional Paper 331, South African Institute of International Affairs, September 2021).

Another example is the introduction of drones in Ghana. Acquahmeyer, a Ghanaian company, rents out drones to assist small-scale farmers to check the health of their crops and to use pesticides only where needed, thereby reducing pollution and health risks. Because fewer chemicals are used, the produce meets EU standards for organic food imports. The drones, in turn, ensure better crop management and thus higher revenues for the farmers concerned.[44]

Local industries, such as carpentry, textiles, pottery and local food processing, have been badly affected by the COVID-induced collapse of the tourist industry. However, many SMMEs have switched to selling online, using social media (TikTok, Facebook, Instagram, WhatsApp, and so on). A study carried out in eight countries found that most of these merchants were young and/or women and that they were able to adapt more quickly to change.[45]

BOX 1

By way of an example, a young man and his mother bake muffins on Friday evenings in Soweto, near Johannesburg. They use a WhatsApp group to sell their muffins to their community. Buyers submit their orders, and the muffins are delivered to customers on Saturday mornings by bicycle. Payment is cash on delivery. This example shows that all a small e-merchant needs is an attractive product, a social media outlet (or outlets), a payment service and a delivery solution. Social media and payment services depend on good internet connections. This is another reason why local authorities need to play their part in closing the digital divide.

We believe that an important element in the digital debate at the local level is the quality of education and training. Training is needed to help local businesses, artisans, farmers and sole proprietors leverage the benefits of online trading. In the past, many local entrepreneurs depended entirely on one sales outlet – passing tourists. Such a business model has been proven to be vulnerable. When tourist numbers return to pre-COVID levels, sales will pick up again. However, it would be most unwise for local businesses to revert to that single sales outlet. Businesses need to be trained to harness ecommerce to reach new markets and achieve more sustainable returns. Training must be provided in the local language, which will probably require that training packages be translated. Train-the-trainer programmes should also be conducted where necessary.

In addition, national education curricula at both the secondary and tertiary levels should be adapted to include the digital economy. Again, education programmes must be provided

44 Chivunga and Tempest, 'Digital Disruption in Africa.'

45 Bamuturaki Musinguzi, 'How social media is powering Africa's small businesses,' *Business Daily*, September 12, 2021, https://www.businessdailyafrica.com/bd/data-hub/how-social-media-is-powering-africa-small-businesses-3545894.

in the local language. The refocusing of education programmes should encourage local authorities and other decision makers to work together to bring an end to the digital divide in their regions so that they are in a better position to realise their potential.

Finally, all stakeholders must be ready to embrace change if the digital divide is to be bridged – from politicians and government officials, who are involved in the policy and strategy formulation process, and regulators, to telecom companies and internet service providers, local authorities, education and training institutions, teachers and facilitators. According to the well-known 'change formula'(C+DxVxF>R), Change occurs when the products of Dissatisfaction with the current state, and a clear Vision of a possibly more compelling future, and practical First steps towards a different future are greater than the Resistance to, or the pain or cost of, change. Africa needs to reach the stage where change is not only inevitable but also welcomed by all.[46]

# Policy considerations – how the AfCFTA agreement can drive digital inclusion

The AU Digital Transformation Strategy 2020–2030 stresses the importance of African governments establishing the right policy and regulatory structures. These are vital to attract the right types of investment to ensure adequate digital infrastructure development.[47] Regional economic communities (RECs) are among the building blocks of the AfCFTA and should support the establishment of clear policies relating to the implementation of national digital inclusion programmes. The latter should be set within the frameworks of the AU Digital Transformation Strategy and embedded in the protocols of the AfCFTA.

For example, the ICT strategy initiated by ECOWAS in 2014 provided a roadmap for telecommunication interconnectivity as a model for other regions. In 2016 ECOWAS was already able to report:[48]

> Regional integration and development have been more robust in the ICT sector. Also, two studies, one on the development of a harmonised law on the right of way to facilitate transit and reduce cost for the access to submarine cables by ECOWAS landlocked countries and the other on taxation on Telecommunication/ICT services and related products in the region have been completed and adopted by the member states.

46 Humanperf Software, 'The #NowIUnderstand Glossary: The Beckhard-Harris formula for change DxVxF>R' (Humanperf Blog, May 21, 2019), https://www.humanperf.com/en/blog/nowiunderstand-glossary/articles/beckhard-harris-formula-for-change.

47 AU, *The Digital Transformation Strategy for Africa (2020–2030)*, May 18, 2020, https://au.int/en/documents/20200518/digital-transformation-strategy-africa-2020-2030.

48 Economic Community of West African States (ECOWAS), ICT, 2016, https://ecowas.int/?page_id=372.

Regional integration and development have been more robust in the ICT sector. Also, two studies, one on the development of a harmonised law on the right of way to facilitate transit and reduce cost for the access to submarine cables by ECOWAS landlocked countries and the other on taxation on Telecommunication/ICT services and related products in the region have been completed and adopted by the member states

In addition, consideration should be given to the impact of new policies and rules relating to digital trade, which are directly linked to and affect digital inclusion. The lack of access to the internet or affordable data constrains digital trade, which simply leads to further exclusion. Governments and the AfCFTA protocols need to tackle the continent's fragmented digital trade regimes by setting clear, transparent and coherent rules that support digital trade and digital inclusion across member states. National digital tax policies, for instance, should be well designed, as those hardest hit by digital taxes are the poorest segment of the population for whom mobile money is the only financial service to which they have access. Examples of special digital tax arrangements for the poorest and/or most vulnerable members of society are the introduction of tax exemptions on transactions of a certain nature or up to a certain value, or the reduction or complete elimination of excise duty on broadband services.

Other national initiatives that have been launched by African countries to drive digital inclusion include Kenya's support-for-community-network initiatives and mandated contributions by telecom companies to the Universal Service Fund for the purpose of building infrastructure in low-income and rural areas. Other examples are Nigeria issuing electronic money licences to telecom companies such as MTN to facilitate greater financial inclusion and Egypt removing limits on digital transactions.

At the continental level, regional frameworks and institutions such as the AU and AfCFTA (and their constituent RECs) can aid digital inclusion through various means, such as:

- Digitising trade documentation to encourage faster digital transformation and easier access to critical services. For example, the implementation of digital identity systems and digital trade documentation will help to lower barriers to trade for the most disadvantaged groups, including women and youth.
- Mandating, under the AfCFTA (through transparency obligations such as those in the General Agreement on Trade in Services framework), the provision of databases of tariff rates, non-tariff barriers, eligibility and licensing requirements, digitised rules of origin, sanitary and phytosanitary measures, labelling and other required trade documentation.

- Speeding up investments into digital infrastructure systems and boosting access to digital platforms and interoperable systems to facilitate greater participation in the digital economy, thereby aiding productivity and competitiveness.
- Adopting a targeted approach to deploying broadband connectivity which includes rural areas, while taking advantage of advanced emerging technology solutions that can enhance access and digital inclusion.
- Ensuring that investments secured to fund digital infrastructure development are diverse and include digital asset classes that offer alternative forms of financing to support national economies.
- Working with other member states to address digital skills shortages by implementing nationwide upskilling initiatives and supporting the inclusion of comprehensive digital education programmes in school and university curricula.
- Harmonising rules, establishing common standards and providing regulatory clarity on matters relating to the digital economy, including data sharing and privacy laws, while also helping to promote trust to encourage greater digital inclusion and participation.
- Sourcing best practices from national initiatives in selected member states and other international fora (such as the WTO's Trade Facilitation Agreement) to inform the negotiations surrounding the AfCFTA Digital Trade Protocol. Member states' implementation of the Protocol can be transitional but is pegged to obligations relating to technical assistance. Furthermore, Special and Differential Treatment which is customised to LDCs' specific circumstances through variable geometry can be included in the Digital Trade Protocol. Ultimately the latter must be designed in a way that allows the creation of a viable digital marketplace characterised by exchanges of data flows, supported by robust consumer protection and data privacy arrangements.

The guidance that the protocols provide to the member states must be extensive, even if this means that the negotiations take time to conclude. Incomplete rules will be inadequate and will not create the necessary framework for the digital economy to be utilised or the 'digital Grand Canyon' to be bridged throughout the continent. Each of the protocols that the AfCFTA Secretariat drafts over the next few years will include some aspects that are mandatory on the ratifying countries and some aspects that are in the form of guidance. It is essential that the drafters of these protocols recognise that once each has been adopted, they will not be revisited for some time. Taking shortcuts to rush through agreement will result in growing inequality within countries and between countries on the continent.

# Conclusion

Eliminating Africa's digital divide will take time and resources. The estimated cost of ensuring that all Africans have access to the internet is $100 billion, of which $86 billion is needed for infrastructure alone. Connectivity depends not only on under-sea cables, telecommunications relay towers and local switches, but also on data storage, IXPs, co-location data centres, stable electricity supplies, interconnectivity between countries and operators, and data-friendly regulatory frameworks. Ultimately, too, consumers must be able to afford the retail price of data itself. Attempts to drive greater digital inclusion may also be thwarted by impediments such as onerous taxation policies or other constraints which the rich may be able to tolerate but which discriminate against the poor.

If Africa's digital divide persists, the gap between the data rich and the data poor will widen, accompanied by growing social divisions and tensions between those who are digitally educated and those who are not. Solutions must be found that are sustainable for all stakeholders: the telecom companies providing the services, the individual consumers and businesses paying for the services, and national and local governments that, in the interests of efficiency, are becoming increasingly dependent on internet access to deliver e-government services, and traditional services (such as health care and education) in online formats.

A detailed strategy released in South Africa ('SA Connect'), which centres on licences being extended to the telecoms industry, has various 'must provide' requirements. These are designed to ensure sustainability by providing internet access to new 'customers', such as government offices, schools and health centres. It also actively promotes data use by giving all households some free data and registering students' names for email addresses. The goal is to find a sustainable balance between mobile telecom companies' need for profitability and the need to close the digital divide at the user level. Other governments have embarked on different strategies, but the only workable solutions will be a combination of 'government push' and 'telecommunications pull'.

Public–private infrastructure initiatives are part of the solution. Innovative investment solutions, new forms of digital assets and decentralised financing instruments are also available to resource internet penetration.

Over and above the visible aspects of bridging the digital divide, efforts must be made by government, educational experts, schools, universities and training institutions to create new curricula that address, and prepare people for, the digital economy. It is essential that people are taught (from a young age) the skills needed to succeed in the ever-evolving digital economy.

The AU has a central role to play, particularly through the AfCFTA Secretariat's work in driving the integration of Africa. The AfCFTA is aware that what it is currently working on will influence how today's African children will grow into adulthood. Will they find the quality

employment and enjoy the rights that they deserve? As we point out, speedy solutions are usually inadequate solutions, and should be avoided. The task is enormously important and needs to be given the necessary time for negotiation. The RECs, of course, are already playing an essential role, some with great success.

The AfCFTA will bring many new commercial and trade opportunities to the continent, which will increasingly be driven by the digital economy. Africa has no time to waste in tackling its digital divide so that it can leverage these new opportunities and look forward to a bright future.

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**Cover image**

Cape Town, South Africa, 2012: A student studying for a certificate in basic computer knowledge (Per-Anders Pettersson via Getty Images)



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