

Regional Bureau for Africa COVID-19 Policy Briefs



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COVID-19 Digitalization with Equity: Leaving no one behind¹

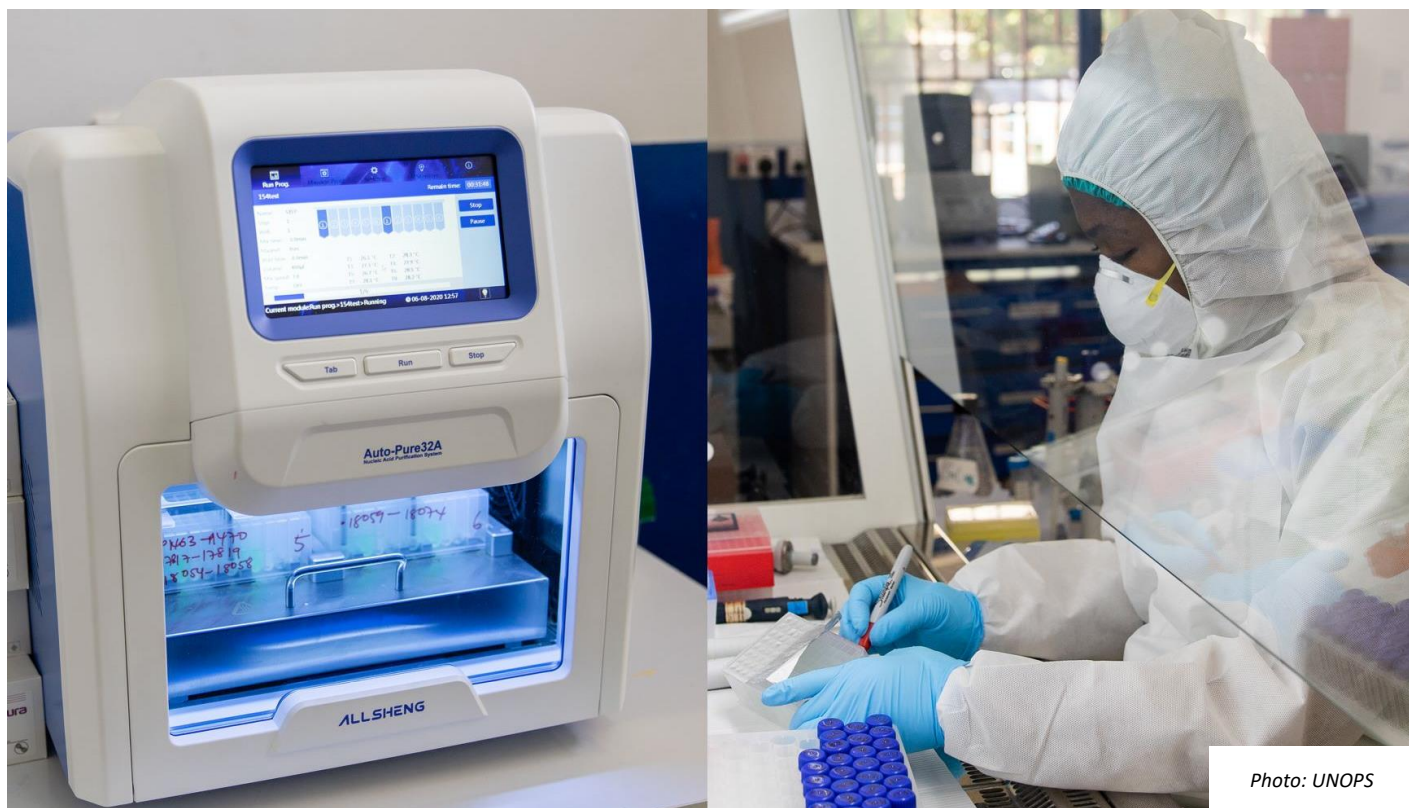


Photo: UNOPS

Highlights

- Digital technologies are at the heart of Africa's COVID 19 response and recovery. Ensuring equity through robust and agile policies, better infrastructure and skills will enable effectiveness, impact and protection.
- Despite high mobile penetration, Africa has low internet use – **79** percent of Africa's population can reach a mobile cellular signal but only **39.3** percent use the internet compared to **58.8** percent [globally](#).
- Large gaps in access by location and gender exists with **23** percent of women and **34** percent of men have access to the internet in Africa.
- The internet is least affordable in [Africa](#) – it costs **8%** of average income to access 1GB of data in Africa compared to **2.7%** in the America's and **1.5%** in Asia

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Overview

Digital technologies that improve efficiency and provide new ways of delivering quality services are at the heart of Africa's COVID-19 response measures. They contribute to verified health information, ensures continuity in public services and connect buyers to producers. In Egypt, the broadband network has been leveraged to deploy telehealth solutions to 500 primary care units. It has facilitated buying and selling via e-commerce platforms such as Jumia, Otolob and Olex and deployed e-learning platforms and knowledge hubs. This has extended learning during COVID-19 and up to a million students can take an exam simultaneously². There has been a surge in e-commerce including Uganda's Market Garden app³ and South Africa's daily dish⁴ mobile apps that have been used to connect businesses with consumers during extended lockdowns.

Technologies have significant potential to enhance the COVID-19 socio-economic recovery including the potential to generate at least 3 million jobs in Africa by 2025 through communication and e-commerce platforms⁵. Mobile-enabled financial services are also powerful forces for financial inclusion. Sub-Saharan Africa is currently responsible for an astonishing 45.6%⁶ of mobile money activity in the world an estimated \$26.8 billion in transaction value in 2018.

However, limited digital infrastructure has hampered the full realisation of digital technology benefits on the continent. This has created several inequities between genders and locations impeding equitable recovery from COVID on the continent. Pre-existing gaps and challenges in access and use of digital technologies have been heightened by the Covid-19 response mechanisms being implemented by different governments on the continent.

UNDP is committed to seeking out and embracing existing and emerging digital technologies in all aspects of its work to better serve its partners in response to COVID-19 to achieve the SDGs. Our Digital Strategy and SDG Accelerator Labs are facilitating the use of digital technology to accelerate SDG achievement while navigating the risks and trade-offs. In Ghana and Uganda, we have facilitated mechanisms to exploit the power of mobile-based innovations for socio-economic transformation.

This brief outline policy options for countries to accelerate the adoption of legal and policy frameworks that encourage investments and partnerships that facilitate sustainable and inclusive digitalization. It includes innovative solutions spearheaded by young entrepreneurs to be supported through improved financial and digital infrastructure. Placing human rights and ethics

² <https://www.un.org/africarenewal/news/coronavirus/innovative-tech-and-connectivity-key-fighting-covid-19-africa>

³ <https://www.newvision.co.ug/news/1491949/app-linking-market-vendors-customers-launched>

⁴ <https://www.cio.com/article/3536640/10-ways-south-africa-is-using-tech-to-fight-covid-19.html?upd=1593683685130>

⁵ Dupoux, et al., 2019. , How Online Marketplaces Can Power Employment in Africa, Boston Consulting Group, 2019, [Link](#)

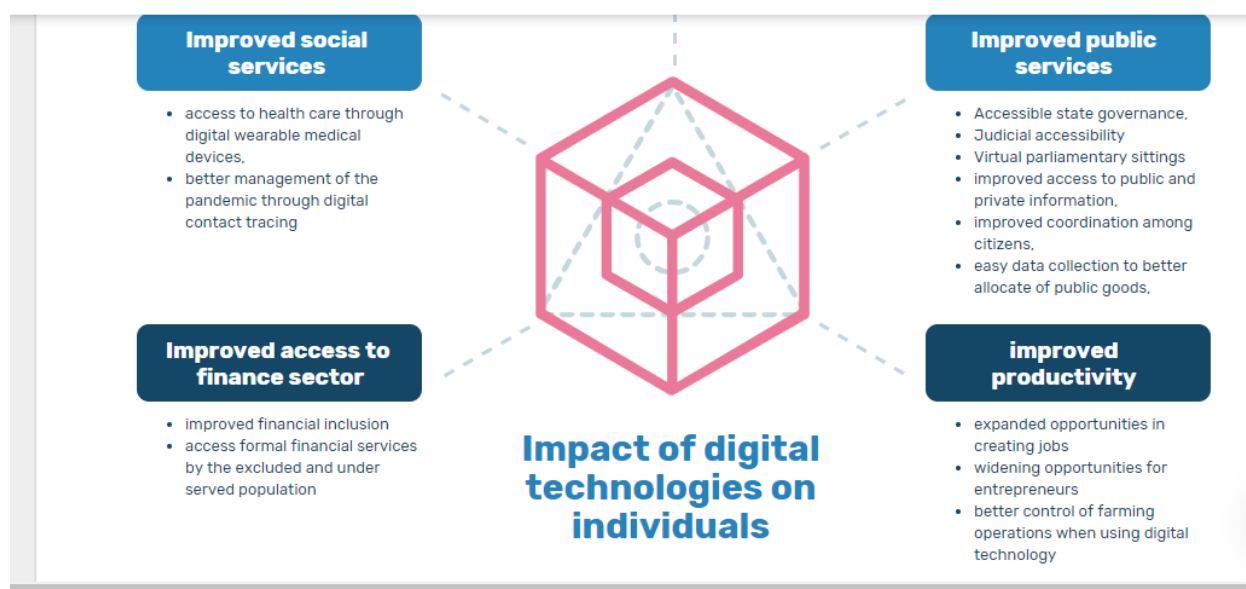
⁶ <https://www.gsma.com/r/wp-content/uploads/2019/05/GSMA-State-of-the-Industry-Report-on-Mobile-Money-2018-1.pdf>

at the centre is particularly important as digital technologies power the response and recovery from the pandemic. Adequate financing and expanding the reach of emerging technologies will ensure their sustainable transition from innovations to long-term solutions.

The prospects

Digital technologies are at the heart of a robust recovery beyond COVID-19. Improved access to products and services, information and finance can expand the delivery of public services and power transformation in productive sectors. In the context of the socio-economic response to COVID-19, an effective pathway to SDG achievement requires better governance, expanded access to social protection, a resilient and green economy using digital disruption. Connecting learners and educational institutions during pandemic ensure continuity in learning with the potential to expand access to quality education at an affordable cost.

The Multi-sectoral impact of digitalisation



Data

Source: https://www.itu.int/dms_pub/itu-s/opb/pol/S-POL-BROADBAND.20-2019-PDF-E.pdf

The provision of public services remains important regardless of the COVID responses and measures. State governance, the work of the judiciary, the police and parliamentary sittings are important to a country’s productivity, growth, and development⁷ and their continuation during pandemic lockdowns should be facilitated through the use of digital platforms and technological solutions. Recent trends⁸ over the years have shown that increased internet coverage and use of digital technologies in information and communication technologies, for citizens in remote areas has increased citizens’ access to public and private information, improve coordination among citizens, facilitate data collection for the allocation of public goods, and improve access to financial services, especially through mobile money. The COVID-19 pandemic has accelerated the need

⁷ Public service provision is defined as the provision of services to promote economic, social, and environmental sustainability. https://www.elibrary.imf.org/view/IMF071/24304-9781484315224/24304-9781484315224/Other_formats/Source_PDF/24304-9781484316719.pdf

⁸ Aker and Mbiti 2010; Aker 2011; Nakasone, Torero, and Minten 2014; Aker and Blumenstock 2014; Aker, Ghosh, and Burrell 2016)

for more digitalized systems in government and the pandemic presents an opportunity to frog leap systems that had been lagging in connecting to the digital world.

Further, social services such as access to health care can be improved through the adoption of digital technologies. Access to health despite limited health care personnel can be improved through technologies such as wearable devices. In pandemic response, [contact tracing](#) has played a significant role in monitoring Covid exposure. Currently, there exist 47 Covid tracers⁹ and only 2 are found in Africa, being Algeria and Ghana. The pandemic has presented an innovation opportunity and Africa needs to come up with technologies that are contextual, accessible and affordable to its citizens.

Financial technologies (FinTech) have resulted in financial inclusion and expansion of financial services to excluded and underserved population”. The pandemic has made it a necessity for businesses to go digital and minimize inContact transactions. Further, FinTech has the potential to provide affordable, convenient and secure banking services on secured digital platforms, with fewer transaction costs.

Technology and new digital tools have been playing a significant role in the productive sectors, expanding opportunities in creating jobs and widening opportunities for entrepreneurs. Digital technologies in agriculture are helping farmers to take better control of their farming operations by providing advice on water requirements, fertilizers and effective ways of managing processes such as planned farming activities, budgeting, reporting and monitoring on multiple tasks and performances. In Zimbabwean Cassava SmartTech through one of its product, [Ecofarmer](#) has been able to provide these essential services to farmers and young entrepreneurs improving the quality of yields, general agricultural efficiency and creating jobs for the youth.

The problem

While Africa is already experiencing tremendous benefits of digitalization, a robust ecosystem is required to expand digitalisation in ways that overcome existing inequities and contribute to a more equitable recovery from COVID. The use of digital technologies in COVID response on the continent accentuate key gaps that preexisted in the supportive ecosystem for digitalization. Challenges of under investments in digital infrastructure and the unbalanced distribution of ICT continue to hinder sustainable digital development on the continent and the costs related to accessing and using these technologies remain beyond the reach of many. There is a need to consolidate, adapt and integrate existing regional regulatory frameworks by member states and improve digital literacy amongst the citizens, to enable effective use of digital technologies.

Underinvestment in digital technologies and their unbalanced distribution across the continent and within countries have played a critical role in widening the inequalities in access between urban and rural populations. Research has shown a significant potential for digital innovations to directly and significantly impact poverty reduction and improving the living standards in rural areas in the developing world¹⁰. Despite Africa having the highest growth in mobile penetration across the globe, Africa remains the only continent whose digital gender gap has widened since 2013¹¹. The biases in internet distribution and access towards the urban areas and males on the continent are leaving an entire population behind and in the decade of SDGs implementation,

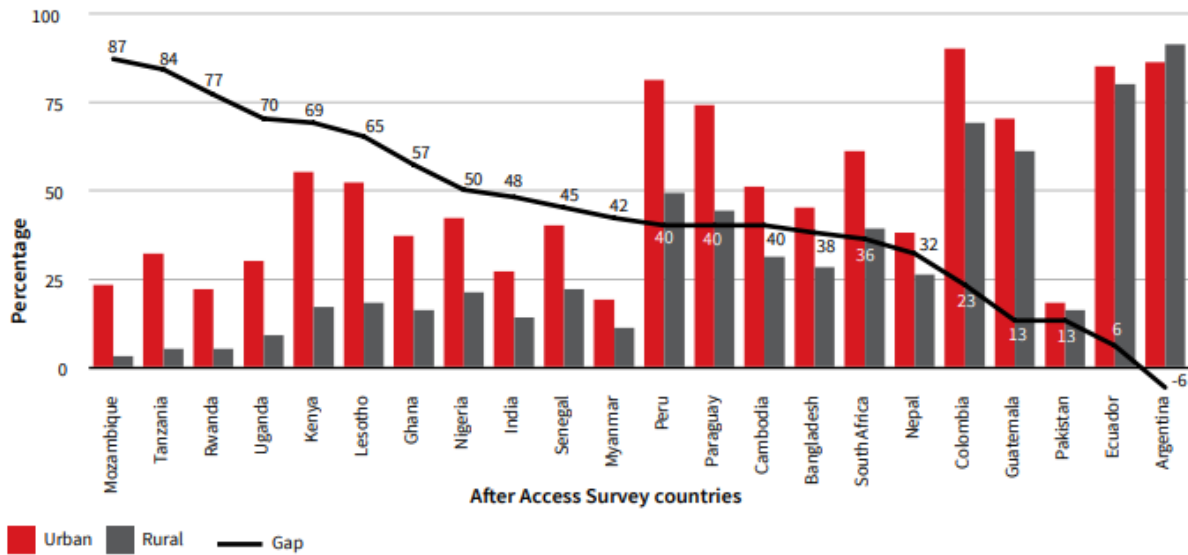
⁹ https://docs.google.com/spreadsheets/d/1ATaIASO8KtZMx_zJREoVfH0nmB-sAqJ1-CjVRSCOW/edit#gid=0

¹⁰ <https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2019/03/Henry-Bridging-the-Digital-Divide-2019.pdf>

¹¹ <https://news.itu.int/itus-approach-bridge-gender-divide/>

there is need to ensure that policies and frameworks on data governance reflect and are cognizant these marginalized groups.

Internet Inequalities between urban and rural areas in the Global South

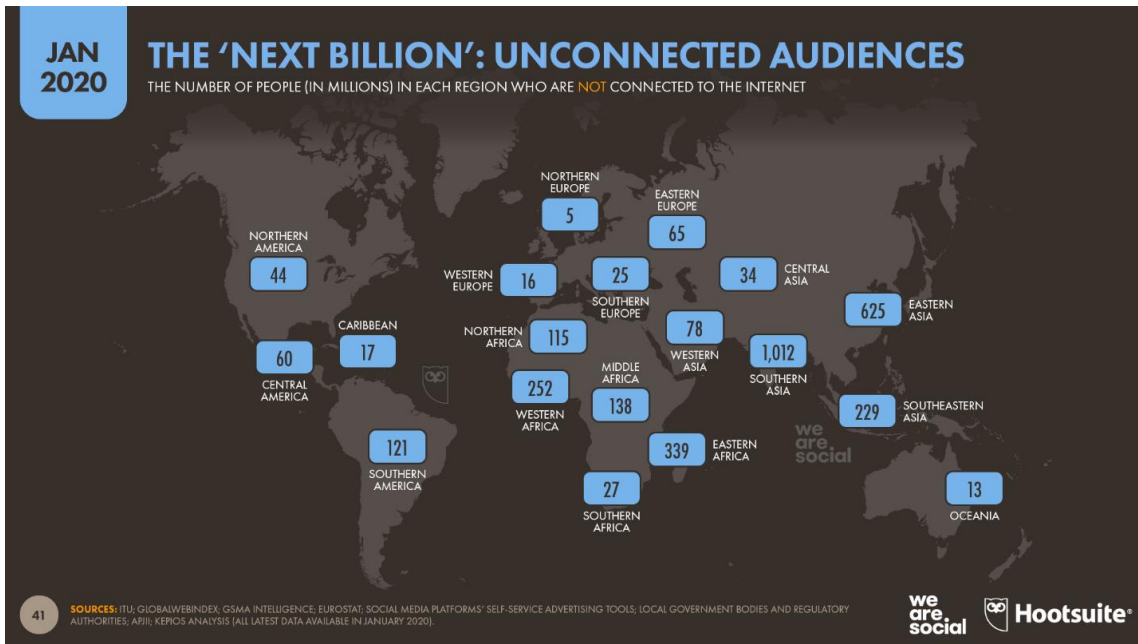


Source:

https://researchictafrica.net/wp/wp-content/uploads/2019/05/2019_After-Access_Africa-Comparative-report.pdf

A. Missing infrastructure

Despite Africa’s significant strides in connecting its citizens to the internet, it remains home to a cumulative 871 million unconnected persons. This missing internet infrastructure means few Africans have internet and this inequality heavily impacts women and young people.



Source: <https://thenextweb.com/growth-quarters/2020/01/30/digital-trends-2020-every-single-stat-you-need-to-know-about-the-internet/>

There is a risk that countries that are ill-prepared and unable to capture potential digital dividends will fall farther behind leading to growing digital inequalities by gender, economic situation and geographic location. 39.3% of Africans have internet access compared to 69.2% in the rest of the world and a global average of 58.8¹². According to the Alliance for Affordable Internet, the internet is deemed affordable when 1GB of mobile data is priced at no more than 2% of average income, Africa falls far short as 1GB costs, 8% of average income on average across the continent. In comparison, it costs 2.7% in the Americas and 1.5% in Asia¹³.

To connect the unconnected, there is need for Africa to collectively work towards an integrated network of components, inclusive of submarine cables, landing stations, satellite dishes, cross-border microwave, domain name registration, amongst others. Currently, most countries on the continent have developed access to submarine cable systems, except for the Central African Republic, Eritrea, Guinea-Bissau and South Sudan¹⁴. This expansion in internet access has accelerated the continent's digital consumption. However, if development is to be achieved at a scale that is competitive globally there is need to scale up the internet infrastructure by providing policies focused on liberalizing the market for satellite dishes and promoting competition over the international gateway and cable landing stations. To acceleration digitalization, the continent ought to facilitate the economies of scale in internet infrastructure.

Another gap in the availability of internet exchange points (IXPs) exists in Africa. An Internet exchange point is a physical infrastructure through which Internet service providers and content delivery networks exchange Internet traffic between their networks. The continent has 44 active IXPs in 32 [countries](#) making most domestic internet traffic exchanged through satellite or submarine fiber across multiple international hubs to reach their destination. This in turn negatively impacts the speed, accessibility and financial cost of the internet on the continent, slowing down the uptake of digital technologies.

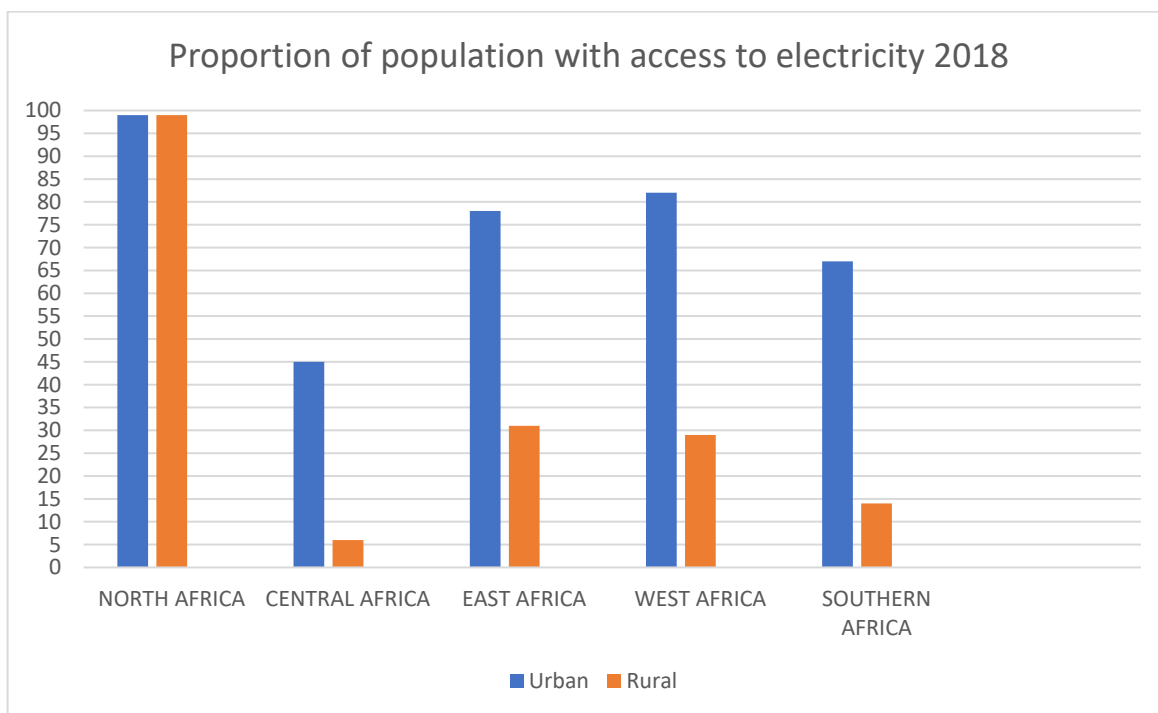
A functional digitalized system requires the requisite hosting infrastructure where dedicated data centres are in existence. [Statistics](#) have shown that Africa's data centre colocation space has nearly doubled in size since 2014. Such progress is commendable and encouraged to accelerate the digitalization and internet uptake of the continent.

Access to and availability of reliable electricity is also a major driver for the expansion of digital infrastructure in Africa. Electricity is needed for recharging devices, powering mobile base stations amongst other activities. Africa continues to battle major constraints in accessing reliable electricity. The household electrification rate in Sub-Saharan Africa remains the lowest in the world at [45%](#), being 600 million people without access to electricity and representing more than two-thirds of the global total.

¹² <https://www.internetworldstats.com/stats1.htm>

¹³ <https://a4ai.org/new-mobile-broadband-pricing-data-reveals-stalling-progress-on-affordability/>

¹⁴ Xalam Analytics. 2017. The Future of African Bandwidth Markets, May. <https://xalamanalytics.com/product/the-future-of-african-bandwidth-markets/>



Source: <https://www.iea.org/reports/sdg7-data-and-projections/access-to-electricity>

In a bid to combat this lack of internet infrastructure on the continent, the African Union with support from the World Bank Group, has set the goal of connecting every individual, business, and government on the continent by [2030](#). The envisaged infrastructural development should usher in universal, affordable, and good quality internet on the continent. The achievement of this internet infrastructural development agenda requires a 100Billion dollar investment on the continent, by governments, development partners, private sector and philanthropists. The investment is huge but with commitment, collaboration and sustainable use of resources the digital uptake gap on the continent can be closed by 2030.

B. Limited skills

The gap in skills and literacy could lock out the 11 million African youth entering the labour market every year¹⁵. If they are not digitally capacitated, they will be excluded from economic opportunities, and jobs both on the continent and globally. The 2018¹⁶ GSMA Intelligence Consumer Survey showed that a lack of literacy and digital skills was one of the most important barriers preventing consumers in Africa from using mobile internet and digital technologies compared to other world regions.

Schools in Africa continue to face challenges in integrating the use of ICT in their education curriculums as a means to improve digital skills in the population. The computer density in schools remains overstretched, with countries such as The Gambia having 277 pupils on average sharing a single computer¹⁷. Shortage of computers compounded by lack of supporting infrastructure such

¹⁵ International Labour Organization. World Employment Social Outlook: Trends. International Labour Organization. Geneva. 2018

¹⁶ GSMA. 2019. The State of Mobile Internet Connectivity.

¹⁷ <http://uis.unesco.org/sites/default/files/documents/information-and-communication-technology-ict-in-education-in-sub-saharan-africa-2015-en.pdf>.

as electricity and teacher training in ICT continues to hinder the development of digital skills on the continent.

Further, in Sub-Saharan Africa, only 29% of women are connected to mobile internet creating a gender-gap for mobile internet usage of [41%](#). These statistics create a need for digital skills specifically targeting women to capacitate and enable their effective and meaningful participation in the digital economy. More women and girls must be included in digital spaces as content creators and innovators.

To address existing inequalities content creation on digital platforms should reflect the local context in terms of languages and substance as part of the effort to increase connectivity and encourage people to be active and informed digital citizens. Further, to ensure that no one is left behind in this digitalization expansion marginalized groups including women, the poor, and rural communities, need to be specifically targeted with supportive digital ecosystem relevant and contextual to their needs, communities and environments.

There is a need to cultivate partnerships between tech companies and educational institutions to facilitate skills transfer and development bridging the gap that exists in the workforce. Employers in all sectors need to invest in employee training, retraining and career development opportunities on digital skills education.

C. Weak digital governance

Weak digital governance has negative implications on the enjoyment of rights to privacy and data security, moreover, it creates a barrier to effectively ensure equity in distribution and access to digital technologies.

While digital governance does not presently present a great challenge, measures introduced to fight COVID-19 are making use of digital and technological solutions through contact tracing and collection of medical data introduced ethical dilemmas. While these technologies are contributing to saving lives, in many countries, human rights and ethics are at risk due to the limited pre-existence of laws and regulations on data protection. The speed of digitalization to address COVID-19 has exacerbated the risks of data and digital abuse.

Rules and regulations on data protection need to be introduced with effective enforcement mechanisms. *Sensitive data and sensitive contexts* should be treated with the highest sensitivity and ensure the protection of the different groups which can potentially be impacted by misuse of such data. *Data security* is crucial in safeguarding the integrity of data collected in confidence and the relevant structures should be in place throughout the entire data lifecycle and prevent any unauthorized use, disclosure or breach of personal data. In Kenya when they introduced the biometric voting system, voters who hadn't subscribed to political texts received unsolicited messages from politicians through their mobile phone numbers accessed on the voter [register](#).

Data collected for COVID purposes must be used in a *transparent and accountable* manner. Appropriate governance and accountability mechanisms should be established to monitor compliance with relevant law, including privacy laws and the highest standards of confidentiality, moral and ethical conduct concerning data collection and use.

Emerging Solutions

Digital infrastructure

The rise of digital cities is pushing forward the frontier for digital infrastructure needed to power successful urban transitions and connect cities and rural areas across Africa. Smart cities¹⁸ in Africa are making strides in creating smarter, safer, and more sustainable cities. The Smart Africa blueprint [initiative](#) formulated by SMART Africa under the chairmanship of Rwandan President Paul Kagame¹⁹ guides the realization of this goal. Emerging smart cities include Eko Atlantic in Lagos, Nigeria; Hope and King City in Ghana; Vision City in Kigali, Rwanda; Kenya's new tech hub Konza technology city and Waterfall city in South Africa²⁰. However, these Smart City projects and initiatives remain fragmented and work as standalone projects based on their specific needs, resources, and priorities.

Cost-effective solutions for rural connectivity through investment in rural electricity mini-grids, off-grid solar, and recent technological development are expanding access in remote and rural areas across Africa. Tanzania, Ethiopia, and Kenya are leading in the adoption of off-grid solar systems. These countries collectively account for [66%](#) of all solar units sold on the continent. Expanding access to affordable energy is the foundation for the growth in the utilization of fourth industrial revolution technologies.

Beyond physical infrastructure, the rise of affordable mobile phones and internet-enabled devices increases the development and use of digital technologies in underserved communities. An example includes the Africa cellphone developed and manufactured in Rwanda by the [Mara](#) group. The cellphone was introduced with an affordable cost to encourage its use amongst the population, and the operationalization of the African Continental Free Trade Area will create a wider market for the cell phone consequently expanding the use of digital technologies on the continent.

Digital skills

Digital skills are an enabler for the adoption and use of technologies by citizens. Governments need to work with different stakeholders to establish learning platforms that are outside the conventional education system aimed at capacitating all persons regardless of educational qualifications. Non-conventional learning and formalization of non-traditional certification programmes should be encouraged to boost the number of people who take up digital and tech courses. [Storytelling](#) is being used in Kenya to inspire and encourage young people to innovate and use technology to solve problems in their communities.

¹⁸ A **smart city** is an [urban area](#) that uses different types of electronic [Internet of things](#) (IoT) sensors to [collect data](#). Insights gained from that [data](#) are used to manage assets, resources and services efficiently; in return, that data is used improve the operations across the city. This includes data collected from citizens, devices, buildings and assets that is then processed and analyzed to monitor and manage traffic and transportation systems, [power plants](#), utilities, water supply networks, [waste](#), crime detection,^[1] [information systems](#), schools, libraries, hospitals, and other community services.

¹⁹ SMART Africa is a bold and innovative commitment from African Heads of State and Government to accelerate sustainable socioeconomic development on the continent, ushering Africa into a knowledge economy through affordable access to Broadband and usage of Information and Communications Technologies.

²⁰ https://infomineo.com/african-smart-cities/#_ftn8

Digital governance

Regulatory frameworks are emerging on the continent due to the increased use of the internet. The Mauritius Data Protection Act²¹ passed in 2017, has become an important and guiding example in Africa as the law succinctly captures the model EU General Data Protection [Regulation](#) on privacy laws offering a roadmap for other jurisdictions in Africa. South Africa (2013) and Nigeria (2019) have also promulgated laws aimed at providing regulation and security on the use of data and the internet in their countries.

At the regional level, the Convention on Cyber Security and Personal Data Protection ([the Malabo Convention](#)) adopted by the African Union in 2014, comprehensively covers electronic transactions, privacy and cybersecurity²². This regional approach doesn't only improve data and digital governance, it creates a harmonized infrastructural framework thus accelerating regional integration and development. Such regional integration will encourage the use of African-based data centres, supports the outsourcing of services and the use of blockchain technology, e-government and fintech services. It also enhances the effectiveness of technologies such as Artificial intelligence and facial recognition that perform better when exposed to many users. A harmonized approach to digital governance would support internet accessibility and affordability to currently marginalized groups.

Policy Recommendations

- 1. Robust governance frameworks policies through partnerships and building on existing systems:** governments on the continent need to strengthen and encourage participatory engagements with stakeholders to encourage local and international partnership and investment to developing the necessary infrastructure for meaningful, impactful, accessible and affordable digitalization on the continent.
- 2. Promote agile, digital mindsets for policymakers to facilitate a robust, smooth and efficient introduction of digital technologies not only for Covid-19 response but for life post-COVID in the digital era:** agility is becoming a pre-requisite for governments world over especially in Covid-19 response. The pandemic has remained an elusive phenomenon which requires prompt technological and digital skills. Governments on the continent need to adopt the correct mindset.
- 3. Financial investment in digital infrastructure and skills:** there is need for a crop of leaders who have the necessary skills and drive to invest in the relevant digital infrastructure, skills and knowledge to be able to respond to Covid-19 and beyond while ensuring the realization of both agendas 2030 and 2063 to leave no one behind.
- 4. Encourage collaboration across borders into the international sphere:** Going forward the ideology in digitalization should go beyond country borders but incorporate a regional integration that will work as an enabler of sustainable digital expansion. Also, speak to infrastructure development.
- 5. Ensure human rights and ethics guide the development and implementation of digitalisation policies to protect citizens and ensure equitable access to digital technologies (leave no one behind):** Covid-19 has demonstrated the need for such approaches to ensure the protection citizens especially in times of crisis.

²¹ *Mauritius Data Protection Act of 2017*. Data Protection Office, Mauritius available at <http://dataprotection.govmu.org/English/Legislation/Pages/Data-Protection-Act-2017-.aspx>.

²² Currently the Malabo Convention has been signed by only 14 states and ratified by five countries out of 55 African Union member states

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