



Food and Agriculture Organization  
of the United Nations

# Gender-responsive digitalization

A critical component of  
the COVID-19 response  
in Africa





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**Digital Moisture Meter**

**OPERATING INSTRUCTIONS**

1. Place the sample in the sample chamber.
2. Press the power button to turn on the device.
3. Press the mode button to select the measurement mode.
4. Press the start button to begin the measurement.

1 2 3 4

MO-10 PORTABLE DIGITAL MOISTURE METER  
MOISTURE RANGE: 0% - 100% (WET BASIS) 10% - 50% (DB)  
200g Capacity

CE

Shaw of Manufacturing 15 Jan 10  
27 Riverside Park Drive, Singapore City, Singapore  
Pty. Limited (MO) and its subsidiaries in other regions.  
Key 1: Power On/Off Key 2: Power On/Off Key 3: Mode Key 4: Start

## ► Introduction

Digital technologies, services, products and skills are transforming modern economies and entire systems of production, management and governance (Brennen and Kreiss, 2014). In the context of agricultural and rural development, digitalization<sup>1</sup> can offer various value propositions and have a positive impact on activities, processes and stakeholders at different levels (OECD, 2018).

The COVID-19 pandemic and the measures taken by governments on social distancing and mobility restrictions have contributed to boosting the use of digital technology to bridge some of the physical access gaps. An increasing number of services and extension/information activities are delivered through digital tools and applications. E-commerce has also flourished. As a result, the potential of digital technologies has gained prominence in immediate response and recovery strategies and programmes.

Digital technologies and solutions can be grouped into digital networking-based solutions and mobile applications; remote sensing-driven solutions; big data, cloud, analytics and crop modelling; artificial intelligence (AI) applications; Internet of things (IoT); robotics, drones and intelligent automation; quantum computing and distributed ledger technologies, including blockchain.

However, the rapid proliferation of digital tools and services stands in stark contrast to the many systemic and structural barriers to technology access and adoption that many people in rural Africa still face. Despite significant growth in information and communication technologies (ICT) and digitalization for agriculture<sup>2</sup> (D4Ag) in sub-Saharan Africa (SSA) over the last ten years, progress has been somewhat slow in serving African smallholders, particularly women (CTA, 2019).

Gender inequalities, intersecting with and compounded by other social differences such as class, race, age, (dis)ability, etc., shape the extent to which different rural women and men are able not only to access but also use and benefit from these new technologies and ways of delivering information and services. It is therefore critical to understand – by means of gender and intersectionality analyses – and address the existing gender digital gap when designing, planning, and delivering COVID-19 response programmes. This will also be the starting point for fully leveraging the potential of digitalization to advance gender equality and women's empowerment in building back better.

This brief aims to raise questions and highlight ways in which digitalization can be made gender-responsive and contribute to effective COVID-19 response. It also provides an overview of the digital gender gap in SSA and implications for FAO's response and work.

<sup>1</sup>The Organisation for Economic Co-operation and Development (OECD) defines digitalization as the use of digital technologies, data and their interconnection, resulting in new activities or changes to existing activities.

<sup>2</sup> According to CTA, Digitalization for agriculture (D4Ag) is "the use of digital technologies, innovations, and data to transform business models and practices across the agricultural value chain and address bottlenecks in, *inter alia*, productivity, postharvest handling, market access, finance, and supply chain management so as to achieve greater income for smallholder farmers, improve food and nutrition security, build climate resilience and expand inclusion of youth and women."



## ► Digitalization in sub-Saharan Africa: challenges and opportunities

Digitalization can potentially pave the way for improving the efficiency and functioning of food systems, which in turn can have positive impacts on the livelihoods of women and men farmers and agripreneurs, for example, through the creation of digital job opportunities for young women and men in rural areas. In this sense, an increasing number of solutions are being developed to improve the livelihoods and resilience of farmers by taking advantage of the decreasing cost of digital technologies. For example, satellite observation and geodata are being leveraged to create new solutions for supporting social protection and financial service provision, as in the case of the M-Pesa<sup>3</sup> service in Kenya that reached 65 percent of Kenyan household in 2009 after its introduction in 2007, and to produce early warning systems for pest and disease threats (FAO, forthcoming). At farm level, the application of specific digital technologies can lead to positive impacts on productivity, improve farmers' incomes and livelihoods and make farmers more resilient to the effects of climate change (International Bank for Reconstruction and Development and World Bank, 2019). For example, digitalization through mobile technologies can connect farmers to supply chains, service provision, and directly to markets and consumers, maximizing profitability by avoiding intermediaries. That was shown in the case of a recent review of pilot e-voucher programmes for subsidized farm inputs in Guinea, Mali, and Niger. The review highlighted several lessons from implementation of these types of programmes, including the importance of mobile network coverage; the actual possession of mobile phones by the intended beneficiaries, particularly women; the need to promote literacy and knowledge about how the programme works; and the organization of procurement and agrodealers to ensure availability of farm inputs at the right time of the agricultural season (International Bank for Reconstruction and Development and World Bank, 2019).

Overall, however, the adoption of digital solutions among small-scale producers is still low, especially among women, which can contribute to their exclusion from recovery efforts based on digital technologies. For example, mobile financial services have grown considerably, allowing governments and startups to perform significant volumes of digital transactions. Data show that after the COVID-19-related lockdowns began, daily app downloads in the financial technology (fintech) category has jumped by about 30 percent above their pre-lockdown baseline, with Africa witnessing a sizeable increase in this regard (Fu and Kelly, 2020). Yet digital financial services remain a challenge for many, especially for poor and illiterate women. While the overall number of people outside the purview of

<sup>3</sup> M-Pesa is Africa's most successful mobile money service and the region's largest fintech platform. M-Pesa is the preferred way to make payments across the continent, both for the banked and unbanked because of its safety and unmatched convenience. It also provides financial services to millions of people who have mobile phones but do not have bank accounts, or who only have limited access to banking services.



the formal financial sector has decreased from 2.5 billion in 2011 to 1.7 billion in 2017, women still account for 56 percent of those excluded worldwide (Bill and Melinda Gates Foundation *et al.*, 2020). Additionally, the gender gap in digital financial inclusion, including in D4Ag, is not well documented, hence addressed.

Digitalization in Africa is also hampered by structural challenges, such as access to electricity, Internet connectivity, poor or weak infrastructure, policy environment and regulations, and the limited ability of individuals to use the digital solutions. It is worth noting that nearly 300 million Africans live further than 50 km from a fibre or cable broadband connection. Hence the lack of widespread availability of broadband Internet also represents a major hurdle, particularly for people living in rural and remote areas, to fully harness the potential of digital transformation (African Union, 2020).

Moreover, wide disparities and differences exist across the continent and within countries. Countries such as Kenya rely heavily on digital, mobile-based technologies for any kind of financial transaction while many other countries rarely use and offer these services.

## ► The digital gender gap in Africa: facts and figures

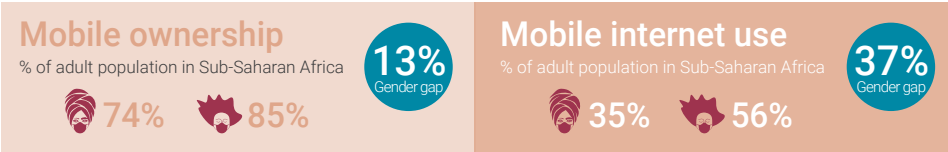
Beside the potential of digital tools and applications, the COVID-19 crisis has evidenced the existing digital divide and especially the gender gap. It is estimated that 3.6 billion individuals are not connected to the Internet across the globe, including 900 million in Africa. Only 27 percent of women in Africa have access to the Internet and only 15 percent of them can afford to use it (European Investment Bank, 2020).

SSA is the fastest growing region in terms of Internet connectivity, with a compound annual growth rate (CAGR) of 4.6 percent and an additional 167 million projected subscribers by 2025, which will take the total subscriber base to just over 600 million, that is, approximately half of the total population (GSMA, 2019).

SSA has also one of the widest mobile gender gaps in the world. Over 74 million women are not connected. The Internet penetration<sup>4</sup> rate in 2019 was 33.8 percent for men and 22.6 percent for women (GSMA, 2019). The Internet user gender gap was 20.7 percent in 2013 and up to 37 percent in 2019. The gender gap in mobile ownership was 13 percent, a reduction from 14 percent in 2018; however, in low- and middle-income countries it remains substantial with fewer women than men accessing the Internet on a mobile. Furthermore, women are less likely to use digital services or mobile Internet and tend to use different mobile services than men (Malabo Montepellier Panel, 2019).

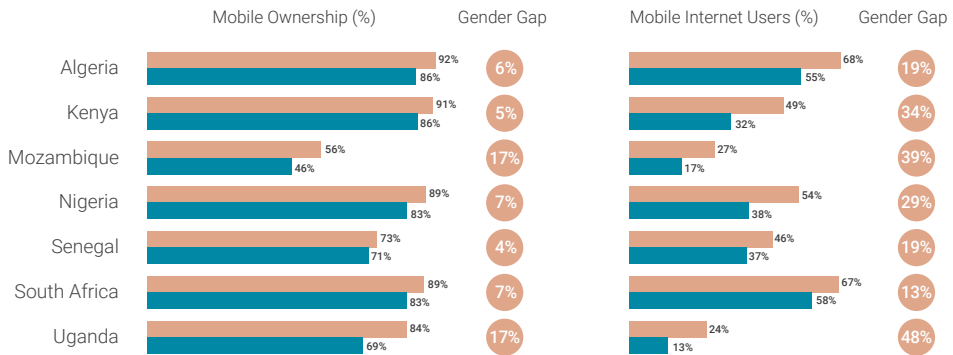
<sup>4</sup> The Internet penetration rate refers to the number of women/men that use the Internet, as a percentage of the respective total female/male population.





There are also important differences across various countries as evidenced in the figure below.

$$\text{Gender gap in ownership / use (\%)} = \frac{\text{Male owners / users (\% of male population)} - \text{Female owners / users (\% of female population)}}{\text{Male owners / users (\% of male population)}}$$



Source: The Mobile Gender Gap Report 2020 and ITU World Telecommunication/ICT Indicators database

In addition to variations among countries, there is also a significant gap between rural and urban areas. For example, in Uganda the urban gender gap in mobile ownership is 4 percent while the rural gender gap is 22 percent, more than five times that of urban areas. In Senegal, women in urban areas are 11 percent less likely than men to use mobile Internet, compared to 32 percent in rural areas (GSMA, 2020).

While digital skills are fundamental for participation in today's information society and correlate positively with social well-being and agricultural productivity; data from the International Telecommunication Union (ITU) and other cross-nationally comparative data sources show that there are considerable gender gaps in the skills needed at all levels.

A recent report by the Technical Centre for Agricultural and Rural Cooperation (CTA, 2019) shows that in most countries, the primary barriers for women are cost/unaffordability followed by illiteracy and lack of digital skills. At 65.4 percent, Africa has the lowest literacy rate in the world for people aged 15 and above compared to the global average rate of 86.4 percent (World Bank, 2020).

A lack of awareness of mobile Internet is also a key barrier to the use of the Internet,



including for those who have no other financial or social reasons to prevent them from using mobile Internet. Other challenges include digital data unavailability; gaps on data ownership; insufficient capacity for digital data collection, analysis and use; lack of digital data harmonization (integration and disaggregation); and limited guidance tools and methodologies for agrifood systems data.

The African Union (AU) gender strategy further highlights critical constraints related to cultural and social norms that prioritize boys when it comes to use of technology at home, as well as online gender-based violence, restrictions to movement and limitations to access devices, more generally (African Union, 2019). Social norms form an underlying barrier that is still concealed within other more commonly cited obstacles to women's access to and use of mobile technology.

Finally, the lack of relevant content and women's participation in sectoral decision-making fora and in the technology sector more specifically, along with the absence of relevant policies, constitute more generally systemic barriers for equal access to ICT and technology.

## ► Addressing the digital gender divide and gender inequalities in COVID-19 response

As African countries adapt to the effects of the COVID-19 pandemic and prepare to roll out recovery plans, it is important to promote inclusive, gender-responsive digitalization to accelerate the transformation of agrifood systems in Africa, as highlighted in the implementation of the FAO regional innovation strategy (FAO, forthcoming).

A gender-responsive and inclusive approach to D4Ag requires significant actions by governments to detect and address the existing gender inequalities that affect rural women and girls disproportionately, and to establish enabling policy frameworks and incentives for the private sector. The African Union Commission (AUC) is currently coordinating the development of the Digital Transformation Strategy for Africa to guide a common, coordinated digitalization agenda and enhance synergies among member countries.

Based on FAO's work on promoting ICTs and E-agriculture, in 2018 FAO developed the following success factors to empower rural women through ICTs (FAO, 2018):

**In Nigeria, 40% of women who did not own a mobile phone identified illiteracy as a key barrier to ownership, compared to only 22% of men.**

**Only 45% of women (against 62% of men) are aware of mobile Internet, precluding Internet use for over half of the population.**

CTA, 2019





## Seven success factors to empowering rural women through ICTs

### 1. Adapt content so that it is meaningful for them

Content should be adapted to local languages and repackaged to suit formats that meet the different information needs.

### 2. Create a safe environment for them to share and learn

Digital literacy in rural institutions and communities should be developed and enhanced, taking into consideration local needs and constraints by providing appropriate learning opportunities.

### 3. Be gender-sensitive

Gender inequalities remain a serious issue in the digital economy, as does the gap between urban and rural populations.

### 4. Provide them with access and tools for sharing

Rural women have less access to ICTs – phone, laptop, Wi-Fi – because they are confronted with social norms, live in unconnected areas, and are usually poor.

### 5. Build partnerships

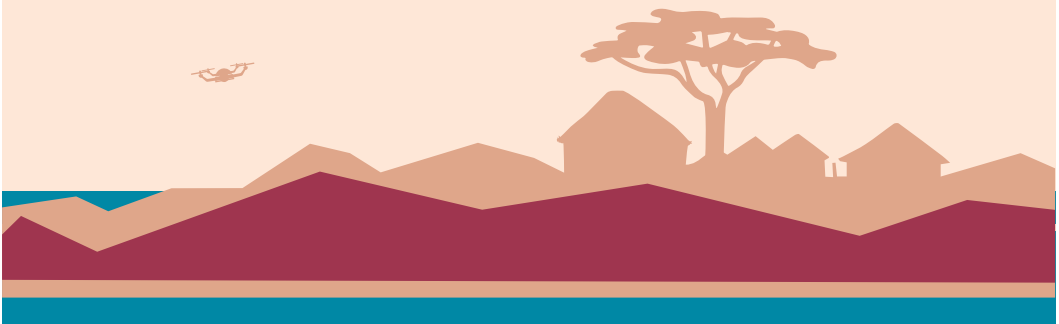
Identifying the right mix of technologies and strategies that are gender-sensitive and suited to local needs is critical to increasing farm efficiency and revenues.

### 6. Provide the right blend of technologies

Blended approaches, such as a combination of radio and telephone, should better serve different users and contexts.

### 7. Ensure sustainability

Promote an inclusive approach that targets both women and men and the community to ensure awareness, recognition and support of the importance of women's use of ICTs.





Building on the above, gender-responsive digitalization in COVID-19 response and beyond could include the following:

- ▶ Improving the availability of sex-disaggregated data and gender-related statistics that capture digital gender gaps in rural areas to better inform policy and business decisions to address these gaps, set targets, and track progress.
- ▶ Promoting an enabling environment that includes gender-responsive policies, strategies and initiatives, based on solid gender and intersectionality analyses, to stimulate and accelerate D4Ag.
- ▶ Leveraging digital solutions to deliver COVID-19 relief measures targeted to rural women and girls and facilitate their access to social protection services and alternative income-generation opportunities.
- ▶ Dedicating funds for digital acceleration to support women-led enterprises (individual, but also family-run) or cooperatives to help them survive the COVID-19 crisis.
- ▶ Improving the national broadband coverage to ensure affordable, accessible and reliable infrastructure for inclusive digital transformation, particularly to allow access for rural women and girls to affordable Internet and mobile technology.
- ▶ Investing in the protection of Internet users, especially illiterate and vulnerable ones, against frauds and abuses as cybercrime, including sexual harassment, is reported to have increased during the COVID-19 pandemic, especially toward women and girls (UN Women, 2020).

The regulatory role of governments (at local, national, regional, and international levels) is crucial in addressing infrastructural barriers, harmonizing and making the regulatory environment inclusive and gender-responsive, and in protecting all stakeholders from fraud and crime.

Furthermore, the Sustainable Development Goals (SDGs) can guide the discussion on the priority investments in digitalization. All digital tools and services could be evaluated based on their (i) accessibility and potential for leaving no one behind; (ii) ability to lead to jobs and provide equal opportunities for girls and boys to find jobs and have a career in ICT, and for more girls to enter science, technology, engineering and mathematics (STEM); and (iii) ability to close the digital gender gap between men and women, rural and urban users. Making the services affordable and building the needed capacity, including financial literacy, will be an important stepping stone for closing the gender gap.

The G20 High-Level Principles for Digital Financial Inclusion and the FAO success factors for empowering rural women through ICTs could provide an example for elaborating an SSA initiative on gender-responsive digitalization for agriculture. This would be aligned with the African Union Gender Policy and Strategy priority area on digitalization and guide the above suggestion to develop a multistakeholder high-level dialogue on principles, cooperation and action.

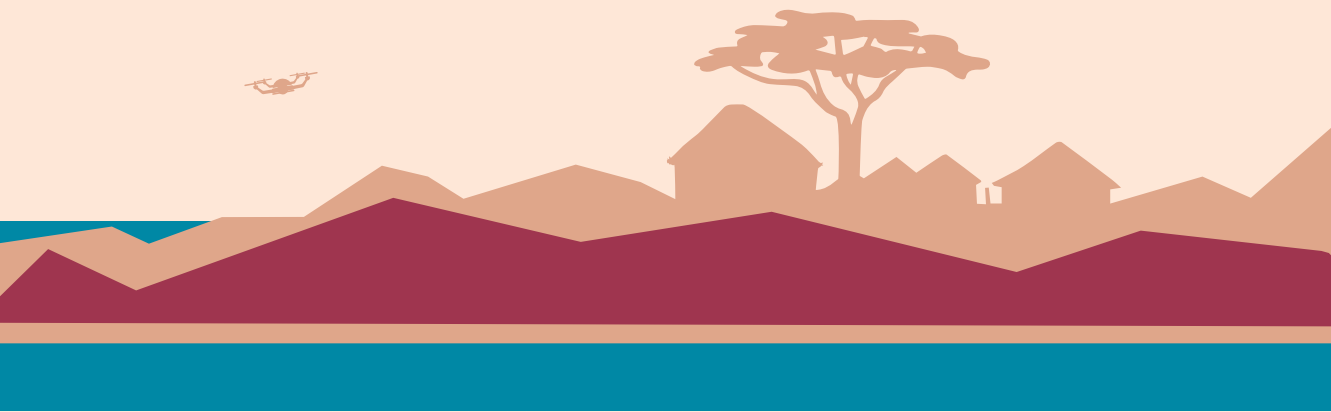


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